

## **9.0 COMMUNITY RESOURCES**

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### **9.1 Land Use**

#### **9.1.1 Existing Land Uses**

##### **9.1.1.1 Commercial Forestry**

The entire project is sited on land that has historically been, and is actively utilized for forest management. The land in the project area is currently owned and actively managed by Plum Creek. Due to the site's historical use for commercial forestry, the site landscape features a diverse array of forest cover types and ages. Access roads that have been built to accommodate timber harvesting are also a dominant feature of the landscape, including both active and abandoned roads.

Although not formally designated for recreational use, these commercial forestlands are accessible under an open access policy for recreation, including hunting and fishing. Recreational uses are discussed in greater detail in Section 9.4. Those traveling through or accessing the project site, especially during weekdays, must utilize care due to the active logging truck traffic through site roadways.

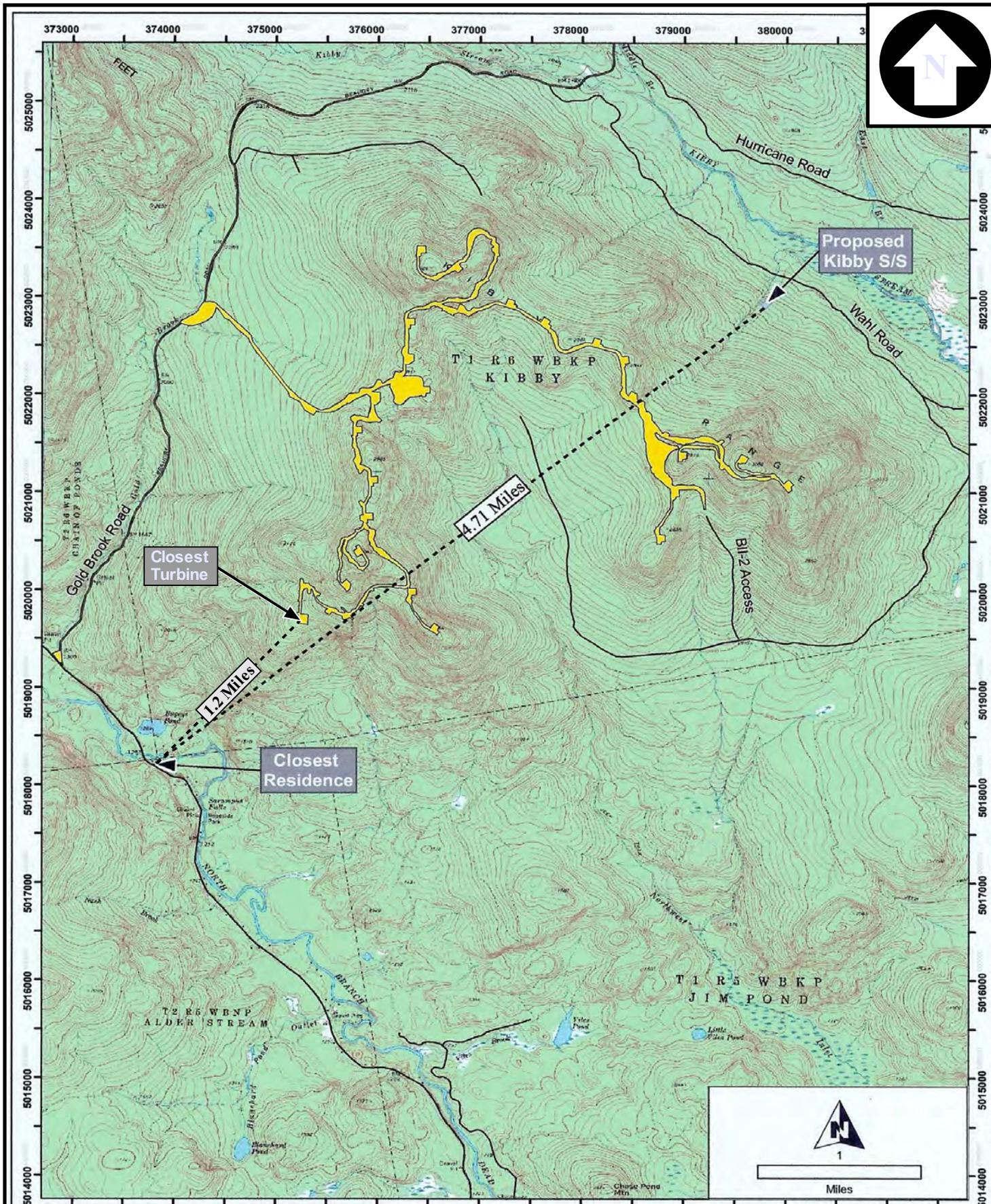
Commercial forestry is the primary land use in the area surrounding all elements of the project, including the proposed 115 kV transmission line (which will be addressed in greater detail in Volume V). Kibby, Skinner, Jim Pond, Coplin Plantation and Wyman Townships are primarily utilized for forestry, as is most of Eustis Township.

##### **9.1.1.2 Commercial/Industrial**

There are no commercial or industrial land uses presently within the project area, except those associated with commercial forestry operations. With the exception of the communities of Stratton and Eustis, lands within the townships in the project area are entirely owned and controlled by forest management companies. The small population centers in Eustis and Stratton are located approximately 8 and 13.5 miles (12.9 and 21.7 km), respectively, from the Kibby Wind Power Project turbines. Existing commercial and industrial land use is scattered along Routes 16 and 27 in Stratton and Eustis, including forest management support services, gravel processing, and construction supply services, especially in relation to road construction and maintenance activities. Small retail centers in Stratton and Eustis villages also include stores, restaurants and lodging.

##### **9.1.1.3 Residential**

There is no permanent residential land use on the project site or immediate vicinity. The majority of nearby land is forested and does not include residential uses. The closest residence is located approximately 1.2 miles (1.9 km) southwest of the nearest proposed turbine location (Figure 9-1). There are a number of seasonal camps along Route 27 in the general project



**Legend**

- Proposed Wind Turbine and Road Construction Area
- Road

Notes: Base map: USGS 24k Topographic Map.  
 Coordinate Grid: NAD83 UTM Zone 19N, Meters

**SOURCE: E-PRO**



**SITE AREA MAP**

**KIBBY WIND POWER PROJECT  
 FRANKLIN COUNTY, MAINE**

**FIGURE 4**

**PROJ. NO. 1760**

vicinity between the project area and Eustis, but year-round residences are limited in this area. A seasonal camp is located approximately 2 miles (3.2 km) north of the project site, on the west side of Kibby Mountain. There are also several seasonal camps along the Chain of Ponds. Seasonal camps and year-round residences are found in much higher density in Eustis, starting approximately 8 miles (12.9 km) from the project area. Much of the residential development in Eustis is along Route 27 or on side roads off of Route 27. Several of the more significant residential areas in Eustis are found in the areas near Tim Pond Road, Eustis Village, Eustis Ridge Road, and in Stratton.

### **9.1.2 Land Use Compatibility**

#### **9.1.2.1 Immediate Site Vicinity**

The project is compatible with the prevailing land use and will remove only a relatively small amount of land from commercial forest management. The only direct loss of land available for commercial harvesting includes the areas associated with the wind turbines, new access roads, the 34.5 kV power collection lines, the Kibby substation, the 115 kV transmission line (discussed in Volume V), and the service building. The agreement with the landowner includes payment for the use of land associated with these features for the purposes of a wind power project. The project will result in the permanent conversion of approximately 97 acres of commercial woodlands to wind power generation.

All merchantable timber removed to accommodate the project construction will be available for processing and sale by the landowner and will be done in accordance with existing forestry practices. In addition, improvements to the existing access road network and the construction of new roads will enhance the landowner's access to and management of their forest land. Planned improvements to Gold Brook Road will also benefit the general public, improving access to Kibby and Skinner Townships, and improving road safety for both private and public users of this road.

Construction logistics may also temporarily affect existing forestry operations. TransCanada will closely coordinate with the landowner and other commercial logging interests that use Gold Brook Road with regard to equipment movement and various construction activities. Once construction is complete, the project will have only minimal effect on existing use of the site. Commercial forest harvesting will continue, with the area permanently lost for this purpose extremely small when compared to the area available for continued forestry operations. As previously noted, access will be improved. This can benefit both commercial uses at the site, as well as those utilizing the area as a through-route and those accessing the site for recreational enjoyment. The Kibby Wind Power Project will not place restrictions on the use of the property consistent with open access policies that govern the use of the land.

A key consideration in the initial site selection process was that the project should be compatible with the present land uses. TransCanada believes this is the case for the Kibby Wind Power Project due to the following:

***Predominant Traditional Use is Commercial Forestry*** – Due to the nature of the wind resource in this part of the country, the project’s wind turbines need to be located along the ridgelines of hills and mountains (as discussed in Section 2.1). Location of the project on the ridgelines places it where timber harvesting is less likely due to permitting restrictions. The area permanently lost due to turbine and new road construction is minimal when compared to the area available for harvesting.

***Extensive Network of Access Roads*** – The primary access to the project area is Gold Brook Road and several well-maintained secondary haul roads, such as Wahl Road, Spencer Bale Road, Hurricane Road and others. The recent logging activity has resulted in a large number of spur roads also being installed, most of which continue to be in reasonable condition.

***Recreational Use of the Area is Low and Can be Continued*** – The recreational use of this area is relatively low. There are major and popular recreational use areas in the region, but these are located well away from the project facilities.

***Soil Suitability*** – TransCanada has taken care to minimize the amount of soil disturbance that would result from the project. None of the facilities have complex foundation requirements or place an unusual burden on soil systems. As discussed in Section 5.6, the possibility of encountering cryic soils at the higher elevations has been addressed through careful construction planning.

***Wildlife*** – Extensive field investigations of wildlife, including songbird and raptor species, and their habitats was undertaken. The location of project facilities was planned to avoid any unique wildlife habitats. The results of TransCanada’s impact assessments indicate a minimal potential for adverse effects on wildlife populations. A program of post-construction monitoring is planned, as outlined in Section 2.6.1.

***No Air or Water Pollution, No Significant Solid Waste Disposal*** – Wind energy facilities produce no air emissions and use only incidental amounts of water for their operations. Rather, the operation of the project will displace emissions that would have been generated by fossil fuel-fired facilities. The project’s annual solid waste stream will be very small.

### **9.1.2.2      *General Project Area***

One of the primary siting criteria for this project was to locate it outside of any residential zone, or any unique or sensitive recreational areas incompatible with the proposed use as a wind farm. The closest residential property in relation to the wind turbine facilities is approximately 1.2 miles (1.9 km) away. The closest more dense residential development is the significantly more distant Eustis/Stratton area. Further, as discussed in Section 9.4, the project area experiences a relatively low level of recreational use and does not contain unique recreational resources. By siting the project solely on private commercial forestry land, the site is well-buffered from residential land uses. Existing topography in the area acts as a visual screen to also limit potential views of the area to a great degree. According to the visual analysis in Section 9.6, the project will not result in any undue adverse aesthetic impacts. The project

ridgelines are difficult to see generally, and views of the major project elements will be limited, and generally quite distant. This visual impact will not cause any changes in existing use.

None of the existing commercial or industrial facilities will be adversely impacted by the project, given their distance from the project site. They will, however, be positively impacted by increased business created by project construction and its ongoing operation and maintenance.

## **9.2 Socioeconomics**

### ***9.2.1 Description of Local and Regional Characteristics***

The project is located in portions of Kibby, Skinner, and Chain of Ponds Townships, in Franklin County. The most proximate incorporated town is Eustis/Stratton, approximately 8 miles (12.9 km) away. Because Kibby, Skinner and Chain of Ponds Townships do not include population centers or development, information in this section is focused on socioeconomic data for the town of Eustis/Stratton, and regional data for Franklin County.

Since the vast majority of land in the project vicinity is owned by private forest management companies, the dominant businesses are logging and the processing and manufacturing of wood products. The region is generally rural in nature, with Routes 27 and 16 serving as the only state highways linking the area to eastern or southern Maine. Route 27 also passes northwest into rural areas of Quebec, Canada. The recreational attractions of Sugarloaf USA ski area, Flagstaff Lake, the Dead River area, the Bigelow Range and the Appalachian Trail offer business opportunities for retailers and service industries nearby. The area's low population results in a small and limited regional economy.

### ***9.2.2 Description of Existing Local Services***

The regional economy has historically been dominated by timber harvesting and wood products processing. Recreation and tourism-related retail and service industries are also well established, with the Sugarloaf USA ski area, approximately 22 miles southeast of the area acting as the primary catalyst for these businesses.

Franklin County has a population of 29,467 based on 2000 United States Census data. The estimated 2005 population is 29,704 residents, an estimated increase of 0.8 percent. Between April 2004 and July 2005, Franklin County saw a population increase of 0.4 percent in contrast to a state-wide population increase of 0.9 percent. The Franklin County population change between 1990 and 2000 was 1.6 percent. For the same time period, the state population increased by 3.8 percent. According to the Unorganized Territory Annual Report for Fiscal Year 2005 (the 2005 UT Report), the northern portion of Franklin County that includes 16 townships, including the project area, had a population of 41 people in 2000.

The town of Eustis/Stratton has a population of 673 residents based on 2000 United States Census data. The estimated 2005 population is 685 residents, an increase of 1.7 percent. Eustis/Stratton contains 278 households with a total labor force of 348. Franklin County reported 11,806 households.

Franklin County suffers from chronic high unemployment due to the lack of an established employment base and the preponderance of seasonal employment opportunities. Based on United States Census data, the median income of Eustis/Stratton residents is \$28,000, while the median income for Franklin County as a whole is \$31,459. The current average unemployment rate in Franklin County is 5.6 percent, well above Maine's average of 4.3 percent (Maine Department of Labor 2006). Since 1990, the unemployment rate in this area has exceeded the state average (Maine Department of Labor 2006). Moreover, according to a recent report to LURC, the Rim Region, which includes Kibby, Skinner and Chain of Ponds Townships, has a disproportionately small share of the state's earnings and employment relative to its population. The report concludes that, "the LURC-related economy provides fewer jobs per resident than the economy of the rest of the state and the earnings made in those jobs are less than those made in the rest of the state" (Planning Decisions, Inc. 2006). That report also points out that employment and earnings in interior Maine, including Franklin County, have been stagnant for over a decade. This has led to a large number of LURC households living below the poverty level.

The primary reason for this poor economy in recent years is the steady decline of Maine's manufacturing and natural resource-based industries. From 1970 to 2004, Maine lost 62,000 jobs in manufacturing and resource-based industries, with rural areas like those in Western Maine absorbing the bulk of the losses. Since 1990, the forest products industry – a significant component of Western Maine's traditional economy – shed 9,000 jobs statewide (The Brookings Institute 2006).

The Eustis/Stratton town government organization follows a direct town meeting format, where the legislative body is made up of elected town meeting representatives. The town also has three elected selectmen. There is one elementary school in the town, Stratton Elementary School. The elementary school has an enrollment of 115 students and serves grades kindergarten through eight. The high school serving Eustis/Stratton residents is the Mt. Abram Regional High School in Strong, Maine. The high school enrollment is 307 students.

Local emergency services include police, fire, and ambulance services. The town of Eustis/Stratton is served by both the Franklin County Sheriff's office and the Maine State Police at all times. Duties are regionally divided among the two departments. On an alternate weekly basis, one department serves the northern half of the county and the other, the southern half. The Eustis/Stratton fire department has one fire station, a volunteer fire chief, and 15 volunteer firefighters. The United States Forest Service also provides response to forest fires in the area. The closest hospital to the town is Franklin Memorial Hospital in Farmington, Maine at a distance of about 45 miles (72.5 km). The next closest hospital is Rumford Hospital in Rumford, Maine, approximately 50 miles (80.5 km) away. Ambulance service for the town is provided by Franklin Memorial Hospital. Due to the town's distance from the hospital, an ambulance is stationed in Carrabassett Valley, 15 miles (24.2 km) from the town center.

### **9.2.3 Project Construction and Operating Personnel Requirements**

Project construction will involve both specialized and general types of construction activity. Approximately 250 people will be employed to construct the entire Kibby Wind Power Project. TransCanada will work with its construction contractors to ensure local resources are used to the extent available.

Approximately 10 permanent employees will be needed locally to operate and maintain the project and its associated infrastructure.

### **9.2.4 Project Need for Services**

The Kibby Wind Power Project will not require the use of significant local services. Water use and discharge requirements will be minimal, and accommodated on-site.

It is anticipated that construction workers will be generally available in the region. Given the duration of the work effort, it would be unlikely that families would relocate to the project area as a result. Therefore, no significant new demand on the local school system would result. The number of permanent employees would similarly not result in a significant new stress on the local education system.

TransCanada's workers conduct activities under a structured safety program, minimizing the potential for unanticipated incidents during construction and operation. TransCanada will work closely with the Eustis/Stratton fire department to ensure adequate emergency response capability is maintained and trained specifically for the needs of the project.

Given the nature of the project, potential impact to local services is anticipated to be minimal, except for demand for lodging, food and sundries for the workforce during construction.

### **9.2.5 Economic Effects of the Project**

According to the DOE, wind energy provides more jobs per dollar invested than any other energy technology (DOE 2006). The Commission is currently exploring this issue in conjunction with its 2007 CLUP revision. During its October 4, 2006 regular monthly meeting, the Commission heard from an economic development consultant (Tilton 2006) that renewable energy is a "promising area" for economic development in rural LURC areas.

An economic analysis has been conducted for TransCanada by Charles Colgan, PhD, (Professor of Public Policy and Management in the Muskie School at the University of Southern Maine, and former Maine State Economist) using an econometric model of the Maine economy maintained by the University of Southern Maine Center for Business and Economic Analysis and developed by Regional Economic Models Inc. (REMI) of Amherst, Massachusetts (see Appendix 9-A). The REMI model is a widely used economic forecasting and impact estimation model which has been used by the Center for Business and Economic Research for about 15 years. It has been used by the State Planning Office more than 25 years, and is also used by public and private organizations throughout the country. The University of Southern Maine

version of the model incorporates seven regions within Maine; total effects in Maine are the sum of impacts in all regions.

The impacts are estimated by comparing two forecasts of the regional economies. One is a “baseline” forecast without the project; the other is a forecast with the employment associated with the project included. The impacts are the differences between the two forecasts. The forecasts include a calculation of the purchases of goods and services by the project from all other industries within the region and from within Maine.

This analysis is conducted at a regional level and provides a broad picture of the economic impact of the project. It should be noted that a substantial portion of the impacts will occur in the local economy in the northern Franklin County region, particularly during the construction period. This type of project will require large numbers of specialized construction personnel who will be located in the region for varying periods of time during the construction project. While the exact level of spending cannot be estimated without detailed information on the number of days that construction personnel will spend in the region, the project will result in substantial sales by the lodging, restaurant, and retail industries during the construction period in towns such as Eustis and Stratton.

Table 9-1 provides a summary of estimated construction impacts (including construction workers), plus the wages and salaries generated, as calculated for Maine as well as for the three-county region where much of the employment and other impact would be expected to occur.

**Table 9-1: Economic Impacts of Kibby Wind Power Project Construction Employment**

		Employment		
		Directly Employed by Kibby <sup>1</sup>	Indirect & Induced Impacts <sup>2</sup>	Total
Annual Impacts	Androscoggin-Franklin-Oxford Counties	200	70	270
	Maine		30	300
Total 2-Year Impacts	Androscoggin-Franklin-Oxford Counties	200	70	270
	Maine		30	300
		Wages & Salaries (\$Millions) <sup>3</sup>		
		Directly Employed by Kibby	Indirect & Induced Impacts	Total
Annual Impacts	Androscoggin-Franklin-Oxford Counties	\$7.50	\$0.82	\$8.32
	Maine		\$0.83	\$9.15
Total 2-Year Impacts	Androscoggin-Franklin-Oxford Counties	\$15.00	\$1.64	\$16.64
	Maine		\$1.66	\$18.30

<sup>1</sup> Estimated by TransCanada.  
<sup>2</sup> Estimated by REMI model.

The economic impacts of construction projects are somewhat different than the economic impacts of ongoing operations. Because of their relatively short duration, construction projects do not result in the creation of additional permanent jobs. Rather, the construction activity and employment may be said to support the wages and employment of other people in the economy as a result of the project.

Economic effects associated with project operations were also assessed. Given 10 operational employees, the model calculates the resulting total employment impact per year to be about 19 employees in the Androscoggin-Franklin-Oxford region (including the direct employment) and 22 employees in Maine as a whole. Total wages earned as a result of the project (direct, indirect and induced) in the Androscoggin-Franklin-Oxford region will be \$0.85 million per year and in Maine \$0.8 million. The distribution between direct and indirect/induced wages is shown in Table 9-2.

**Table 9-2: Economic Impacts of Kibby Wind Power Project Operational Employment**

Operating Period	Employment		
	Directly Employed by Kibby	Indirect & Induced Impacts	Total
Androscoggin-Franklin-Oxford Counties	10	9	19
Maine		3	22
	Wages & Salaries (\$Millions)		
	Directly Employed by Kibby	Indirect & Induced Impacts	Total
Androscoggin-Franklin-Oxford Counties	\$0.700	\$0.102	\$0.802
Maine		\$0.094	\$0.896

The employment and income figures noted here include both direct employment and wages (those people directly employed by TransCanada and its contractors) plus the indirect and induced effects. Indirect effects are the employment and wages of firms supplying goods and services to the Kibby Wind Power Project and its contractors. Induced effects occur when the wages paid by the direct and indirect employees' wages are spent in the local economy.

One final aspect of economic impacts that cannot be effectively analyzed using econometric models is the potential benefit to energy security and energy costs. The proposed project will sell into the New England power market. This integrated electric power market is vulnerable to price spikes as a result of instability in world fossil fuel markets. With over half of New England's energy generation coming from fossil fuels, the region, including Maine, will experience periodic spikes in electricity prices that will drain away economic resources that would otherwise be used to support economic activity and associated employment. Mitigating effects of the more stable prices of electricity produced using wind turbines would offset

negative impacts occurring from fossil fuel price instability. These economic impacts are a reality despite being more difficult to predict than the employment and income impacts noted above.

### **9.2.6 Real Property Taxation and Local Benefits**

The Kibby Wind Power Project will also contribute to the economy through payment of taxes. Because it is located in the unorganized territories, TransCanada will pay property taxes to the State pursuant to the Unorganized Territory Educational and Services Tax, 36 MRSA §§ 1060-1610. The tax is levied each year upon all non-exempt real and personal property located within the Unorganized Territory Tax District and is comprised of three separate components based on budgets for the following: 1) a shared tax for all state services provided statewide in the unorganized territories, including funding for the school budget and funding for the Department of Health and Human Services; Department of Forestry; and the Land Use Regulation Commission, among other agencies; 2) county taxes for the unorganized territories' prorated share of the county governmental functions such as the sheriff, jail and others; and 3) county services (such as road clearing on county roads, fire, trash, etc.) specific to the unorganized territories in each county. A description of the specific components of the tax prepared by the State's Auditor for the Unorganized Territories State Audit is provided in Appendix 9-B.

According to the 2005 UT Report, the total taxable value of real and personal property in Franklin County's unorganized territories for fiscal year 2005 was approximately \$136 million, and the total taxes paid on real estate and personal property was just over \$1.5 million. While the value of the Kibby Wind Power Project for tax purposes has not yet been determined, TransCanada will pay a significant amount of taxes on the project and will be one of, if not the, largest single taxpayer in the unorganized territories in Franklin County. Taxes paid on the project will reduce the mill rate and result in significant economic benefit to the taxpayers in that area.

Finally, TransCanada is working with the Eustis Selectmen to formulate the specifics of a community benefits package that will exceed \$100,000 per annum. The town of Eustis is located approximately 8 miles from the project site and is the nearest organized township. Because it will not benefit to the same degree from taxes paid on the project,<sup>1</sup> TransCanada is proposing an annual payment to ensure that the residents in Eustis realize a meaningful economic benefit from the project. TransCanada recognizes that the people who live and work in closest proximity to the project should realize an economic or other concrete benefit from the project and is committed to ensuring that occurs.

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<sup>1</sup> The town of Eustis will benefit from the portion of taxes that are paid for the unorganized territories' share of Franklin County governmental services such as the sheriff's and police departments, and other administrative functions.

## 9.3 Noise

A detailed assessment of sound-level conditions associated with the project demonstrates that noise impacts from construction and operation of the project will be insignificant. This section provides a discussion regarding general information on noise; information about the existing sound environment at the site; and the results of the noise impact assessment for the project. The full noise assessment is provided in Appendix 9-C.

### 9.3.1 General Information on Noise

Noise is generally defined as undesired sound that interferes with or disrupts normal activities. The response of individuals to similar noise events is diverse and influenced by the type of noise, sensitivity of the individual, perceived importance of the noise and its appropriateness in the setting, time of day and type of activity during which the noise occurs.

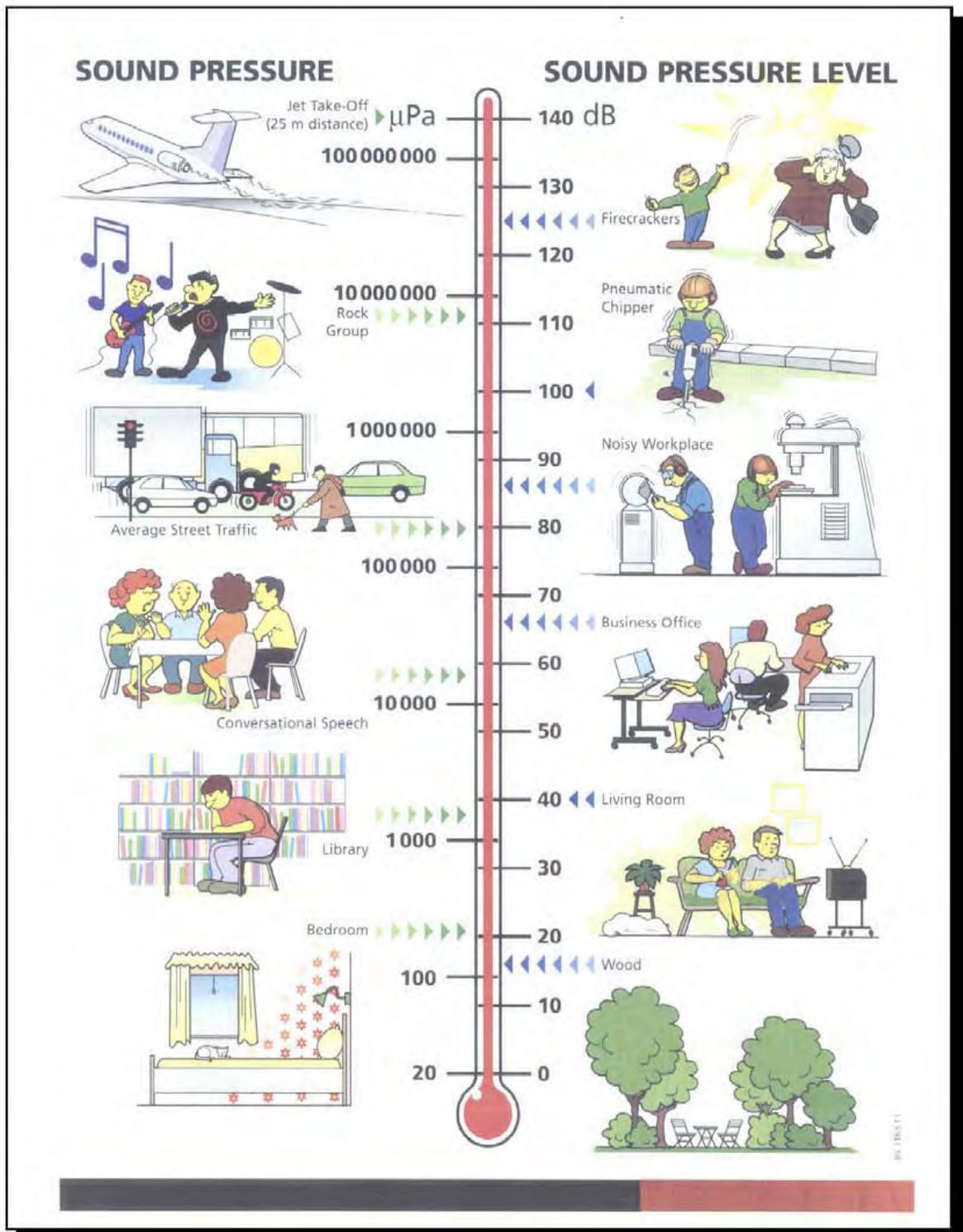
Sound is generally characterized by several variables, including frequency and intensity. Frequency describes the sound's pitch and is measured in cycles per second, or hertz (Hz), whereas intensity describes the sound's loudness and is measured in decibels (dB). The minimum change detectable by human hearing is about 3 dB and the average person perceives a change in sound level of about 10 dB as a doubling (or halving) of the sound's loudness.

Noise can be measured using various "apparent" scales, similar to reporting temperature in terms of wind chill or heat index, or humidity in terms of dew point. The latter are better indicators of perceived cold, warmth, or dampness, respectively. Similarly, sound level measurements are often reported using the "A-weighting" scale of a sound level meter. A-weighting slightly boosts high frequency sound, while reducing low frequency levels (similar to the way stereo bass and treble controls work) providing a better indicator of perceived loudness at relatively modest volumes. These sound level measurements are called A-weighted levels, (abbreviated dBA). Figure 9-2 illustrates ranges of A-weighted levels for common noise sources.

To approximate further the response of human hearing, sound level meters are often equipped with octave band filters, which divide the audible hearing range into nine separate "frequency-bands" much like a prism separates white-light into bands of different color or wavelengths. Sound levels are sometimes measured using 1/3 octave band filters. As the name implies, 1/3 octave band filters divide octaves into three additional bands for greater resolution.

Because community noise levels constantly change over time, percentile or "exceedance" measurements are used to quantify them. These measures help describe the "average" noise level as well as the range of highs to lows. Equally important, they allow us to separate loud, short-duration noises from quiet, constant-level background sounds. As shown in Figure 9-3:

$L_{10}$  is the level exceeded 10 percent of the time, that is, levels are higher than this value only 10 percent of the measurement time. The  $L_{10}$  typically represents the loudest



Levels Shown are Equivalent to A-Weighted Levels At 1,000 Hertz

SOURCE: BRÜEL & KJÆR, DENMARK

Michael Theriault Acoustics Inc  
NOISE CONTROL CONSULTING SERVICES

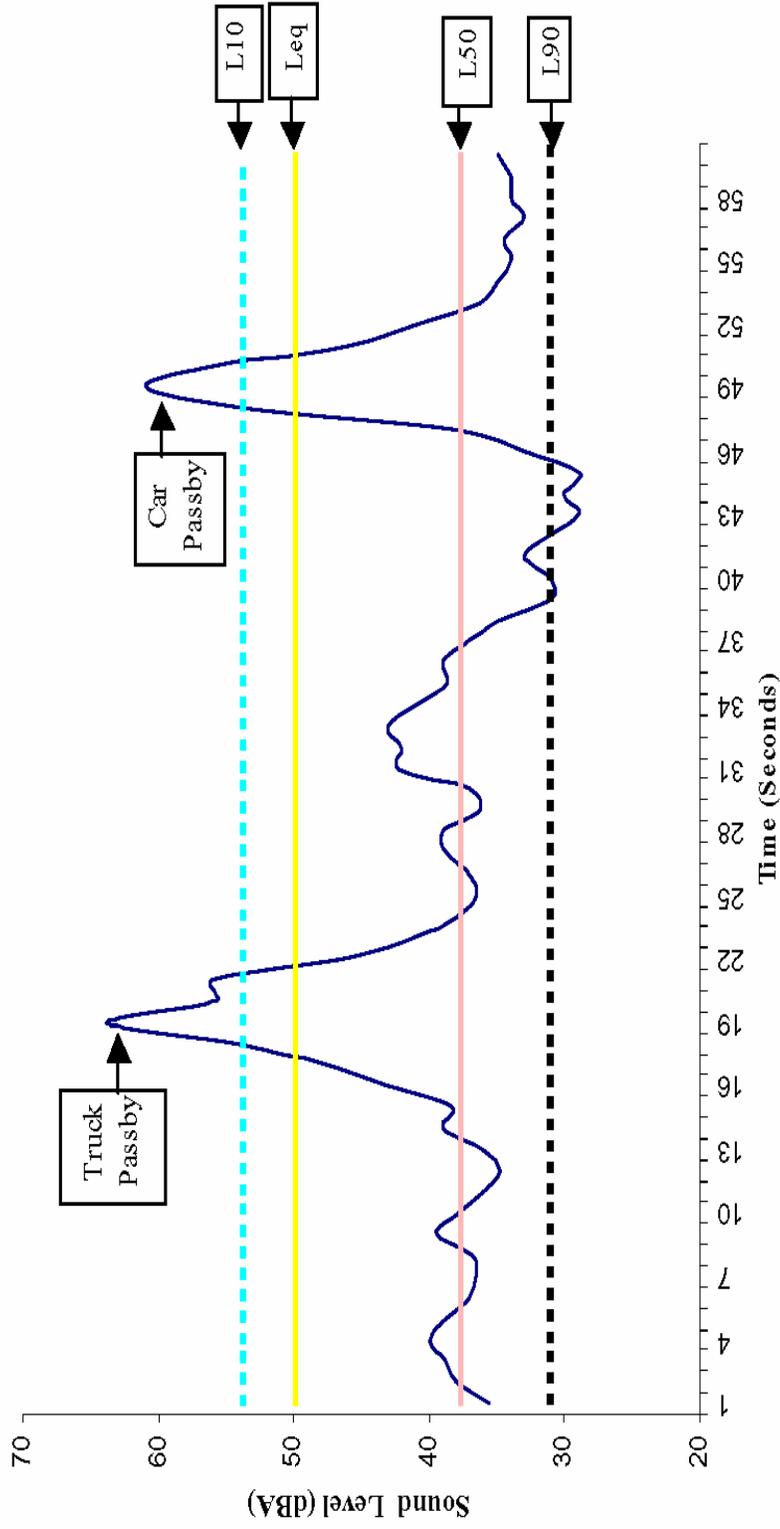
**TYPICAL SOUND PRESSURE LEVELS**

**KIBBY WIND POWER PROJECT  
FRANKLIN COUNTY, MAINE**

FIGURE 1

PROJ. NO. 1760

# Percentile Sound Level Analysis



Michael Theriault Acoustics Inc

NOISE CONTROL CONSULTING SERVICES

## EXAMPLE PERCENTILE ANALYSIS

KIBBY WIND POWER PROJECT  
FRANKLIN COUNTY, MAINE

FIGURE 2

PROJ. NO. 1760

and shortest noise events occurring in the environment, such as car and truck pass-bys or aircraft flyovers.

$L_{50}$  is the sound level exceeded 50 percent of the time. Levels will be above and below this value exactly half of the measurement time, and, therefore, the  $L_{50}$  is sometimes referred to as the “median” sound level.

$L_{90}$  is the sound level exceeded 90 percent of the time and is often called the “background” sound level. Ninety percent of the time, measured levels are higher than this value, and, therefore, the  $L_{90}$  represents the environment during its quietest periods.

Noise levels may also be reported in terms of “equivalent energy levels” or  $L_{EQ}$ . An  $L_{EQ}$  is a hypothetical number that is “equivalent” in energy to the actual fluctuating noise for any given measurement period. As shown in Figure 9-3, a noise level of 50 dBA ( $L_{EQ}$ ) for a period of 1-minute is equivalent in energy to the fluctuating noise level for the same period, produced by the car and truck passes, which range in level from less than 30 dBA to more than 60 dBA. The  $L_{EQ}$  typically falls between the  $L_{10}$  and  $L_{50}$  and is the “base” metric commonly used to establish other measures of environmental noise, such as the Day-Night level.

Day-Night Levels or  $L_{DN}$ , are determined from hourly  $L_{EQ}$  measurements and represent a 24-hour assessment of noise within a community. More specifically, the  $L_{DN}$  is calculated by adding a 10-decibel “penalty” to hourly  $L_{EQ}$  measurements collected between 10 p.m. to 7 a.m., to account for the potential of increased annoyance when people are resting, relaxing or sleeping.  $L_{DN}$  is the preferred metric of federal bureaus such as the Department of Housing and Urban Development (HUD) and U.S. EPA for the assessment of environmental noise.

Additional information providing details about sound level meters and sound metrics is included in Appendix 9-C.

### **9.3.2 Existing Sound Environment**

The project is sited within an area that well buffered from residences and other traditionally noise-sensitive land uses. The proposed wind turbines and associated substation are located entirely within privately owned commercial forestry lands. Through an open access policy of the private land owner, public use of that land does occur. The nearest population center is the town of Eustis/Stratton, located approximately 8 miles (12.9 km) from the project. As shown in Figure 9-1, the nearest noise-sensitive receiver is a single-family residence located approximately 1.2 miles (1.9 km) southwest of the closest turbine.

The acoustical environment of the area can be characterized as rural, with background noise levels typically controlled by natural sources such as vegetation rustle, wildlife (bird calls) and insects. However, noise from logging operations, including extensive truck use, also contributes to background ambient levels within the area.

### **9.3.3 Sound Impact Analysis**

As discussed in this section, noise impacts from the proposed project are expected to be insignificant, and well within applicable regulatory standards and guidelines.

#### **9.3.3.1 Significance Criteria**

Noise impact can be classified into one of two categories, namely: 1) the extent to which project noise emissions may exceed applicable laws, ordinances, regulations and standards, or 2) the degree that project noise emissions may elicit community annoyance or complaint. The following sections discuss each type of impact criteria, and how they have been applied to the proposed project.

LURC Chapter 10.25 Section F sets the maximum permissible sound pressure levels produced by different developments at the property or boundary line. Although noise levels for a D-PD subdistrict is “as determined by the Commission” LURC regulations establish noise limits for other subdistricts that provide a useful point of comparison. For example, limits for General Development (D-GN) subdistricts are: 65 dBA daytime (7 a.m. to 7 p.m.) and 55 dBA at night. Sounds for construction-related activities during the daytime period of 7 a.m. to 7 p.m. are exempted from standards within this subdistrict. Limits for commercial and industrial subdistricts are higher, and limits for other subdistricts are lower. Since the surrounding land use is for commercial harvesting operations and does not include sensitive noise receptors, the limits for D-GN subdistricts provide a useful reference.

Other commonly utilized measures for the acceptability of sound levels include:

- Department of HUD guidelines that establish acceptable day-night noise levels at residences of 65 DBA; and
- Levels identified by U.S. EPA as the result of the Noise Control Act of 1972 (shown in Table 9-3), which establish that exposure to outdoor sound levels at or below 55 dBA ( $L_{DN}$ ) and indoor sound levels at or below 45 dBA ( $L_{DN}$ ) are satisfactory “to protect the public health and welfare with an adequate margin of safety.”

**Table 9-3: Noise Levels Identified as Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety**

Effect	Level	Area
Hearing loss	$L_{eq(24)} \leq 70$ dB	All areas
Outdoor activity interference	$L_{DN} \leq 55$ dB	Outdoors in residential areas and farms, other outdoor areas where people spend widely varying amounts of time, and other places in which quiet is a basis for use.
	$L_{eq(24)} \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{DN} \leq 45$ dB	Indoor residential areas.
	$L_{eq(24)} \leq 45$ dB	Other indoor areas with human activities, such as schools, etc.

Source: U.S. EPA 1974.

### 9.3.3.2 Construction Noise Impacts

Like most projects, construction will result in temporary increases to ambient sound levels. The magnitude of the increases will depend on: the type of construction activity; the noise levels generated by various pieces of construction equipment; the duration of the construction phase; and the distance between the noise sources and receiver. Table 9-4 shows average noise levels generated by individual pieces of construction equipment.

**Table 9-4: Typical Noise Emission Levels for Construction Equipment**

Equipment Item	Noise Level at 50 Feet (dBA)	Equipment Item	Noise Level at 50 Feet (dBA)
Air Compressors	76 – 89	Generators (Portable)	71 – 87
Backhoes	81 – 90	Jackhammers	69 – 85
Concrete Pumps	74 – 84	Pile Drivers	81 – 107
Concrete Vibrators	68 – 81	Pumps	68 – 80
Cranes (Derrick)	79 – 86	Steel Rollers	75 – 82
Cranes (Mobile)	80 – 85	Shovels	77 – 90
Dozers	77 – 90	Trucks	81 – 87
Front-End Loaders	77 – 90	Vibratory Conveyors	70 – 80
Graders	79 – 89	Welders	66 – 75

Source: Bolt Beranek and Newman, Inc. 1997.

In general, it is anticipated that construction noise levels will be at or below current ambient noise levels ( $L_{EQ}$ ). Also, while construction noise will be discernable at some locations, it is not expected to increase ambient noise levels significantly for any appreciable period of time.

The average individual is likely to tolerate noise associated with construction, given its temporary nature. The majority of construction will take place during daylight hours (i.e., when

acceptance toward noise is higher, and the risk of sleep disturbance is low). Given this, and the site's buffering through its considerable distance from noise-sensitive locations, noise impacts associated with construction operations are expected to be insignificant.

### **9.3.3.3 Operational Noise Impacts**

A three-dimensional, computer-generated acoustical model of the proposed project was developed using SoundPlan<sup>®</sup> 6.4,<sup>2</sup> to predict noise levels at the nearest residential receiver and develop sound-level contours. Project noise levels were estimated using octave band sound power level data from manufacturers and industry-standard prediction algorithms (Edison Electric Institute 1978; Empire State Electric Energy Research Corporation 1982; Consolidated Edison Company 1980). The model conservatively assumed non-stop, simultaneous operation of 48 turbines at maximum power output. Note that only 44 turbines are proposed (four turbines represent optional locations) and, therefore, noise impacts may be overstated in this model.

Equipment power levels were adjusted for the reduction of sound by distance (geometrical spreading); the molecular absorption of sound by air (air absorption); and the absorption and reflection of sound by the ground (ground effect). Sound power levels were further modified by the effects of shielding (i.e., via topography) to estimate receiver noise levels. A complete discussion and set of modeling calculations can be found in Appendix 9-C.

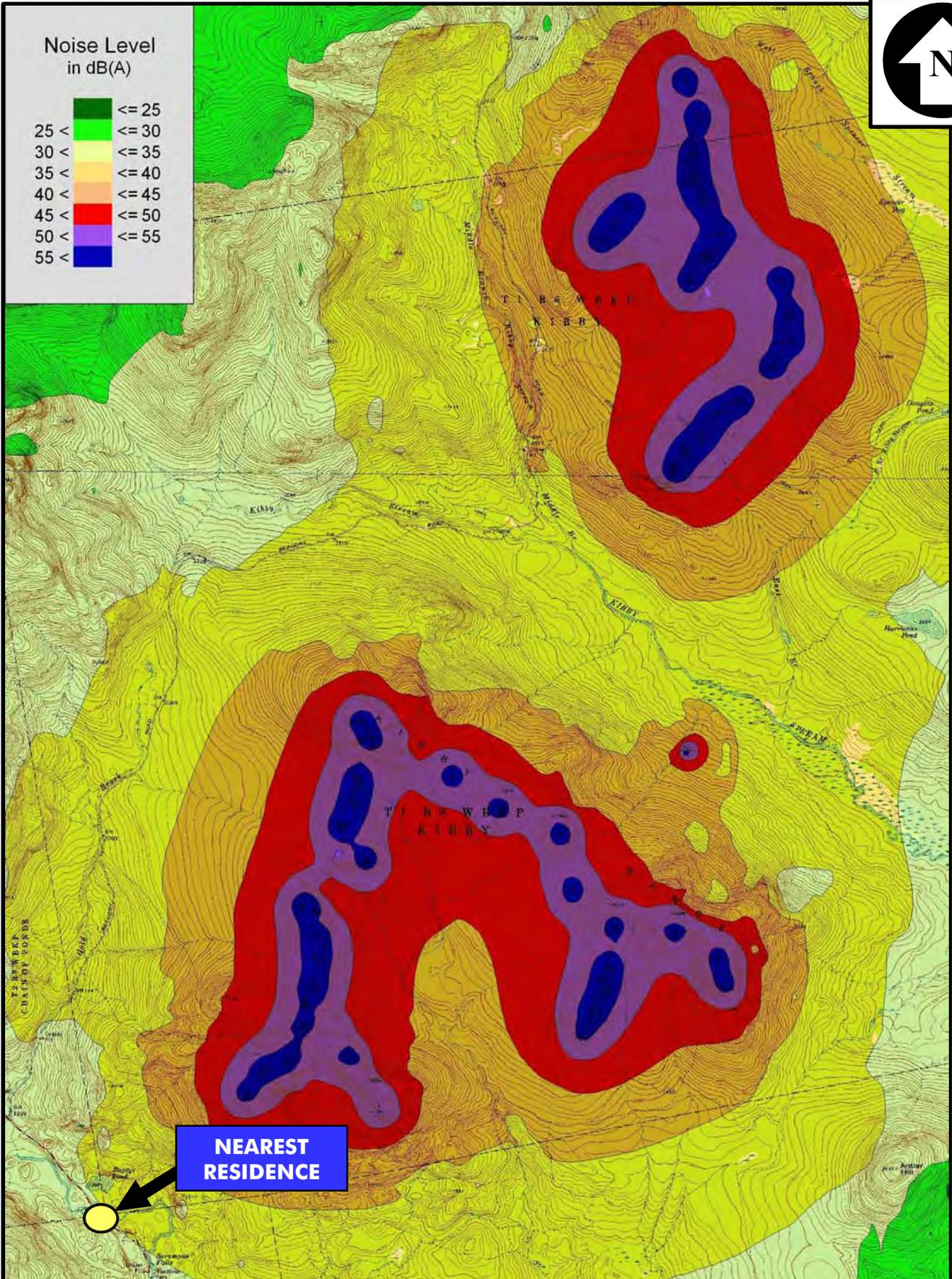
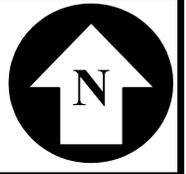
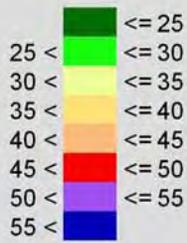
Project noise levels are presented in Figure 9-4 as a series of noise level contours. As can be seen from this figure, sound levels at the nearest receiver during favorable sound propagation conditions are expected to be approximately 35 dBA or less. As discussed in Section 9.3.3.1, noise limits established for D-GN districts provide a useful reference in assessing impacts of the proposed project. Figure 9-5 shows the 55-dBA contour produced during worst-case operation of the project in contrast to the project's leased-area boundaries. As shown, the contour falls within the property lines, with the exception of a few very small areas. Given this, worst-case turbine noise levels will be consistent with LURC noise standards for General Developments.

Results of the acoustical analysis showed that project noise levels are well within guidelines for acceptable levels of environmental noise within residential land uses. Noise levels generated during operation of the proposed Kibby Wind Power Project are expected to have an insignificant impact with respect to potential hearing damage, sleep or indoor/outdoor speech interference, with no discernable change in noise levels at the nearest residential receptor. Given these findings, noise levels generated during operation of the project are expected to be insignificant.

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<sup>2</sup> SoundPlan<sup>®</sup> 6.4 is an acoustical analysis software package specially designed for estimating noise emissions from industrial facilities.

Noise Level  
in dB(A)



**NEAREST  
RESIDENCE**

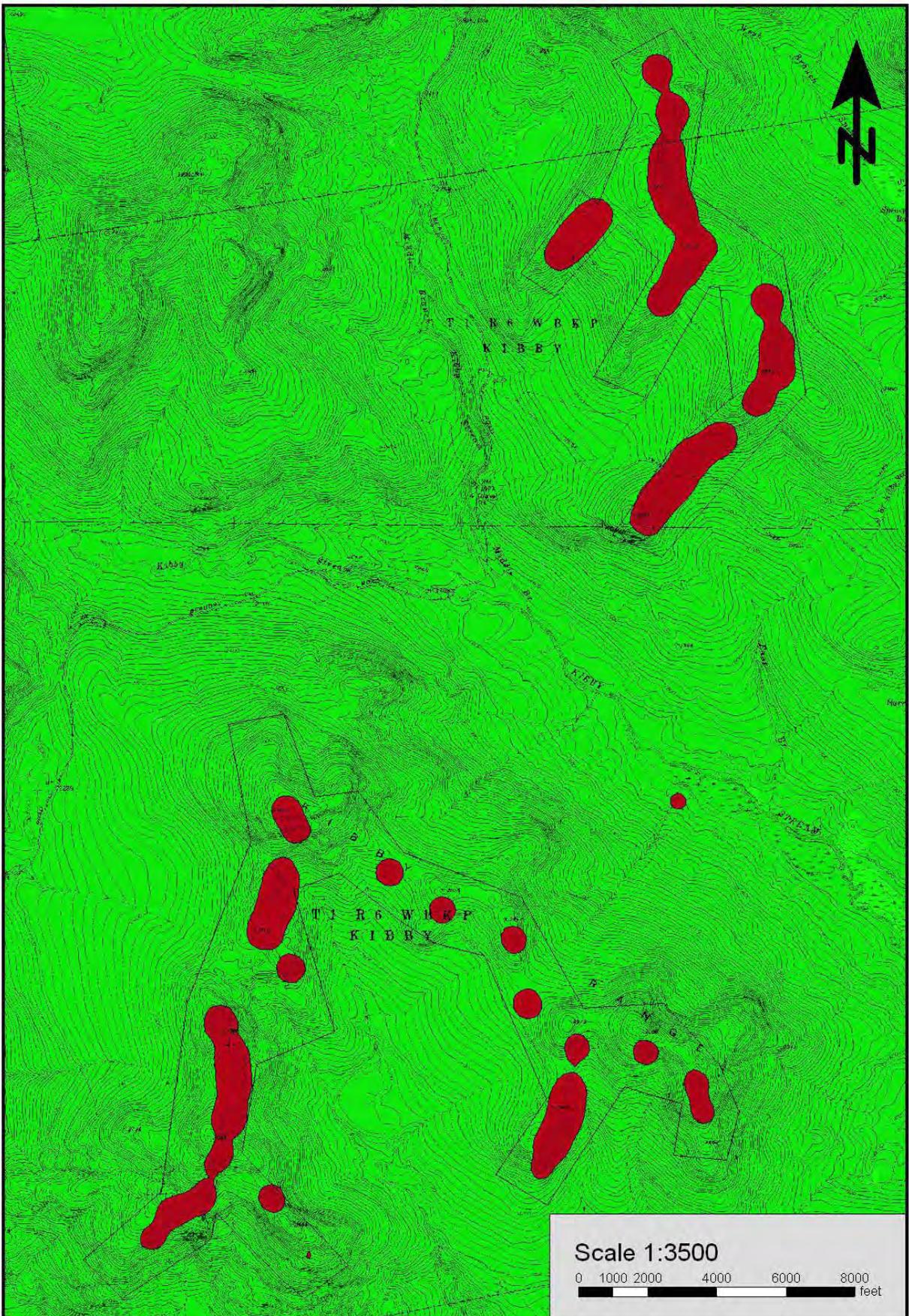


**PREDICTED NOISE LEVEL CONTOURS**

**KIBBY WIND POWER PROJECT  
FRANKLIN COUNTY, MAINE**

**FIGURE 5**

**PROJ. NO. 1760**



Scale 1:3500

0 1000 2000 4000 6000 8000 feet

**55 dBA NOISE LEVEL CONTOUR  
VERSUS PROPERTY BOUNDARY**

**KIBBY WIND POWER PROJECT  
FRANKLIN COUNTY, MAINE**

**FIGURE 6**

**PROJ. NO. 1760**



**Michael Theriault**  
**ACOUSTICS INC**  
NOISE CONTROL CONSULTING SERVICES

## 9.4 Recreation Resources

This section characterizes recreation uses of the site and surroundings to provide a context for the project's potential impact on such uses.

### 9.4.1 Proximity to Federal, State, or Locally Designated Recreation Facilities

The project site is well buffered from federal, state or locally designated recreation facilities. Figure 9-6 provides an illustration of the project elements in relation to surrounding designated recreational facilities. As shown on that map, most formalized recreational opportunities are well removed from the project site.

Designated park, preserve and conservation lands include Number 5 Bog Conservation Area, which is located 7 miles (11.3 km) northeast of the project site. The Boundary Headwaters Conservation Area is located approximately 5 miles (8.1 km) west of the project. Further to the south is the Pingree Easement, approximately 12 miles (19.3 km) southwest of the project. Bigelow Preserve is located 12 miles (19.3 km) southeast of the project, and Dead River Peninsula is 15 miles (24.2 km) to the southeast. The Pierce Pond conservation area is located 20 miles (32.2 km) to the east of the project.

A number of hiking trails are located throughout the project area, including a trail to the summit of Kibby Mountain, less than 1 mile (1.6 km) to the north of the project. Hiking opportunities are also afforded by: Snow Mountain, approximately 6 miles (9.7 km) west of the project; Cranberry Peak, approximately 15 miles (24.2 km) south of the project; West Kennebago Mountain, approximately 18 miles (29 km) southwest of the project; and, most notably, the Appalachian Trail, the closest point of which is located within the Bigelow Preserve, approximately 16 miles (25.8 km) south of the project.

Camping and boating opportunities are afforded by the lakes in Chain of Ponds, including a boat launch, located approximately 3 miles (4.8 km) west of the project and Jim Pond, approximately 5 miles (8.1 km) southeast. Approximately 5 miles (8.1 km) north of the project, a Maine Forest Service Campsite is located in Skinner Township. Flagstaff Lake is located 10 (16.1 km) miles southeast of the project. Further to the southwest, Rangeley Lakes offer a number of recreational opportunities, including boating. Rangeley Lakes National Scenic Byway is over 20 miles (32.2 km) southwest the project.

A number of formal and informal snowmobile trails traverse the area, the most significant of which runs from Coburn Gore, approximately 10 miles (16.1 km) west of the project, through Chain of Ponds and south toward Eustis and Stratton.

Two major ski areas are located south of the project, Sugarloaf USA, approximately 22 miles (35.4 km) to the southeast, and Saddleback, approximately 25 miles (40.3 km) south.



### **9.4.2 Existing Recreational Uses**

The project site is privately owned and actively managed by Plum Creek for forest products. Plum Creek currently has an open access policy that allows certain uses of their property by the public. Restrictions under that policy include no ATV use, and no snowmobile or bicycle use on active logging roads.

In an effort to understand the level of recreational use at the site, TransCanada has reviewed information previously gathered as a part of the former Kenetech application at the site, and has conducted additional surveys at the site and in the general project area.

#### **9.4.2.1 Kenetech Assessment of Recreational Use**

An assessment of recreational activity in the Kenetech project area (which encompassed a much larger area than the Kibby Wind Power Project but included the Kibby site) was carried out between October 1991 and September 1992. Three separate assessments of particular types of recreational activities were undertaken:

- An assessment of hunting activities in townships that included Kibby and Skinner Townships in November 1991;
- An assessment of snowmobile use along (Interconnected Trail System) ITS #89, which traversed the site at that time, and an informal side-trails survey associated with logging roads in Kibby and Skinner Townships in February, March and April 1992; and
- An assessment of spring and summer outdoor activities, June through September 1992, in locations including Kibby and Skinner Townships.

The assessment of hunting activity determined that the project area had a light to moderate usage for deer hunting. It was noted, and confirmed by kill records, that few Maine residents hunted in the area; low deer population and difficult terrain were thought to be the cause. Records also showed low kill of moose and bear in the area, as well as low furbearing trapping activity. A review of hunting activity in nearby Quebec was also undertaken. It was determined that there was no significant difference in hunting intensity between the two countries in the area, with the exception of focused use (approximately 200 people) during a 6-day moose season.

Winter recreation at that time was formalized in the project area due to the presence of the ITS trail used by snowmobilers. At the time, it was determined that this trail and the local area was receiving moderate to heavy use by snowmobilers. No use of the area for snowshoeing or cross-country skiing was observed. The ITS trail has since been discontinued. Reasons cited included difficulty of access and high maintenance costs.

Spring and summer uses of the site were assessed through targeted observations over 62 field days as well as through incidental observations as staff worked within the area during the course of project development. No recreational activity was observed during 32 of the 62 field

days. During the course of that survey, 37 parties of recreational users were encountered. It was noted that 13 of these parties were traveling on Gold Brook Road, and could have been traveling to locations further north. Almost all of the observed vehicles were registered in Maine. During the course of field surveys, only two parties of mountain bikers and one group of hikers were encountered. Only one “official” campsite was located in the area at that time (the Maine Forest Service Campsite at mile 13 on Gold Brook Road, which is still there). During the course of the project, only four parties were observed using this area.

Other uses noted during the Kenetech surveys were a few limited parties identified as sightseers and some gold panning activity.

Overall, the site vicinity was considered to have a relatively low level of recreational use compared to other nearby areas. The relatively low recreational use of the site vicinity was thought to be related to a number of factors. The area has relatively few lakes and ponds, therefore, having less fishing use than many nearby areas. No designated trails are located on the property. The only mountain with a well-defined trail to the summit is Kibby Mountain (the former fire warden jeep trail); no significant evidence of parking at the base was observed. There are many mountains located in the region that are of equal or greater value for recreational purposes, including those discussed in Section 9.4.1.

#### **9.4.2.2      *TransCanada Assessment of Recreational Use***

TransCanada determined that an updated assessment of recreational use of the site and vicinity would be useful in terms of understanding the level of use and types of activities occurring. Two methods were used to gain perspective with regard to this issue: an informal interview of people potentially knowledgeable about the area’s recreational usage; and a more formal “snapshot” survey at the project site to inventory site usage. Each method is discussed below.

##### ***Local Recreational Perspective***

Over 50 individuals were contacted with regard to recreational use in the overall project vicinity. An attempt was made to identify people with local knowledge, user knowledge and agency/organization knowledge of this area of Maine. Individuals contacted included:

- Twenty-four local business owners/representatives in Eustis/Stratton;
- Twenty local contacts known to use the area for recreational purposes;
- Local individuals that contacted the project’s toll-free number;
- Six governmental and non-profit organizations with knowledge of recreation and tourism in the area; and
- Referrals from those contacted in an attempt to broaden the contacts appropriately.

Most of those contacted reported that they had good familiarity with recreation uses in the area including use themselves and knowledge of others who used the area. The area was generally characterized as a moderate use area for recreational purposes. Types of recreational use reported for the general area included (from most to least frequent mention):

- Hunting;
- Snowmobiling;
- Fishing;
- Hiking;
- Off-road vehicle use;
- Camping; and
- Sporting camps.

Less than 10 mentions were made of the following uses:

- Trapping;
- Gold panning;
- Skiing;
- Other uses (those mentioned included snowshoeing, antler hunting, primitive uses, "jeeping," rock climbing);
- Wildlife viewing;
- Sightseeing;
- Canoeing;
- Foraging (e.g., berries, fiddleheads);
- Bicycling;
- Picnicking; and
- Swimming.

The interview process proved to be helpful in understanding how land surrounding the project area is used. It also provided the opportunity to forge relationships in the local community. Although this was not a statistically based survey, the information gained helped shed light on recreation uses and perceptions of impacts from the project.

Interview subjects were generally very familiar with the region as evidenced by their knowledge about how the land was being used. Overall, people rated their own level of familiarity as “high,” with a sizeable majority of respondents saying that they use the land themselves for various activities and they knew others who did as well.

### *Most Often Identified Issues*

Identification of local concerns about the project during the earliest conceptual phases when modifications can most easily be made was a key rationale for conducting these interviews. Three issues were mentioned repeatedly during the conversations: 1) continuation of recreational access to the project area; 2) generalized concern about previous local power projects and interest in what the developer would offer to the community; and 3) the desired potential for using the new transmission lines as snowmobile and off-road vehicle trails.

The concerns about access were addressed immediately by communicating that TransCanada intends to maintain the same access policies as Plum Creek, the underlying fee owner of the project land. The new access roadways would remain open, subject, of course, to continuation of Plum Creek’s Open Lands Policy.

The flooding of the town of Flagstaff to create Flagstaff Lake as storage for the hydropower system in the Kennebec River and the installation of the biomass power plant in Stratton have created concerns with some of those interviewed about the impacts of power generation. The varying levels of Flagstaff Lake were mentioned as having an impact on recreation while some respondents raised concerns about the visual impact of the biomass plant. Both of these projects have left some respondents with the perception that “a lot of power is generated in the area with very little benefit accruing to the community.” TransCanada’s proposed community benefit package described in Section 9.2.6 was developed in part to address these comments.

A number of respondents expressed interest in using any new transmission lines as trails for snowmobiling and off-road vehicle use. The right of way for the transmission line will be on leased land that will not be fenced. Hence, snowmobiling will not be prevented by TransCanada.

### *Overall Perceptions of Project Impacts on Recreation*

Gauging the perceptions of users about the degree of impact that turbines and transmission lines would have on the recreation experience in the project vicinity was the major theme that ran through the interviews. Overall, the perceptions of the majority of people interviewed regarding the level of impact of the project can best be characterized as “low” to “very low.”

Respondents were asked to rate on a scale of one to five what the impact of wind turbines would be on recreation. Though no option was offered to rate positive impacts, on multiple occasions respondents indicated that they believed the project would improve the recreational experience (e.g., improving access, creating visual interest or navigational aides, etc.). The

same was true of the nearly identical question regarding the recreational impact of new/upgraded transmission lines.

### *Impacts on Particular Uses*

Each person interviewed was asked to list the types of recreational uses that they knew were occurring, in the project area. The top five responses were as follows: hunting (42), snowmobiling (38), fishing (35), hiking (26), and off-road vehicle use (21). Other responses included camping (10), trapping (9), wildlife viewing (6) and foraging (4).

Making comparisons between the mention of the top five uses and the level of perception of impact is one method of understanding how particular types of users feel about the project. In most cases the people who mentioned the most popular particular uses expressed less concern about impacts. Notably, those who indicated that they use the area for hunting, snowmobiling and fishing were most likely to indicate that they did not perceive that the project would have a negative impact.

The opposite was true for the fourth and fifth most mentioned uses, hiking and off-road vehicle uses. The perception of impact was higher for those mentioning hiking versus those not mentioning hiking and also higher for those mentioning off-road vehicle use versus those not mentioning off-road vehicle use, although the difference was not substantial

These findings are supplemented and partially explained by the anecdotal information provided by a few respondents. Several people suggested that the improved access into the area created by the project would not bother hunters or fisherman and may improve hunting opportunities. For instance roads on ridgelines would provide additional places to park and gain access to new hunting ground. Leaders of the local snowmobile and ATV clubs expressed interest in the potential for using the transmission line as a new trail, perhaps explaining the lower perceived impacts for those who mentioned snowmobiling as a use, but contradicting the higher perceived impacts of those who mentioned off-road vehicles. The Director of the State Bureau of Parks and Lands program on Off Road Vehicles, Scott Ramsay, stated that his experience has been that snowmobile and ATV riders are typically not as concerned about land uses abutting the land that they recreate on as other non-mechanized recreational users tend to be. Further, he added that many of these riders would be interested in making the turbines a destination. He estimated that the peak seasonal usage by snowmobiles at the nearby intersection of the two major branches of the ITS is 1,000 per day. Mr. Ramsay also mentioned that the effort to create a snowmobile trail leading to the Mars Hill windpower project is underway, and another respondent mentioned that the wind turbines in Gaspé, Canada are also an attraction for snowmobilers and skiers.

With a perspective on uses in the general project vicinity (as reflected in Figure 9-6), an appropriate context can be provided for the on-site recreational survey.

**On-Site Recreational Survey**

TransCanada also conducted a more formal recreation survey from late spring through early fall 2006. The main objectives of the on-site recreational survey were to:

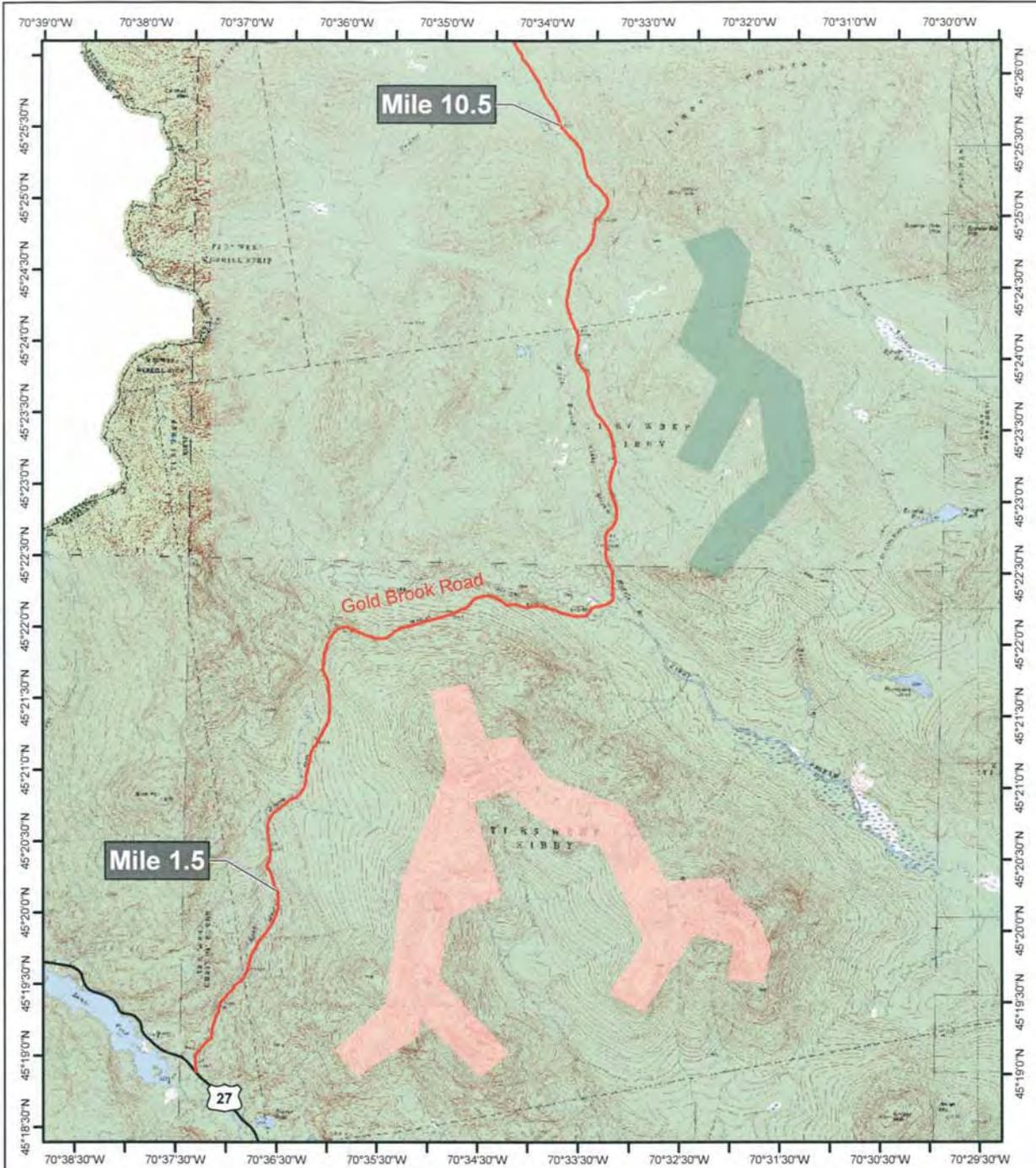
- Determine the number of individuals entering Gold Brook Road (and thus, potentially using the Kibby Wind Power Project site area for recreation purposes) during the summer and the peak fall hunting season of 2006;
- Determine in what activities those individuals were participating; and
- Collect information regarding user-perceived impacts of the proposed wind power project on recreation activities.

Two data collection methods were used to determine the number of individuals using the project study area during the summer/peak fall 2006 recreation season and in what activities they were participating. The first method was the placement of vehicle (tube) counters at approximately mile 1.5 and approximately mile 10.5 of Gold Brook Road, the primary access to the project study area (see Figure 9-7) to capture the number of vehicles accessing the project study area. The tube counters were placed on site May 23, 2006 and removed October 19, 2006. This allowed for data collection during Memorial Day weekend, Labor Day weekend, Columbus Day weekend, moose hunting season (October 9-14, 2006) as well as the time in between. Counter calibrations in the form of periodic manual vehicle counts were performed to: determine if the counters were working properly; determine the number of commercial vehicles versus non-commercial vehicles; and collect data about the vehicles crossing the counters such as the number of individuals per vehicle.

The second data collection method was to conduct recreation user contact surveys to determine in what activities individuals were participating. These were performed ten times over the course of the survey (Table 9-5) and occurred simultaneously with the counter calibrations. Counter calibrations and user contact surveys were conducted on randomly selected dates. Each site was visited for a 4-hour time block, which was performed in either the morning or the afternoon.

**Table 9-5: Calibration and Survey Days**

Month	Date	Weekday/Weekend Day
May	26	Weekday
June	11	Weekend day
June	19	Weekday
July	8	Weekend day
July	12	Weekday
August	3	Weekday
August	6	Weekend day
September	3	Weekend day
September	13	Weekday
October	9	Weekday



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**Legend**

- Series A Location
- Series B Location

1,500  
Meters

A north arrow pointing upwards and a scale bar representing 1,500 meters.

**KIBBY WIND  
POWER PROJECT**

**Location of Vehicle Counters**

**FIGURE 9-7**

**Data Source:**  
Base Map: USGS 24k Topographic Map courtesy of Maine OGIS

INFORMATION DEPICTED HEREON IS FOR REFERENCE PURPOSES ONLY AND IS COMPILED FROM BEST AVAILABLE SOURCES. TRC ASSUMES NO RESPONSIBILITY FOR ERRORS ARISING FROM MISUSE OF THIS MAP.

The user surveys sought information on a variety of topics, including the number in the party, purpose of the visit (activity), trip length, number of trips in the past year, place of residence, and destination. Recreation use estimates were developed for both summer (May 23 – September 3) and peak hunting season (September 4 – October 31). A recreation day was defined as each visit by a person to the project for recreational purposes during any portion of a 24-hour period. Current use estimates were derived for each access point.

Participation rates were developed for 15 recreation activities: moose hunting, bird hunting, enjoying scenery, fishing, camping, deer hunting, wildlife viewing/photography, hiking, ATV use, gold panning, canoeing/kayaking, bicycling, picnicking, trapping, and “other.” To develop participation rates, weighted averages were derived based on seasonal and site-specific recreational use (i.e., estimates were developed by activity for each site and time of use, such as summer weekday).

As noted in Section 9.1, the project and surrounding area is actively managed for commercial logging. In addition, Gold Brook Road, where the tube counters were placed is a throughway that connects Route 27 with Spencer Road, near Jackman.

The data collection method counted axle crossings on either end of Gold Brook Road and, therefore, could not distinguish between multiple axle trucks and cars, commercial and recreational vehicles, or vehicles traversing the area as opposed to those using the area for recreational purposes. In an effort to distinguish commercial traffic from recreational users and better understand the scope of recreational use in the area, counter calibrations were conducted at each of the two counter locations on 10 separate days, for 4 hours each day. Recreational user contact surveys were conducted simultaneously with the counter calibration. The person calibrating the tube counter identified the number of commercial versus non-commercial vehicles passing during the 4-hour period as well as the number of occupants in each non-commercial vehicle. The person calibrating the tube counter also conducted the recreation user survey. The data gathered during the calibration events were then used to apportion the tube counter data for the entire period to estimate the number of non-commercial vehicles traveling to or through the area on average and, based on the vehicle occupancy data, estimate the total number of recreational visitors.

Based on this methodology, the recreational survey identified an average daily number of recreational users visiting or passing through the project study area was 83 in the summer and 205 during peak hunting season. As discussed below, at least 43 percent of those surveyed indicated that they were passing through or traveling to destinations outside of the study area. Given that the study was specifically geared to capture peak recreational use, and of those surveyed, nearly half were either passing through or traveling to destinations outside of the project area; these levels are considered very low compared to usage rates experienced at more popular recreation areas in the region. For example, in a similar study at an area offering similar recreational opportunities in Northern New Hampshire’s Connecticut Lakes Headwaters Working Forest near the Canadian Border, 74,687 user-days were spent in that study area between October 1 and December 1.

Due to the close proximity of Route 27, a major travel route in the area, data collected at the mile 1.5 counter shows higher use than data collected at the mile 10.5 counter. Individuals visiting the project study area may also have crossed both counters during their visit. The amount of data collected and the design of the study did not allow for the determination of the number times each of the counters were crossed by individuals during each visit; however, it was conservatively assumed that each party crossed the counters only twice, once each upon entering and leaving the project study area. Individuals could access the project study area from Route 27, north of Stratton or from the Spencer Road near Jackman. Individuals counted could be utilizing the project area or could be traveling through the project study area towards other recreational destinations.

Individuals visiting the project study area during the summer and peak hunting seasons participated in variety of recreational activities. Table 9-6 shows the break down of activities that individuals participated in. The most popular summer activities were fishing, camping, scouting for moose, and other (such as “driving through” and bear baiting). The majority of those participating in the other category were traveling through the project study area. The most popular activities in the fall included moose hunting and bird hunting.

**Table 9-6: Recreational Activities, Area-wide at the Kibby Wind Power Project Study Area**

Activity	Summer (%)	Peak Hunting Season (%)
Moose Hunting/Scouting	11	44
Bird Hunting	0	29
Enjoying Scenery	7	7
Fishing	32	6
Camping	22	5
Deer Hunting/Scouting	1	3
Other	11	3
Wildlife Viewing/ Photography	2	3
Hiking	7	0
ATV Use	4	0
Gold Panning	3	0
Canoeing/Kayaking	1	0

Note: None of the recreationists selected bicycling, picnicking, or trapping as the purpose of their trip.

As shown in Table 9-7, individuals traveling to and through the project study area indicated a variety of destinations. The most common destination was Hurricane Pond, which was the destination for 7 percent of the survey respondents. Six percent of the respondents named a variety of destinations along Gold Brook Road. Four percent of the survey respondents were traveling to each of the following destinations: Eustis, Skinner, Jackman, Douglas Pond, Boundary Pond, or Stratton. The project study area is located in both Kibby and Skinner Townships (with the entrance of Gold Brook Road from Route 27 within a small portion of Chain of Ponds Township). Gold Brook Road travels through the project study area. Douglas Pond, Boundary Pond, and Hurricane Pond are all located outside of the project study area. Stratton

is located south of the project study area. Note that 43 percent of those surveyed were traveling to destinations located within the study area, 43 percent were traveling through or to destinations outside of the study area and the remaining 14 percent of the respondents were unclear as to whether their destination was inside of outside of the study area, or would not disclose their destination. The average daily use statistics cited earlier included all recreational users passing through the area to other destinations as well as those recreating in or near the study area.

During the recreation contact survey, individuals were asked where they live. Of the 94 survey responses that were collected, 11 of the respondents were from outside the state of Maine. Answers included Boston, Massachusetts; Lac Megantic, Quebec; New York; Pennsylvania; and other areas in Canada. Twenty of the respondents, or 12 percent of the total, resided within a 25-mile radius of the project study area. This includes those individuals who live in Lac Megantic, Quebec; Stratton, Kingfield, Eustis and those that responded western Maine.

Individuals who responded to the survey were asked questions directly related to the proposed wind power project. The first question asked whether they were familiar with wind power projects. The second question asked how they perceived the proposed wind power project would affect the quality of their recreational experience. Answers were based on a scale of 1 to 7, where 1 is a very positive impact, 4 is no impact, and 7 is a very negative impact.

**Table 9-7: Recreation User Destinations**

<b>Destination</b>	<b>% of Survey Respondents</b>
Hurricane Pond	7
Various Gold Brook Road Destinations	6
Eustis	4
Skinner	4
Jackman	4
Douglas Pond	4
Boundary Pond	4
Stratton	4
Kibby Mountain	3
Wahl Road	3
Spencer Bale Road	2
Barrett Pond	2
Fish Pond	2

Note: The remaining survey respondents named a variety of destinations

Table 9-8 provides the responses to the first two questions. The most common response to the question of how the proposed wind power project would affect the quality of the respondent's recreational experience was "no impact." Individuals contacted at the mile 1.5 counter in the

summer who indicated that they were familiar with wind power projects were roughly three times less likely to perceive a negative impact than those unfamiliar with wind power projects. Those individuals contacted at the mile 1.5 counters in the fall who were familiar with wind power projects were also less likely to perceive a negative impact than those unfamiliar with wind power projects, although the difference was less dramatic. Those individuals familiar with wind power projects that were contacted at the mile 10.5 counters in the summer were five times less likely to perceive a negative impact than those unfamiliar with wind power projects. Only two persons contacted at the mile 10.5 counters in the fall who were unfamiliar with wind power projects expressed an opinion regarding the impacts.

**Table 9-8: Perceived Impacts of the Proposed Wind Power Project**

Location	Average and Mode <sup>1, 2, 3</sup>	Distribution <sup>2, 4</sup>	“Don’t Know” Response	Familiar with Wind Project?	Perceptions of Those Familiar with Project <sup>3</sup>	Perceptions of Those Unfamiliar with Project <sup>4</sup>
<b>Mile 1.5 Counter</b>						
Summer	Average 3.4 Mode 4	Positive 34% No impact 47% Negative 18%	3%	Yes 79% No 21%	Positive 40% No impact 47% Negative 13%	Positive 13% No impact 50% Negative 38%
Peak Hunting Season	Average 4.0 Mode 4	Positive 18% No impact 68% Negative 14%	7%	Yes 53% No 47%	Positive 19% No impact 69% Negative 13%	Positive 17% No impact 67% Negative 17%
<b>Mile 10.5 Counter</b>						
Summer	Average 3.2 Mode 4	Positive 43% No impact 36% Negative 21%	0%	Yes 71% No 29%	Positive 50% No impact 40% Negative 10%	Positive 25% No impact 25% Negative 50%
Peak Hunting Season	Average 3.7 Mode 4	Positive 22% No impact 67% Negative 11%	0%	Yes 78% No 22%	Positive 29% No impact 57% Negative 14%	Positive 0% No impact 100% Negative 0%

<sup>1</sup> Wind power impact perception figures are based on the following scale from 1 to 7: 1—very positive impact; 4—no impact, 7—very negative impact

<sup>2</sup> Excludes “don’t know” responses.

<sup>3</sup> The Mode is the response that occurred with the highest frequency; i.e., the most common response.

<sup>4</sup> Numbers may not sum to 100% due to rounding.

Individuals were asked why they thought the proposed wind power project would have an affect on their experience. Individuals who remarked that the proposed wind power project would have a positive impact indicated that the project may add additional trails and that it may draw people to see the project. Individuals who remarked that the proposed wind power project would have a negative impact indicated that the project may have a negative visual impact, may increase traffic to the area, may be noisy, and the project may have an impact on the environment and wildlife.

The results of the on-site recreational survey can be summarized as follows:

- The average daily number of recreational users visiting or passing through the project study area was 83 in the summer and 205 during the peak hunting season. At least

43 percent of these users counted were passing through en route to destinations outside of the study area.

- The most popular summer activities included: fishing, camping, and scouting for moose.
- The most popular fall activities included: moose hunting and bird hunting.
- The most common destination was Hurricane Pond, which was the destination for 7 percent of the survey respondents.
- Twelve percent of the survey respondents reside within a 25-mile radius of the Kibby Wind Power Project area.
- The majority of respondents indicated that a proposed wind power project would either have a positive impact or no impact on their recreation experience.
- Respondents who were familiar with wind power projects were much less likely to perceive a negative impact than those who were unfamiliar with wind power projects.

#### **9.4.3 Anticipated Recreational Impacts**

Although recreational use in the project area is relatively low, compared to other nearby areas, the project area is used for recreational purposes under an open access policy with the property owner. The Kibby Wind Power Project is not anticipated to change the recreational use of the area in any significant way.

During construction, use of the area may temporarily be more difficult due to a greater level of traffic and construction activity. TransCanada will minimize traffic disruption during construction to the extent possible, ensuring safety is a priority. Following construction, there will be a portion of both Kibby Mountain and Kibby Range, generally along the summits, which will have permanent new features, along with improved access. Road improvements will facilitate recreational access over the project's operational life. The vast majority of the project area, however, will remain very similar in character. The new access roads will be similar to those already in place and in active use at the site, and low levels of activity by additional traffic or personnel will occur. Therefore, the project will not restrict the use of the site for its current recreational uses. To the extent allowed by the property owner, members of the public can continue to access the project area and utilize its resources as they currently do.

## **9.5 Historical and Archaeological Resources**

### **9.5.1 Agency Review**

Correspondence has been sent to the MHPC, as well as the Penobscot Nation, the Passamaquoddy Tribe, the Aroostook Band of Micmac Indians, and the Houlton Band of Maliseet Indians to request review to determine the need for additional study related to archaeological, historical or other tribal issues in the project area (Appendix 9-D). The site had

previously been reviewed by the MHPC and tribes in the early 1990s, when the Kenetech project was proposed across a broader geographical area in the region.

A Phase 0 survey for PreContact period archaeological sites was previously conducted in this area in 1993 for the proposed New England Wind Energy Station (also known as the Kenetech or United States Wind Power project) by Richard Will, PhD (MHPC report #2757). No archaeological sites were reported in the vicinity of that project area and field reconnaissance indicated that the area had low archaeological sensitivity for PreContact period sites. Site files for the Kibby Wind Power Project were re-examined by Dr. Will on August 12, 2005 to determine whether any new archaeological site data had been gathered from the area; no additional information was identified at that time.

Because the Kibby Wind Power Project largely overlaps with a portion of the former wind project proposed more than a decade ago, no further studies are believed to be warranted for historical or archaeological resources in the project area. Because the site is not proximate to structures, including historical structures, no locations have been identified as key visual receptors from a cultural resources standpoint.

A letter from the MHPC (Appendix 9-D) concurs that no further archaeological survey work is required for the proposed wind turbine and associated access road areas. However, three locations along the proposed 115 kV transmission line were identified for which additional survey was requested. A study plan and MHPC confirmation of the study plan are also included in Appendix 9-D. This will be further discussed in Volume V.

### **9.5.2 *Historic Overview of the Project Area***

The project area has been actively utilized by the forest industry for many years. Much of Kibby and Skinner Townships, located between the towns of Stratton and Jackman, were actively managed for forest products 50 years ago. Like other lumbering towns carved out of the Maine woods, such as Lowelltown, Holeb, Tarrantine and Long Pond, Skinner and Kibby supported logging camps. Spruce and fir cut from the surrounding forests was used to make wooden boxes (before the era of cardboard and paper bags) and sounding boards for pianos.

The Dead River Historical Society has a large collection of photographs, logging records and equipment which bear testimony to the extent of the lumbering industry in the area during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. The fire of 1908, which involved all the area around the Moose River Valley (Jackman, Moose River, Dennistown) severely affected the harvest, and the Great Depression of 1929 eliminated what was left.

According to accounts of the fire, there had been no rain for six weeks when a fire started at Loon Lake late in September of 1908. Simultaneously, fires broke out at Attean Station and Skinner. The fire raged for a week, spreading in all directions. The mills at Skinner and Lowelltown were burned, marking an end to those flourishing settlements, which included mills, schools, churches and stores. Before the fire, Lowelltown had a population of approximately

800 people and Skinner had about 300. The communities never regained their early vitality and eventually just disappeared.

### **9.5.2.1 Kibby Township**

Through continual purchases, Hollingsworth & Whitney, predecessors of Scott Paper Company, owned most of the Kibby woodlands by 1924. From 1934-49 there were 14 logging camps established throughout the township of Kibby.

Land in Kibby owned by Hollingsworth & Whitney was conveyed to Scott Paper Company in 1954. In 1959, Beaudry Lumber Company was granted a right-of-way across Kibby by Scott Paper Company. After 1959, Scott Paper Company bought the pulpwood harvested by Beaudry Lumber Company, which owned everything in the two townships that Scott didn't own.

Lands in Kibby owned by Scott Paper were conveyed to S.D. Warren Company in 1986, and then ultimately to Plum Creek in 1998.

### **9.5.2.2 Skinner Township**

In 1917, Hollingsworth & Whitney purchased a portion of Skinner Township from Chauncey S. Skinner which was conveyed to Scott Paper in 1954. According to accounts of the history of the area, years ago there was extensive log-driving at Caribou Dam off Gold Brook Road (Beaudry's Road), as well as on Kibby Stream and several branches on the Moose River. On the north shore of Hurricane Pond there are remains of a holding pond from which logs were hauled on sleds to Kibby Stream. The area northwest of the Kibby Mountain fire tower in Skinner Township was cut by stump-wood method and trucked off the mountain in winter. The logs were driven across Fish Pond.

Larry Beaudry was responsible for opening up the area by building much of the road system during the 1950s and early 1960s. In 1968, Scott Paper Company purchased from Beaudry Lumber Company the remaining portions of Skinner Township.

The last major drive to the Kennebec took place in 1976. Prior to that, virtually all harvested lumber went to the waterway and after that the roads all led to the public highway system.

During the 1980s a fairly extensive road-building program was undertaken by Scott Paper, involving upgrading or aligning the old roads and building new roads. Many of the roads were built during the salvage efforts during the 1970-1980 budworm epidemic.

Lands in Skinner owned by Scott Paper were conveyed to S.D. Warren Company in 1986, and then ultimately to Plum Creek in 1998.

### **9.5.3 Unanticipated Discovery Plan**

The potential for significant archaeological and historical resources at the site is considered low. However, it is prudent to have plans in place for the unanticipated event of cultural resource discovery during the course of project excavation activities during construction.

In the unexpected event that resources of cultural, historical or archaeological importance are encountered in the excavation process, construction-related work in the vicinity of the discovery will cease. The MHPC and the State Police, if appropriate, will be notified. An assessment of the area will then be conducted by a professional archaeologist. In the event that significant cultural resources are confirmed, potential measures will be identified to avoid or minimize adverse effects to those resources. The MHPC will be consulted throughout the investigation, and LURC staff will be informed of the status and results of the investigations.

## **9.6 Visual Resources**

Aesthetic impacts of the proposed Kibby Wind Power Project have been examined. Based on the criteria contained within the Maine CLUP, and on standard visual impact assessment criteria, the proposed project will not result in undue adverse aesthetic impacts within the surrounding landscape. The project ridges are difficult to see generally, and are not distinctive in form or important focal points. They are not located near any designated recreational uses of either high sensitivity or of state or national significance. The proposed project would be about 15.5 miles away from the closest point of the Appalachian Trail. The project size is modest, occupying only two named ridges with numerous undeveloped ridges remaining around the project including the relatively high elevation northern half of Kibby Mountain itself. The following sections discuss the visual analysis conducted; the full report is provided in Appendix 9-E.

### **9.6.1 Aesthetic Assessment Methodology**

Two methodological approaches were used in assessing the aesthetic impacts of the proposed project. First, LURC's Land Use Standards and CLUP provide criteria and background for the evaluation of the aesthetic impacts of proposed projects within its jurisdiction. The underlying standard for review is as follows:

*Adequate provision has been made for fitting the proposal into the existing natural environment in order to assure there will be no undue adverse effect on existing uses, scenic character, and natural and historic resources in the area likely to be affected by the proposal. (LURC rules Section: 10.24 General Criteria for Approval of Permit Applications)*

Subchapter III Land Use Standards for LURC review of development projects includes the following under E. Scenic Character and Historic Features.

#### **1. Scenic Character**

- a. *The design of a proposed development shall take into account the scenic character of the surrounding area. Structures shall be located, designed and landscaped to*

*reasonably minimize their visual impact on the surrounding areas, particularly when viewed from existing roadways or shorelines,*

- b. To the extent practicable, proposed structures and other visually intrusive development shall be placed in locations least likely to block or interrupt scenic views as seen from traveled ways, water bodies, or public property.*
- c. If a site includes a ridge elevated above surrounding areas, the design of the development shall preserve the natural character of the ridgeline. (LURC Rules Section 10.25.E.1 Scenic Character, Natural and Historic Features)*

Other goals and policies contained in the CLUP were also considered, including particular scenic resources identified. The CLUP provides no specific guidance for evaluating or siting wind power projects. The unique aspects of wind power projects and their relationship to the surrounding landscape generally and to scenic resources in particular have been addressed in detail using the following methodology.

The visual assessment is based upon extensive field inventory work including visiting significant public use and recreation areas (e.g., roads, lakes and ponds, trails, village centers and historic sites), along with photographic and written documentation of views and their visual characteristics. Additionally, at the project's October 18, 2006 Open House in Eustis/Stratton, visitors were asked to identify areas of particular visual concern.

The visual characteristics of the project elements were considered, along with project site and regional visual character within a 15-mile (24.2 km) radius of the project<sup>3</sup>. Viewshed maps were developed for this 15-mile (24.2 km) study area to indicate locations from which views of the project would be possible, based on consideration of topographic interference. As can be seen in Figure 9-8, the resulting map highlights open areas including lakes and ponds, open meadows, and wetlands where visibility would be more likely. Visibility within forested areas is expected to be minimal, though this may be influenced by forest harvesting practices. Potential visibility is indicated on Figure 9-8 in a tan color for open areas and in a darker green within forested areas. The viewshed modeling assumes all forested areas to have trees averaging 40 feet (12 m) in height.

The viewshed map does show with reasonable certainty areas from which the project would *not* be visible. Actual visibility indicated in the viewshed map was then field verified. Most

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<sup>3</sup> Note that a 10-mile (16.1 km) radius is often considered sufficient since, at that distance, the turbines appear very small and normally occupy a very small portion of the view. It is within 10 miles (16.1 km) that visual impacts of wind energy projects are more likely to be significant. However, due to the geography of this area and the scenic resources that occur in the 10- to 15-mile (16.1 to 24.2 km) radius around the project, resources within this larger study area were included in the analysis. In some cases scenic resources up to 20 miles (32.2 km) away were also considered.

# Map 2: Viewshed Analysis of Kibby Wind Turbines – 15 Mile Radius

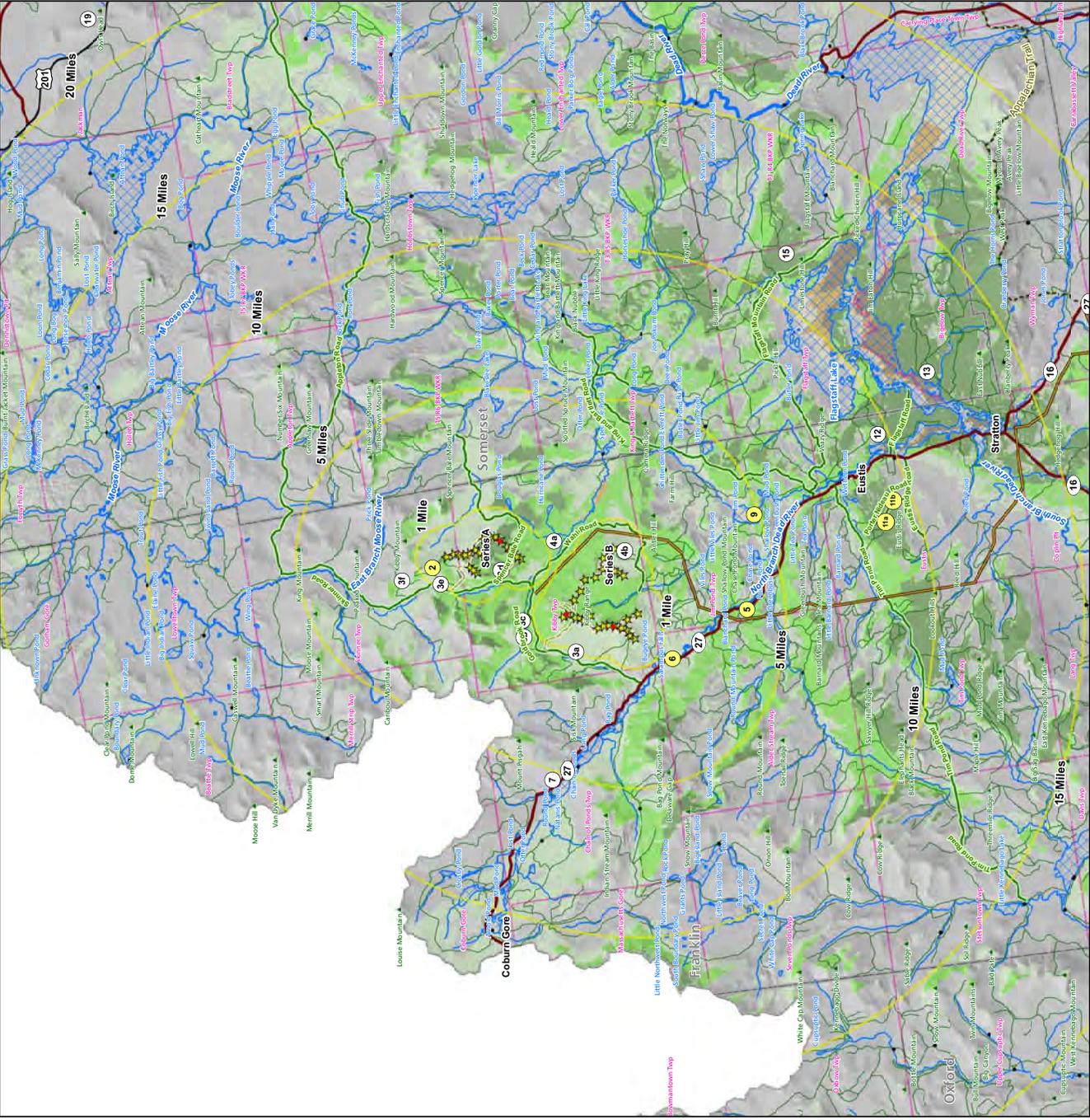
### Legend

- ★ Proposed Wind Turbines
- Meteorological Towers
- Proposed 115 Kv Transmission Line
- 1-18 Turbines Visible in Forest
- 19-34 Turbines Visible in Forest
- 35-51 Turbines Visible in Forest
- 1-18 Turbines Visible in Clearing
- 19-34 Turbines Visible in Clearing
- 35-51 Turbines Visible in Clearing
- - - Appalachian Trail
- - - Project Road/Tail
- Rivers and Streams
- Lakes and Ponds
- County Boundaries
- Town Boundaries

### View Points

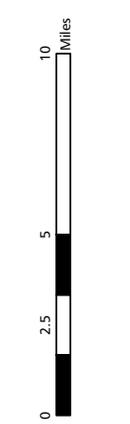
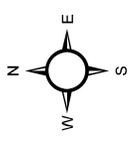
Yellow = Has Simulation / White = No Simulation

Point ID	Description
2	Kibby Mountain Fire Tower
3a-f	Goldbrook Road
4a-b	Wahl Road
5	Route 27 - Vine Road
6	Saramopus Falls Picnic Area
7	Chain of Ponds
9	Jim Pond
11a-b	Eulis Ridge Porter Nideau Road
12	Flagstaff Road/Dead River Causeway
13	Flagstaff Lake
15	Flagstaff Mountain Road
19	Jackman Rest Area



### View Shed Analysis Technical Information

<b>Turbine Manufacturer</b>	Vestas
<b>Turbine Model</b>	V90-3.0 MW
<b>Turbine Height (tip of blade)</b>	125 m / ~410 ft.
<b>Vegetation Height Used</b>	upland deciduous forest, upland deciduous forest, upland scrub/shrub, estuarine shrub (E2S), marine sand/mud shore (M2US), coniferous swamp (PFOcon), deciduous swamp (PFOdec), coniferous shrub swamp (PSScon), upland mixed forest
<b>Date of Landcover Data</b>	1997
<b>Width of Road Buffer Applied Against Vegetation Increase</b>	10.9728 m / 36 ft.
<b>Width of River Buffer Applied Against Vegetation Increase</b>	12.192 m / 40 ft.
<b>Earth Curvature Correction Used?</b>	Yes
<b>Viewshed Analysis Software</b>	PC ArcInfo/Desktop 9.1
<b>DEM Accuracy</b>	1/3 Arc Second / 10m
<b>Data Source</b>	http://seamless.usgs.gov DEM: USGS; turbine locations and Project Specific Data: AMEC; All other data: Maine GIS
<b>Units Used For Calculations</b>	Meters
<b>Map Prepared By</b>	STONE ENVIRONMENTAL INC



significant public viewing areas were visited to determine actual visibility and the characteristics of the views such as the duration of view and how the project ridges appeared within views. Field assessments were conducted for frequently used public roads, frequented lakes and ponds, trails and mountain tops with views, and for other sites identified by local officials or citizens, or in local and state planning documents as having potential significance.

Photographs were taken from many of the points from which the project would be visible. All photographs of the project site were taken with the equivalent of a 50 millimeter (mm) lens, which most closely reflects what the human eye sees. Where varying focal lengths were used, that information was recorded. GPS points were recorded for each viewpoint.

Simulation photographs<sup>4</sup> were prepared to illustrate the anticipated view with the Kibby Wind Power Project in place. Simulations are provided from Kibby Mountain (Figures 9-9 and 9-10) in order to illustrate a representative near-view location; from the Sarampus Falls Rest Area on Route 27 (Figure 9-11) to illustrate the closest public vantage point; from Route 27 near Vine Road (Figure 9-12) to illustrate a location along Route 27 with a brief glimpse of the project; from Porter-Nideau Road on Eustis Ridge (Figure 9-13) to reflect a distant, but direct view of project ridgelines; from Jim Pond (Figure 9-14) which is another public vantage with relatively close, although limited, views; and Avery Peak on the Bigelow Range on the Appalachian Trail (Figure 9-15) to reflect a distant but highly valued viewing location. The simulation locations were selected based on public comments and to present a range of different settings and distances.

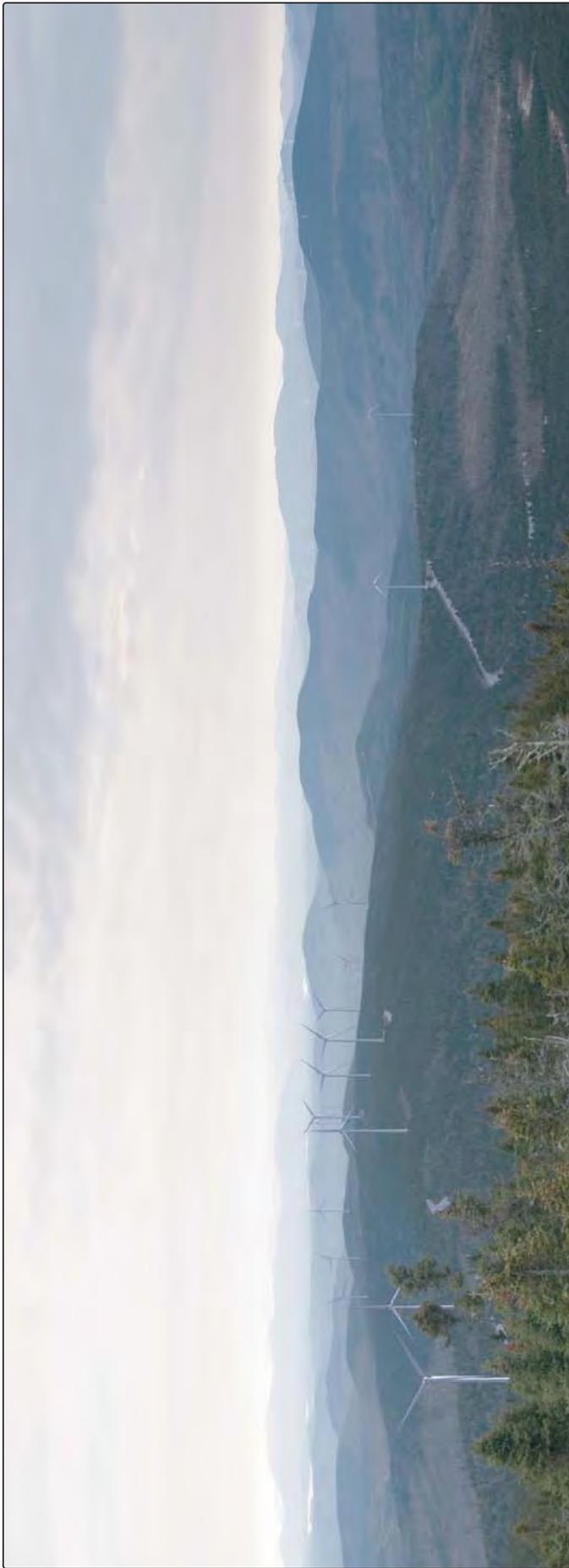
Some viewpoints have greater sensitivity to aesthetic impacts than others due to factors such as the expected experience level (e.g., a natural landscape without motorized vehicles or equipment), the distance from the project, the duration of view, the scenic quality of the view, and the expressed public value in either local, state or national planning or other documents. This context was considered in the evaluation. The assessment of visual impacts examines the degree to which characteristics of the proposed project and its effects on the surrounding landscape character may affect the overall experience of the landscape within the region as a whole or degrade views from highly sensitive viewpoints.

### **9.6.2 Project Visual Characteristics**

The visual impacts of the turbines, associated access roads, collector lines, and the proposed Kibby Substation are addressed in this section. Consideration was also given to the potential nighttime visual impact of required safety lighting. The turbines will be lit at night. Current FAA

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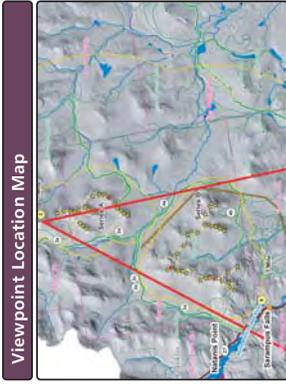
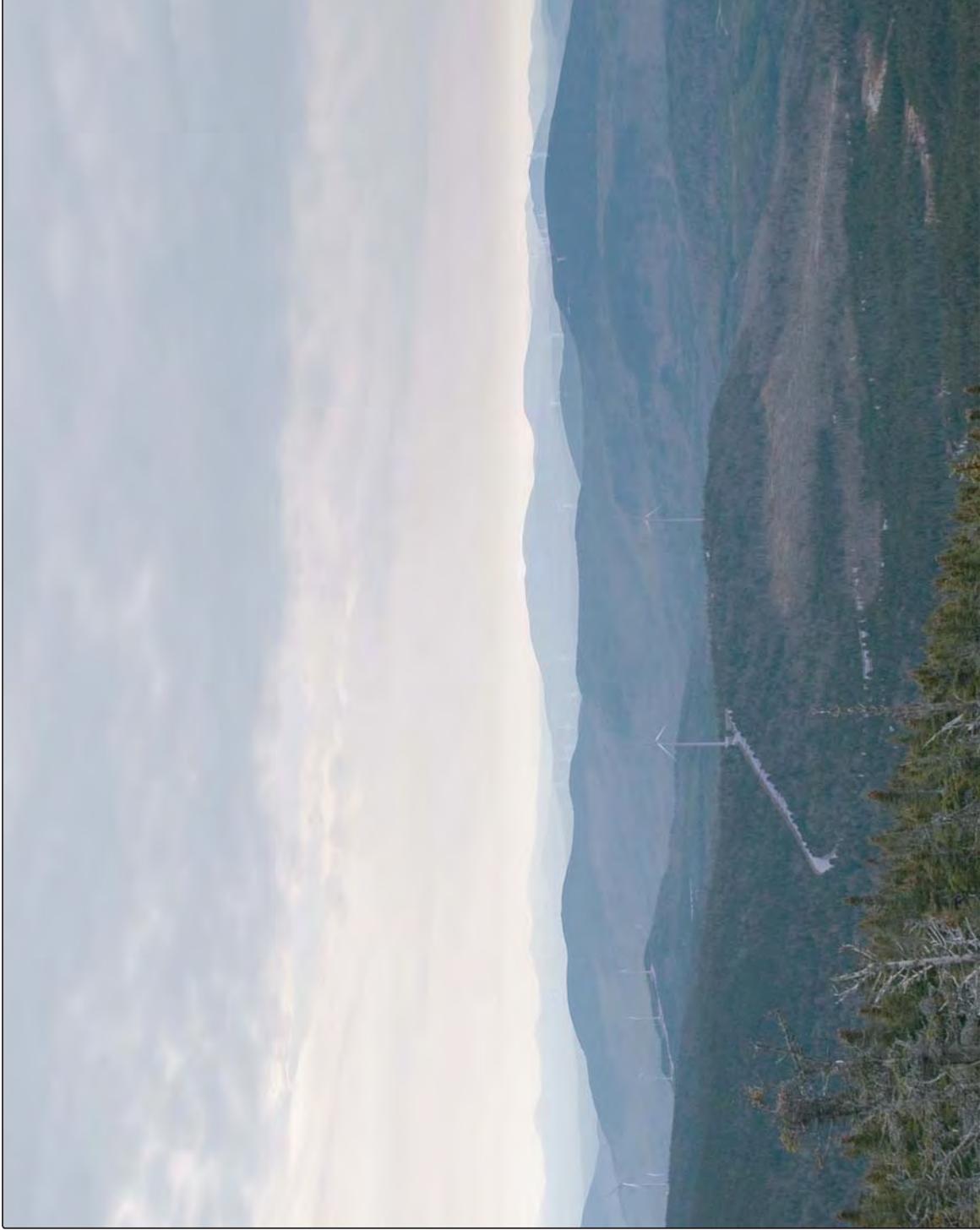
<sup>4</sup> A note about nomenclature: Landscape Architects generally use the term “photographic simulation” to referring to a photograph on which images of turbines or other proposed development are superimposed to “simulate” how the project will appear from particular viewpoints. Computer specialists are now using the term “photomontage” to refer to the layering of other images onto a photograph, while “simulation” refers to a virtual landscape image created using digital elevation modeling and enhancing it with digitally created images of trees, buildings, roads, etc. to mimic existing conditions. These virtual images have not been used in this report.



Note: This panorama was created from the montages shown for Viewpoint 1a and Viewpoint 1b. For technical information on the montages, please refer to the figures for those viewpoints.

Prepared for:  
 TransCanada  
 Jean E. Vissering Landscape Architecture  
 STONE ENVIRONMENTAL INC  
 Xtra-Spatial Productions, LLC.

Viewpoint #1: Kibby Mountain Fire Tower Panorama



Viewpoint Location Map



Original Image

**Technical Information**

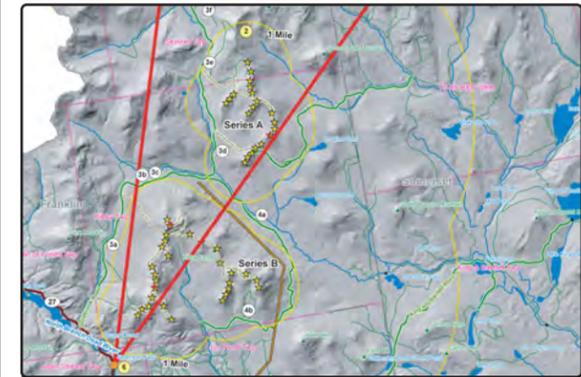
<b>Turbine Information</b>	<b>Turbine Model</b>	V90-3.0 MW
	<b>Hub Height</b>	80 meters
	<b>Rotor Diameter</b>	90 meters
	<b>Turbine Layout Date</b>	November 7th, 2006
<b>Viewpoint Information</b>	<b>Waypoint #</b>	057
	<b>View Coordinates (easting, northing)</b>	379,848.7 m, 3530,118.1 m
	<b>Viewpoint Location</b>	Kibby Mountain Firetower
	<b>Viewer Elevation</b>	1109.2 m / 3639.06 ft.
	<b>Angle of View / H.F.O.V.</b>	186.75° / 40.0°
	<b>Distance to Closest Turbine</b>	.587 MI (TURA01)
	<b>Distance to Farthest Turbine</b>	7.090 MI (TR B-16)
	<b>Camera Model</b>	Olympus E500
	<b>Lens Setting</b>	50mm
	<b>f-Stop</b>	7.1
	<b>Date and Time</b>	2006/11/11-11:30:40
	<b>Proper Viewing Distance</b>	16.19 inches

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 TransCanada  
 Prepared by:  
 Jean E. Vissering Landscape Architecture  
 STONE ENVIRONMENTAL INC  
 Xtra-Spatial Productions, LLC

Viewpoint # 1b: Kibby Mountain Fire Tower South



**Viewpoint Location Map**



**Original Image**



**Technical Information**

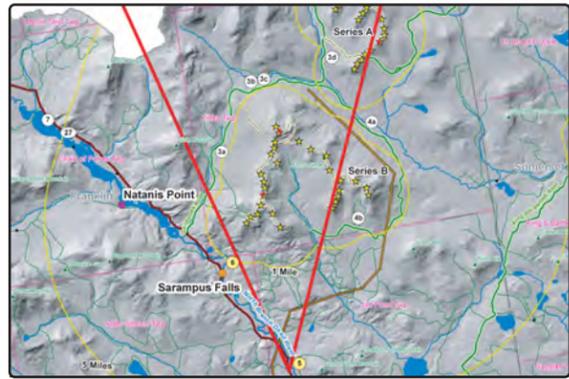
Turbine Information	
<i>Turbine Model</i>	V90-3.0 MW
<i>Hub Height</i>	80 meters
<i>Rotor Diameter</i>	90 meters
<i>Turbine Layout Date</i>	November 7th, 2006
Viewpoint Information	
<i>Waypoint #</i>	014
<i>View Coordinates (easting, northing)</i>	374182.24 m, 5017664.42 m
<i>Viewpoint Location</i>	Rte. 27 - Sarampus Falls
<i>Viewer Elevation</i>	375.212 m / 1231.00 ft.
<i>Angle of View / H.F.O.V.</i>	20.15° / 28.07°
<i>Distance to Closest Turbine</i>	1.392 Mi (TR B-14)
<i>Distance to Farthest Turbine</i>	1.949 Mi (TR B-11)
<i>Camera Model</i>	Olympus E500
<i>Lens Setting</i>	50mm
<i>f-Stop</i>	5.0
<i>Date and Time</i>	2006/10/10-09:52:00
<i>Proper Viewing Distance</i>	23.6 inches

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 Prepared by:  Jean E. Vissering Landscape Architecture  
 STONE ENVIRONMENTAL INC  
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**Viewpoint #6: Sarampus Falls Picnic Area**



**Viewpoint Location Map**



**Original Image**



**Technical Information**

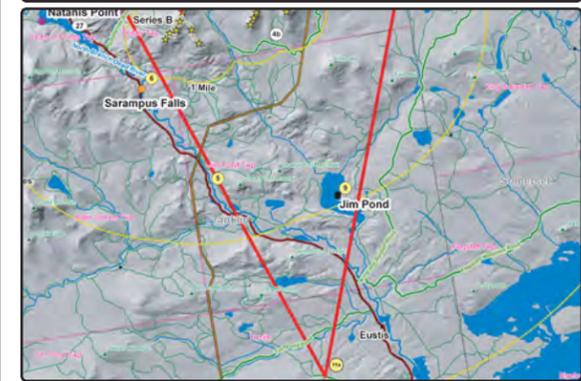
Turbine Information	
<i>Turbine Model</i>	V90-3.0 MW
<i>Hub Height</i>	80 meters
<i>Rotor Diameter</i>	90 meters
<i>Turbine Layout Date</i>	November 7th, 2006
Viewpoint Information	
<i>Waypoint #</i>	064
<i>View Coordinates (easting, northing)</i>	376818.76 m, 5013878.65 m
<i>Viewpoint Location</i>	Rte. 27 - near Vine Road
<i>Viewer Elevation</i>	376.458 m / 1235.08 ft.
<i>Angle of View / H.F.O.V.</i>	353.75° / 38.58°
<i>Distance to Closest Turbine</i>	13.644 Mi (TR B-25)
<i>Distance to Farthest Turbine</i>	19.162 Mi (TURA01)
<i>Camera Model</i>	Olympus E500
<i>Lens Setting</i>	50mm
<i>f-Stop</i>	5.0
<i>Date and Time</i>	2006/11/11-14:31:15
<i>Proper Viewing Distance</i>	16.90 inches

Prepared for:  **Jean E. Vissering Landscape Architecture**  
 Prepared by:  **STONE ENVIRONMENTAL INC**  
 Xtra-Spatial Productions, LLC.

**Viewpoint #5: Route 27 Near Vine Road**



### Viewpoint Location Map



### Original Image



### Technical Information

Turbine Information	
<i>Turbine Model</i>	V90-3.0 MW
<i>Hub Height</i>	80 meters
<i>Rotor Diameter</i>	90 meters
<i>Turbine Layout Date</i>	November 7th, 2006
Viewpoint Information	
<i>Waypoint #</i>	067
<i>View Coordinates (easting, northing)</i>	381550.98 m, 5006171.91 m
<i>Viewpoint Location</i>	Eustis Ridge
<i>Viewer Elevation</i>	468.003 m / 1535.42 ft.
<i>Angle of View / H.F.O.V.</i>	349.875° / 39.5°
<i>Distance to Closest Turbine</i>	9.343 Mi (TR B-25)
<i>Distance to Farthest Turbine</i>	15.032 Mi (TURA01)
<i>Camera Model</i>	Olympus E500
<i>Lens Setting</i>	50mm
<i>f-Stop</i>	5.6
<i>Date and Time</i>	2006/11/11-15:23:04
<i>Proper Viewing Distance</i>	16.43 inches

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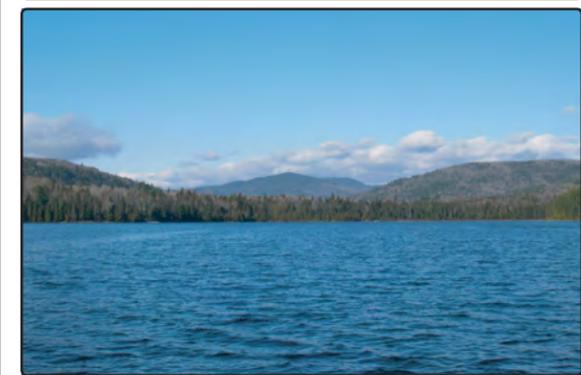
**Viewpoint #11a: Porter Nideau Road, Eustis Ridge**



**Viewpoint Location Map**



**Original Image**



**Technical Information**

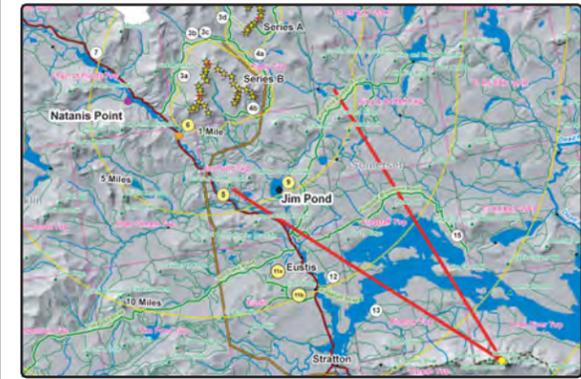
Turbine Information	
<i>Turbine Model</i>	V90-3.0 MW
<i>Hub Height</i>	80 meters
<i>Rotor Diameter</i>	90 meters
<i>Turbine Layout Date</i>	November 7th, 2006
Viewpoint Information	
<i>Waypoint #</i>	043
<i>View Coordinates (easting, northing)</i>	382047.49 m, 5013318.40 m
<i>Viewpoint Location</i>	Jim Pond
<i>Viewer Elevation</i>	374.76 m / 1229.51 ft.
<i>Angle of View / H.F.O.V.</i>	318.7° / 38.58°
<i>Distance to Closest Turbine</i>	5.064 Mi (TR B-25)
<i>Distance to Farthest Turbine</i>	7.479 Mi (TR B-01)
<i>Camera Model</i>	Olympus E500
<i>Lens Setting</i>	50mm
<i>f-Stop</i>	7.1
<i>Date and Time</i>	2006/11/01-11:45:21
<i>Proper Viewing Distance</i>	16.90 inches

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 Prepared by:  Jean E. Vissering Landscape Architecture  
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 Xtra-Spatial Productions, LLC.

**Viewpoint #9: Jim Pond**



**Viewpoint Location Map**



**Original Image**



**Technical Information**

Turbine Information	
<i>Turbine Model</i>	V90-3.0 MW
<i>Hub Height</i>	80 meters
<i>Rotor Diameter</i>	90 meters
<i>Turbine Layout Date</i>	November 7th, 2006
Viewpoint Information	
<i>Waypoint #</i>	None
<i>View Coordinates (easting, northing)</i>	399752.46 m, 5000037.09 m
<i>Viewpoint Location</i>	Avery Peak
<i>Viewer Elevation</i>	1242.66 m / 4076.92 ft.
<i>Angle of View / H.F.O.V.</i>	314.2° / 25.8°
<i>Distance to Closest Turbine</i>	15.698 Mi (TR B-28)
<i>Distance to Farthest Turbine</i>	20.746 Mi (TURA01)
<i>Camera Model</i>	Olympus E500
<i>Lens Setting</i>	50mm
<i>f-Stop</i>	22.0
<i>Date and Time</i>	2006/09/12-12:28:38
<i>Proper Viewing Distance</i>	25.77 inches

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 STONE ENVIRONMENTAL INC  
 Xtra-Spatial Productions, LLC.

**Viewpoint #17: Avery Peak, Appalachian Trail**

guidelines recommend one red (L-864) nighttime strobe mounted on top of the nacelle of turbines at the beginning and end of each string and approximately every ½ mile (0.8 km) in between. Preliminary FAA review suggests that up to 25 of 47 turbines<sup>5</sup> may require lighting. TransCanada will continue to work with FAA to ensure that safety requirements are met with minimal lighting.

### **9.6.3 Project Site Characteristics**

The project ridges are relatively horizontal in form with small undulations. The northernmost ridge lies approximately 0.6 miles (1 km) south of the summit of Kibby Mountain, the highest point along the ridge (elevation 3,638 feet [1,109 m]) and the location of a fire tower. The flanks of Kibby Mountain have been recently logged up to 2,700 feet (823 m). A major secondary forestry management road, Spencer Bale Road, also traverses the southern end of Kibby Mountain.

Kibby Range is a long slightly undulating ridge that divides into two forks to the south and southeast. The highest point is at the northern end of the range at 3,286 feet (1,002 m). While small saddle areas dip below 2,700 feet (823 m), most of the ridgeline is between 2,800 feet (854 m) and 3,000 feet (915 m) in elevation. The western fork or prong extends farthest south and is visible from Route 27 by the Sarampus Falls Rest Area. The ridge has been heavily logged up to 2,700 feet (823 m) in elevation and logging roads currently surround much of the ridge.

### **9.6.4 Character of the Region**

The project is located in the Boundary Mountains which extend southwesterly to northeasterly from New Hampshire to Attean Pond along the border between Maine and Quebec, Canada. These mountains are part of the Appalachian Mountains, but separated from the ridges to the southeast over which the Appalachian Trail runs (sometimes referred to as the “Longfellows”) by the Dead River valley. Within the study area there are no mountains over 4,000 feet (1,220 m) in elevation, but there are 17 named mountains over 3,000 feet (915 m) (Table 9-9). The valleys in between are characterized by numerous streams, wetlands, lakes and ponds. The area has a long history of logging activities as noted on a series of historical plaques at the Sarampus Falls Rest Area on Route 27. Route 27 is the only State Route within the 15-mile (24.2 km) radius, with the exception of a small portion of Route 16 west and south of Stratton. Both these roads are in the deeper valleys formed by the Dead River. In the wider plains around Stratton, both the North and South Branches of the Dead River take a meandering course and empty into Flagstaff Lake, most of which is an artificially created impoundment. To the south of Flagstaff Lake the Bigelow Mountain Range (Figure 9-16) rises steeply and its jagged peaks form a strong and compelling focal point within the area.

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<sup>5</sup> Note that only 44 turbines will be installed.



**FIGURE 9-16: Bigelow Range from Cathedral Pines Rest Area**

**Table 9-9: Mountains within 15-mile Study Area**

	<b>Height* (feet)</b>
Snow Mountain	3960
East Kennebago Mountain	3791
Kibby Mountain	3638
Boil Mountain	3601
Tumbledown Mountain	3542
Caribou Mountain	3375
Pisgah Mountain	3355
Kibby Range	3286
Spencer Bale Mountain	3285
Sisk Mountain	3270
Smart Mountain	3245
Cranberry Peak	3213
Bag Pond Mountain	3173
Number 5 Mountain	3168
Three Slide Mountain	3112
Peaked Mountain	3037
Round Mountain	3027

\* Data from Maine's Highest Summits at [americasroof.com](http://americasroof.com) and from [peakbaggers.com](http://peakbaggers.com)

A network of gravel roads runs around the various Boundary Mountains. These are primarily used by logging trucks but also by others including hunters, fishermen, snowmobilers, 4-wheelers and hikers. Some of the heavier-traveled roads include Gold Brook Road (also known as Beaudry Road) which runs along the west side of the project ridges in a north-south direction and the Spencer Road (also known as Appleton Road/Hardscrabble Road) which runs north of Kibby Mountain in a west-east direction all the way to Route 201 to the east. Other well used gravel roads include King and Bartlett Road, Tim Pond Road, Flagstaff Road and Eustis Ridge Road. While these roads are passable most of the year, high clearance vehicles are recommended and care must be taken to avoid logging trucks. For most other roads high clearance vehicles are a necessity. There are a number of private sporting camps accommodating visitors in the area, including King and Bartlett Camp on King and Bartlett Lake, Tim Pond Camps, Tea Pond Camps, the Megantic Club on Big Island Pond, and Kibby Camps on Spectacle Pond.

Significant lakes and ponds within the area include Flagstaff Lake; Jim Pond; several ponds within Chain of Ponds including Natanis Pond, Long Pond, Bag Pond, and Lower Pond; Tim Pond; Spencer Lake; King and Bartlett Lake; and Big Island Pond. There are also numerous streams that are valued for fishing and provide scenic views from roadsides.

The Appalachian Trail is approximately 15.5 miles (25 km) south of the project at its nearest point. Cranberry Peak within the Bigelow Range is a relatively popular hiking destination and at

the edge of the study area. Within the study area there are numerous peaks, several of which have fire towers on top and many of which are accessible by informal trails or logging roads (Table 9-9).

Stratton is the largest village within the study area and its center about 13.5 miles (21.7 km) from the project. Its setting on the shore, of Flagstaff Lake and the dramatic views of the Bigelows are a draw for tourists along with access to Sugarloaf ski area and to extensive areas for hunting, fishing, snowmobiling, and hiking in the area. Eustis is a smaller hamlet to the north and Coburn Gore is at the Canadian border. There are several very small relict settlements along the Montreal Maine Railroad Line including Lowelltown, Skinner, and Keough.

### **9.6.5 Visibility of the Proposed Project within the Region**

Views of the proposed project will be relatively limited due to intervening ridges and forest cover. Nevertheless, every wind project is visible from some viewpoint. Viewpoints are discussed below along the general character of the views. The distance from the proposed project (closest turbine) is indicated in parentheses next to the viewpoint location title. In many cases, only a few of the turbines will be visible from a particular viewpoint (see Table 9-10). The significance of the views and their aesthetic impacts will be discussed in Section 9.6.6.

#### **9.6.5.1 Areas Within the Study Area With No Visibility of the Project**

There will be no visibility of the project from Meyer's Beach on Flagstaff Lake, from Spencer Lake, Attean Pond, Holeb Pond, Holeb Falls or the Moose River, Fish Pond, Enchanted Pond, Pierce Pond, Whipple Pond, Moore Pond, Bail Pond, Bog Pond, Tobey Ponds, Boulder Pond, Egg Pond, Rock Pond, Iron Pond, Twin Island Pond, Trout Pond, Big and Little Indian Ponds, Shaw and Lower Shaw Ponds, Tea Pond, Big and Little Island Ponds, L Pond, Beaver Pond, Long Pond, Secret Pond, Little Kennebago Lake, and Stratton Brook Pond. There would also be no visibility from ponds: Shallow, Chase, Butler, Wing, Beattie, Barrett, Everett, Chittenden, Bear, Long (King and Bartlett Township), Little King, Rock, Iron, Prick, and Joe Pokum Ponds.

There will also be no visibility of the project along Spencer Road, or from the summits of King Mountain or Peaked Mountain.

#### **9.6.5.2 Viewpoints Within ½ Mile (0.8 km) of the Project**

Views within a ½ mile (0.8 km) are considered to be **foreground** views. In these locations details can be perceived such as the texture of leaves on a tree. There are no significant viewpoints within a ½ mile (0.8 km). Hunters, snowmobilers and loggers use existing logging roads and the forests generally within this distance, but there are no camps, public roads, or designated recreation areas. Typical photographs of each ridge area are shown in Figures 9-17 and 9-18.

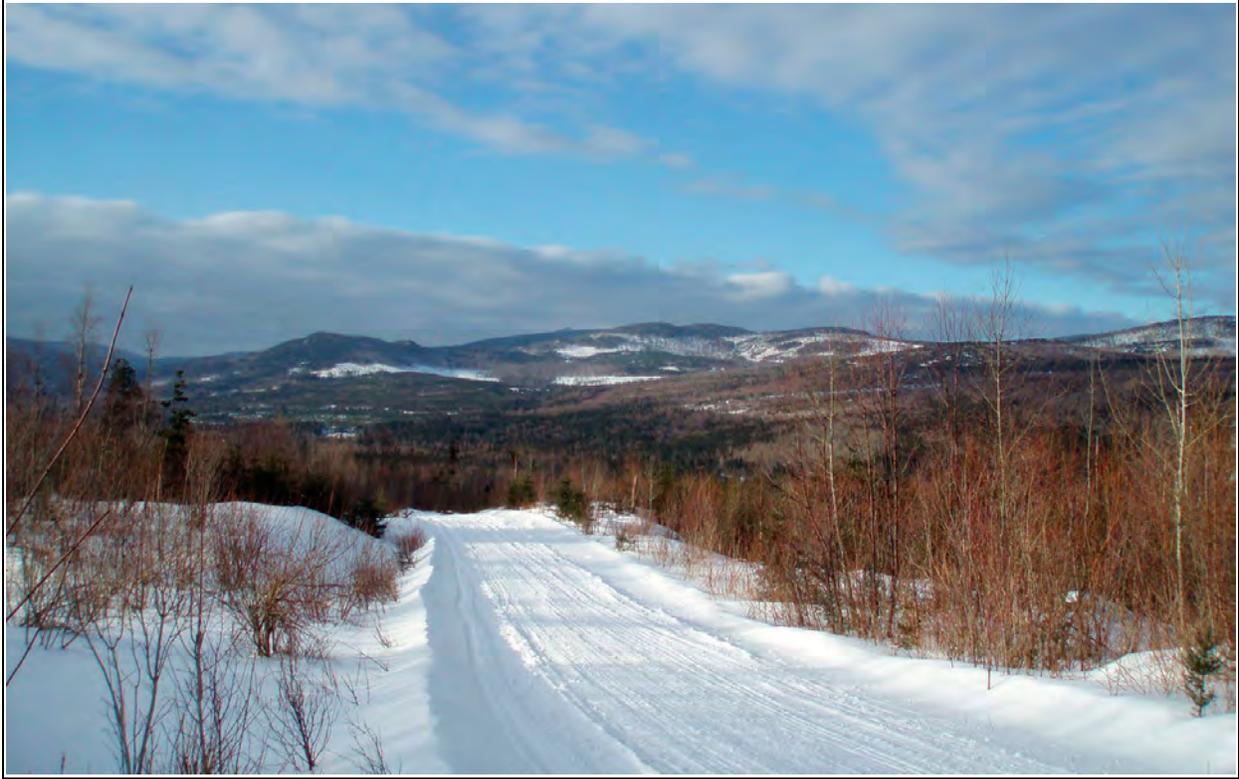


Figure 1. Kibby Mountain (A Series) from Wahl Road.  
This is one of the few vantage points where the entire range is visible in close proximity.



Figure 2. Kibby Range (B Series) from Spencer Bale Road

**Table 9-10: Kibby Wind Power Project Viewpoint Summary**

<b>Viewpoint/ Photo #</b>	<b>Location</b>	<b>Distance To Nearest/ Farthest Visible Turbine (miles)</b>	<b>Approximate Duration of View (miles)</b>	<b>Number of Turbines in View</b>	<b>Notes</b>
1	Spencer Bale Road	0.2/4	0.5	15	Spencer Bale Road is a private logging road and would provide access to the proposed project. It runs along the southern end of the Series A ridge. Logging activities open up views to both the Kibby Range and to turbines along Kibby Ridge (Series A).
2 <b>Simulation</b>	Kibby Mountain Fire Tower	0.6/7.1	Point	44	Seen as part of a 360° panorama within relatively narrow arc to south and southwest; project viewed below the observer and seen with backdrop of distant mountains; portions of roads and project site clearing will be visible.
3a-f	Gold Brook Road	0.8/3.3	0.5 Intermittently	27	This is one of the more heavily used private logging roads in the area. Project ridges are glimpsed intermittently and in some cases portions would be seen directly ahead in views.
4a/3b	Wahl Road	1.1/4.7	0.5 Intermittently	26	Turbines as well as the substation, collector lines and transmission line will be visible along Wahl Road. Currently there is extensive logging activity along this road.
5 <b>Simulation</b>	Route 27	1/6	0.5 Intermittently	22	Visible from the vicinity of Vine Road and around Sarampus Falls Picnic Area; most views along Route 27 are of other area mountains. Possibility of views from Stratton village but intervening buildings and trees combined with the distance (10 miles) will make them extremely difficult to see.
6 <b>Simulation</b>	Sarampus Falls Picnic Area	1.4/1.9	Point	6	The turbines will be difficult to see from the picnic area but the tops of turbines will be visible from the grassy area near the River and Falls.

<b>Viewpoint/ Photo #</b>	<b>Location</b>	<b>Distance To Nearest/ Farthest Visible Turbine (miles)</b>	<b>Approximate Duration of View (miles)</b>	<b>Number of Turbines in View</b>	<b>Notes</b>
7	Chain of Ponds	1.9/3.8	1 mile Intermittently	15	Only three turbine blades will be visible from Natanis Pond, but more will be visible along the eastern sides at the lower end of the Chain of Ponds, especially from Lower Pond.
8	Spectacle Pond	3.6/6.1	2/3 of pond	12	Viewshed analysis indicates potential views of up to 12 turbines from the eastern side of the pond.
9 <b>Simulation</b>	Jim Pond	4/7.5	Most of Pond	24	The project would not be visible from the boat launch areas or campsites, but a portion of the Kibby Range (Series B) would be visible from camps around the pond and from the pond itself.
10	King and Bartlett Lake	7.5/9.7	Half of Pond	16	The project will be visible from the southeastern portions of the pond. It would not be visible from the camp area.
11a-b <b>Simulation</b>	Eustis Ridge, Porter - Nideau Road	9/15	0.2	42	Project would be glimpsed from the road in two locations by open meadows but more visible to homes in the area.
12	Flagstaff Road/Dead River Causeway	9.9/15.1	0.1	37	The causeway crosses the Dead River with lovely views looking south to the Bigelow Range; the Kibby Range (Series B) is visible to the northwest.
13	Flagstaff Lake	10-20	Half of Pond	44	Larger trees along the shoreline block many views around the lake, but the project would be visible from some open water areas and from a few campsites such as Safford Brook. Views around the lake tend to be focused on the dramatic Bigelow Range.
14	Tim Pond	11/18	¼ of Pond	24	Project may be visible from the southern portions of Tim Pond.

Viewpoint/ Photo #	Location	Distance To Nearest/ Farthest Visible Turbine (miles)	Approximate Duration of View (miles)	Number of Turbines in View	Notes
15	Flagstaff Mountain Road	11.3/15	0.1	44	At the height of land on the flanks of Flagstaff Mountain there is a viewpoint overlooking Flagstaff Lake. The Kibby ranges are visible at the edge of the view.
16	Cranberry Peak	15/20	Point	44	A popular and relatively easy hike in the Bigelows with a broad panorama including the Kibby ranges.
17 <b>Simulation</b>	Bigelow Range/ Appalachian Trail <sup>6</sup>	15.7/20	0.5	44	The project ridges are seen in the background with a backdrop of more distant mountains so that the turbines would be difficult to see. Part of large panorama of views. Clearing for the transmission line as it crosses the Bigelow preserve may be visible from some vantage points on the Bigelow range.
18	Crocker Mountain	21/27	Point	-	Only a portion of the project ridges are seen from this viewpoint. The Bigelow Range is prominent in the foreground while the Kibby ranges are seen in the background along with other mountains.
19	Jackman Rest Area	21/27	Point	-	A relatively small portion of the Kibby Range is visible from this point. Numerous intervening ridges and great distance would make the project difficult to see.

### 9.6.5.3 Viewpoints Within 1 Mile (1.6 km)

Viewpoints between ½ mile (0.8 km) and up to 5 miles (8.1 km) are considered to be **middleground** views. Given the size of wind turbines, one could argue that foreground views be extended to 1 mile (1.6 km) away. Therefore, views within 1 mile (1.6 km) will be discussed

<sup>6</sup> The Appalachian Trail and the Jackman Rest Area are outside the 15 mile (24.2 km) study area but are included here as significant viewpoints just beyond 20 miles (32.2 km) of the nearest turbine. Data for numbers of turbines in the view is not available outside the 20 mile (32.2 km) radius study area.

separately from those greater than 1 mile (1.6 km) up to 5 miles (8.1 km) away. All of these views are from locations on private property owned by Plum Creek.

### ***Kibby Mountain (0.6 mile [1km])***

Kibby Mountain is accessible off Gold Brook Road from a logging road that will provide access to the northern portion of the proposed project. A 3-mile (4.8 km) trail leads to a 15-foot (4.6 m) raised platform (a former state fire tower) at the summit of Kibby Mountain at 3,638 feet (1,109 m) in elevation. The fire tower provides 360° views. Both the Kibby Mountain and Kibby Range portions of the project will be visible beginning just under 1 mile (1.6 km) away and extending to about 6.5 miles (10.5 km) away to the south. There will be unobstructed views to a full panorama of other mountains that are visible in the surroundings including Spencer Bale, Tumbledown, Three Slide, Peaked, Caribou, Megantic in Canada, Sisk, Snow, Bag, and Round. In the distance the Bigelows are visible along with Flagstaff Lake, and the Sugarloaf-Saddleback Range. One estimate for the use of this mountain was that about 150 hikers ascend during the summer and about a dozen others during other times of year. There is one private camp that shares its access with a portion of the trail. The project will not be visible from the camp.

### ***Gold Brook Road (0.8 mile [1.3 km])***

Gold Brook Road is a major logging road running west of the project site. It is also used by recreationalists for access into the backcountry for hunting, fishing, snowmobiling, ATV use, and hiking. Gold Brook Road continues along the west side of the project ridges for about 15 miles (24.2 km). There are several viewpoints which are documented on the 15-Mile Viewshed Map (Figure 9-8) and illustrated in Figure 9-19. North of the 12 mile (19.3 km) marker and continuing east on Spencer Road there are no views of the project ridges. The project ridges cannot be seen from any points along Spencer Road which extends about 20 miles (32.2 km), where it joins Route 201. This stretch of road is very scenic with less vegetative disturbance than along Gold Brook Road. There are no private camps along Gold Brook Road. There is one forest campsite which will not have views of the project.

### ***Wahl Road (0.8 mile [1.3 km])***

Wahl Road provides access to logging trucks and others around nearly the entire Kibby Range (the location of the Series B turbines). There will be a few views of the project site, the substation and transmission lines along this road. One branch of the road, which will also be a project access road, leads to an area on the south side of Kibby Range where there are views south toward the Bigelow Range, Flagstaff Lake and the Sugarloaf to Saddleback range. The immediate foreground, however, has been recently logged and logging operations appear to be ongoing all along Wahl Road. There are no camps along Wahl Road.



Figure 6. Views from Gold Brook Road (2 miles)  
Left to Kibby Mountain (A Series); Right to Kibby Range (B Series)

#### **9.6.5.4 Viewpoints within 5 Miles (8.1 km)**

Areas within 5 miles (8.1 km) are considered to be **middleground** views. At this range in very clear conditions the form of individual trees can be perceived but not the details such as leaves and bark. In clear weather conditions, vegetated areas may be perceived in warmer color ranges including shades of green, yellow, or red rather than the blue or purple range that is characteristic of distant views (beyond 5 miles [8.1 km]). Within the middleground range, objects or groups of objects such as proposed wind turbines would be visible but part of a larger landscape setting including, for example, landforms, water features and vegetation patterns.

#### ***Route 27 (1.5 miles [2.4 km]) (Simulation)***

The project will be visible in only a few locations along Route 27 by Sarampus Falls and a few locations to the south at distances ranging from 1.3 to 3 miles (2.1 to 4.8 km) away. Numerous views of mountain summits alternate with dense forests, wetlands and ponds along Route 27 as it twists and turns along the North Branch of the Dead River. It is also known as The Arnold Trail in reference to Benedict Arnold's voyage up the Dead River in his attempt to defeat British Troops in Canada during the Revolutionary War. It is also designated as a Maine scenic highway in this area. In all but a few of these views, mountain summits other than Kibby are seen.

There are two rest areas along Route 27: at Sarampus Falls and on Natanis Pond. Both provide scenic settings and Sarampus Falls has picnic tables and historic plaques about the history of logging in the areas. A small part of the project (six turbines) will be seen from the Sarampus Falls Rest Area. The project will not be visible from the Natanis Pond Overlook Rest Area. The project will also be visible along Route 27 south of the Sarampus Falls Rest Area near Vine Road and a few other points just south of the Sarampus Falls Rest Area. All will be relatively quick glimpses of some of the turbines on Series B.

#### ***Chain of Ponds: Natanis, Long, Bag and Lower Ponds (1.9 miles [3.1 km])***

The northern end of Chain of Ponds and the northeastern shore are within Maine Public Reserve Lands. Area recreational opportunities include a 4-mile (6.4 km) paddle along Chain of Ponds. There are lovely views of the Bigelow Range looking down the lake from Natanis Point. From a private campground at Natanis Point, blades of three turbines may be visible. Views of up to 15 turbines are possible from the western edge of Bag and Lower Ponds. There are some undeveloped campsites on the shore from which visibility of the project is unlikely. Users are cautioned that despite the beauty of paddling along these ponds, the presence of Route 27 and its abundant logging trucks makes it quite noisy at times<sup>7</sup>.

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<sup>7</sup> From the following website: [outdoors.maintoday.com/paddlingtrips](http://outdoors.maintoday.com/paddlingtrips)

### ***Spectacle Pond (3 miles [4.8 km])***

This small pond known as the location of Kibby Camps has been used for a number of recreational activities including Campfire Club of America, Ducks Unlimited, and Unity College. Viewshed maps indicate potential visibility of up to 13 turbines, but trees surrounding the pond may limit views.

### ***Round Mountain Pond (4 miles [6.4 km])***

There are several camps on this small pond. About 13 turbines may potentially be visible from the western end of Round Mountain Pond.

### ***Other Small Ponds***

There are other small ponds within the 5-mile (8.1-km) radius that may have views of the turbines. Douglas Pond, Hurricane Pond, Blakeslee Lake, Little Jim Pond, Chase Pond, and Blanchard Pond have potential for views of up to 13 turbines.

#### **9.6.5.5 Viewpoints from 5-10 Miles (8.1-16.1 km)**

These are considered to be **distant views** and the project ridges are most likely to appear bluish in color. Beyond 8 miles (12.9 km), the turbines, though visible, would become more difficult to see except in clear conditions and generally occupy a small part of overall views.

### ***Jim Pond (5.1 miles [8.2 km]) (Simulation)***

Jim Pond is one of the more accessible ponds to the general public with a boat launch on the western shore suitable for motor boats and a smaller launch at the southeastern end accessible by canoes and kayaks. A portion of Kibby Range (B Series) is seen to the northwest between Antler Hill and other unnamed foreground hills. Portions of up to 24 turbines may be visible as one moves around the lake. Most views will include only a few turbines. The turbines may be visible from several camps on the pond. Antler Hill, Shallow Pond Mountain, Chase Pond Mountain, and another unnamed hill are prominent foreground features looking west and north from Jim Pond. Round Mountain and Snow Mountain can be seen to the west. Antler Hill blocks views of Series A on Kibby Mountain. The turbines will not be visible from the boat launch, camping area or the western shore.

### ***Snow Mountain (6.5 miles [10.5 km])***

Snow Mountain is one of the higher and more prominent peaks in the area. There is a trail to the summit off Route 27 that is accessible to the general public and private access from the Megantic Club. There is a fire tower at the top, although the top cabin recently fell off. Nevertheless, one can see views of the surrounding area from the summit without climbing the tower, including Kibby Range and Mountain.

### ***King and Bartlett Lake (8 miles [12.9 km])***

A few of the Series A turbines may be visible from the eastern portions of King and Bartlett Pond. They will not be visible from the camp area itself. Foreground ridges including King and Bartlett Mountain block a significant portion of the project from the lake.

### ***Eustis Ridge: Porter Nideau Road (9 miles [14.5 km]) (Simulation)***

Eustis Ridge Road heads west from Route 27 leading to residential areas along the south side of the ridge, and to a small picnic area in a grove of maples overlooking Flagstaff Lake, the Bigelow Range, and portions of the Sugarloaf-Saddleback range. There will be no views of the project from the picnic area. Porter-Nideau Road branches off to the north side of Eustis Ridge. There are two areas with foreground meadows from which there will be views of the project. Only the Kibby Range (Series B) turbines will be visible from the road, but residents may be able to see the A Series turbines as well (44 turbines).

### ***Flagstaff Lake (9 miles [14.5 km])***

Flagstaff Lake is very popular for boating, camping and swimming. It offers stunning views to the Bigelow Range just to the south. Portions of Flagstaff Lake are within 10 miles (16.1 km) of the project area. Within these areas views of some of the turbines are likely, especially from open water along the southern and eastern edge of the lake.

### ***Flagstaff Road Causeway (10 miles [16.1 km])***

This is a well-used road especially in summer as it provides access to Meyer's Beach on Flagstaff Lake. The short causeway provides notable views looking south over the Dead River to the Bigelow Range. To the north the Kibby Range is visible. Portions of Kibby Mountain (A Series) may be seen but views are generally blocked by intervening topography.

### ***Crosby Pond, Coburn Gore (10 miles [16.1 km])***

About five of the Series A turbines may be visible from this pond.

#### **9.6.5.6 Viewpoints from 10-15 Miles (16.1 to 24.2 km)**

At these distances the turbines will appear tiny and will occupy only very small portions of views.

### ***Flagstaff Lake (10-15 miles+ [16.1-24.2 km+])***

Within the portions of Flagstaff Lake at these distances visibility is most likely from the eastern and southern edges portions of the "new lake." From many locations views of the project will be blocked by trees along the shoreline. From a few locations the mountain ridges can be seen just over the trees. The project will not be visible from Meyer's Beach or from most campsites along the shoreline.

### ***Tim Pond (11 miles [17.7 km])***

Viewshed analysis indicated potential visibility of 24 Series B turbines from the southern and middle portions of the pond. Views from most of the pond will be blocked by trees and intervening topography.

### ***Flagstaff Mountain Road (11.3 miles [18.2 km])***

Along the flanks of Flagstaff Mountain there is an open overlook providing a 180° view across Flagstaff Lake, the Sugarloaf-Saddleback Range, and up to the Kibby Range. The Series B turbines will be visible from this location, especially during leaf-off conditions. Intervening trees are likely to prevent views of most A Series turbines.

### ***Cranberry Peak (15 miles [24.2 km])***

Cranberry Peak provides a relatively easy climb close to Stratton and offers beautiful views over Flagstaff Lake. The proposed project will be visible along with numerous other mountains in the Boundary range as well as mountains within the Longfellow or Sugarloaf-Saddleback range.

### ***Spring Lake (15 miles [24.2 km])***

A small area on the eastern end of Spring Lake appears to have some potential for visibility of the project.

## **9.6.5.7 Viewpoints 15-20 Miles (24.2-32.2 km)**

These areas are technically outside of the study area due to the significant distance from the project. However, a few of the more sensitive viewpoints within this radius were assessed. From this distance, the project will be seen in the background and occupy only a very small portion of the overall views.

### ***Flagstaff Lake (15-20 Miles+ [24.2-32.2 km+])***

There is potential visibility of the proposed project along the eastern arm of Flagstaff Lake. The ridges are visible from Safford Brook campsite (20 miles [32.2 km]) in the Bigelow Preserve. The campsite is used for canoe camping and by hikers in the Bigelow Range.

### ***Avery Peak, West Peak and the Horns in the Bigelow Range (15.7 miles [25.3 km]) (Simulation)***

The project will be visible from open ridge areas along the Bigelow Range. The Kibby Mountain ranges are seen as part of a wide panorama of mountain peaks throughout the region, and with a backdrop of other mountains behind. Crocker, Sugarloaf, Redington and other peaks in the Longfellow Range would be seen in closer proximity.

## ***Kennebago Lake (17 miles [27.4 km])***

The viewshed analysis indicates potential visibility of a few turbines from a small area on Kennebago Lake.

### ***9.6.6 Viewpoint Sensitivity***

In assessing visual impacts it is necessary to determine the relative sensitivity of the viewpoints involved. In general, all public use areas including roads, recreation areas, historic or cultural resources, town or village centers, and natural or wilderness areas are considered to be sensitive. However certain factors such as the proximity to the project, the expectations of users for a natural or non-motorized experience, or the public recognition of the value of the resource may make some sites more sensitive to aesthetic impacts than others. Sensitivity does not necessarily imply that development should be prohibited. Rather, it is necessary to examine carefully the degree of sensitivity of the resources involved on the project site and from viewpoints, and the degree to which these resources would be degraded, or the degree to which the proposed project will negatively influence the experience of users.

Several factors affecting the sensitivity of views are addressed below. Characteristics of the proposed project which may influence the experience of sensitive sites area follow.

#### ***9.6.6.1 Viewer Expectations/Experience Level***

Sensitivity levels tend to be linked to viewer expectations and the level of concern for scenic quality. The United States Forest Service's Visual Management System identifies sensitivity levels by the importance of the travel route (national vs. local) and by the degree of concern for scenic qualities of the users. There is also a continuum of experience levels from primitive and non-mechanized recreational pursuits to highly developed and fully mechanized recreational pursuits. Of concern within the study area would be the following types of recreation areas.

#### ***Major Travel Routes***

Major travel routes include Routes 27 and 16. There will be very few views from either of these routes. The closest occur on Route 27 and are generally quick glimpses including only a few of the turbines. The only other roadway with significant views of the project is Gold Brook Road which is heavily used by logging vehicles and views generally include considerable logging activity and debris. There will be no views from Spencer Road, one of the more scenic stretches of backcountry roads within the area.

#### ***Hiking Trails***

The major and most significant hiking trail in the area is the Appalachian Trail. The project is about 15.5 miles (25 km) from the Appalachian Trail at its closest point. From the Bigelow peaks the project will be seen with a backdrop of mountains behind, making the turbines less visible (see Simulation). Other scenic viewpoints along the Appalachian Trail such as Saddleback Junior or Mount Abraham are 25 or more miles (40.3 km) away. The foreground

ridges, including Redington, Black Nubble and Crocker are prominent within these views, while the Boundary Mountains generally appear blue in color and at a great distance.

Other hiking trails in the area include Cranberry Peak which is also very far away at 15 miles (24.2 km). Few other mountains receive frequent use, but Tumbledown Mountain and Kibby Mountain provide relatively easy climbs with good views at the top. The project will be visible from the fire towers on Tumbledown Mountain and Kibby Mountain. Though not a major hiking destination, the Kibby summit viewpoint should be considered a sensitive viewing area due to proximity to the proposed project (less than 1 mile (1.6 km) away). Despite the clearcutting and logging roads visible from the summit fire tower, a panorama of views of peaks and ridges is afforded. Snow Mountain is another nearby hike with a similar number of users.

### ***Parks/Recreation Areas***

There are no state parks or national parks in the 15-mile (24.2-km) study area, but there are numerous Maine forest campsites located primarily around lakes and ponds as well as boat access areas. Few of these areas will have views of the project. Two exceptions will be possible views from a campsite on Holeb Pond near Turner Brook at a distance of about 13 miles (20.9 km) and a campsite on Flagstaff Lake by Safford Brook about 18 miles (29 km) from the project.

There are two private campgrounds within the study area, Cathedral Pines in Eustis and another at Natanis Point at the north end of Chain of Ponds. There will be no visibility from the Cathedral Pines campground or beach area. The tops of a few turbines may be visible from the Natanis Point campground.

There are also three Maine Public Reserve Lands managed by the State Department of Parks within the study area. The largest includes the Bigelow Range and portions of the shoreline of Flagstaff Lake. Flagstaff Lake is a valued recreational resource and has several undeveloped campsites along the shoreline. There will be little visibility of the project from these campsites except from those in the eastern arm of the lake.

The northern end of Natanis Pond and the northeastern shore of Long Pond (ponds in the Chain of Ponds) are also within the Maine Reserve lands. The project will not be visible from the reserve lands along the eastern shore of Chain of Ponds.

A third area of Reserve Lands is located around Holeb Pond and the Moose River. There will be no visibility from these areas except a small area on the northern end of Holeb Pond east of Turner Brook.

Other noted recreation areas include canoe routes along the North Branch of the Dead River from which the turbines could be visible from a few areas looking upstream. There will also be no visibility near Grand Falls, from Long Falls Dam area, or from the Dead River between, with a possible exception of small area south of Halfway Brook.

Views from the lakes and ponds adjacent to three sporting camps are likely. As many as 12 turbines may be visible from Spectacle Pond, 16 turbines from King and Bartlett Lake (but not from the camp itself) and 24 turbines from the southern end of Tim Pond. There will be no views from Big Island Pond.

### **Scenic Areas**

Noted scenic areas within the study area include Sarampus Falls, Grand Falls, and Holeb Falls. The tops of about six turbines will be visible from the Sarampus Falls Rest Area and from the grassy area near the falls, but the project would not be visible from Grand Falls, Long Falls or Holeb Falls.

### **Waterbodies**

This region abounds in lakes, ponds, and streams. Several are noted in the CLUP as having high recreational and scenic value (see Table 9-11). Flagstaff Lake is the largest lake within the study area and undoubtedly a significant regional focal point. The distinctive Bigelow range to the south greatly enhances views from the lake as well as views around the region. The Kibby ranges are not particularly visible or noticeable from the lake and are seen at a considerable distance (about 15 miles [24.2 km]).

Other important water bodies in the area include Jim Pond from which up to 24 turbines along the Kibby Range (Series B) will be visible (simulation) at a distance of about 5 miles (8.1 km). From most locations, only 8 to 10 turbines will be visible at a time. This pond has public access and several private camps.

Chain of Ponds and especially Natanis Pond are very visible from Route 27 and are also considered to be high value recreational resources. The project will not be visible from Route 27 in views over Natanis Pond. The project will be most visible from the southern ponds, Bag and Lower, from which up to 15 turbines may be visible from the eastern edges.

The project will be visible from portions of King and Bartlett Lake. The lake is privately owned and accessible only to guests.

The project will be visible from a tiny portion of Holeb Pond on the northern shore, but will not be visible from Attean, Wood or Little Big Wood Ponds to the north, nor from Spencer Lake, Fish Pond or Enchanted Pond.

**Table 9-11: Lakes and Ponds Within 25 Miles (40.3 km) of the Proposed Kibby Wind Power Project**

Lake or Pond	Township	Size (acres)	Visibility <sup>1</sup>	Scenic Rating <sup>2</sup>	Distance From Project (miles)
<b>Management Class 1: High Value, Least Accessible, Undeveloped Lakes</b>					
Enchanted Pond	Upper Enchanted	330	NV	O	17
Jones Pond	Wyman	36	NV	-	17
The Horn's Pond	Wyman	10	NV	O	16
Dixon Pond	Pierce Pond	17	NV	-	21
Little Enchanted Pond	Little Enchanted	35	NV	-	14
Loon Pond	Attean	55	NV	-	15
Tobey Pond #1	T05 R07 BKP WKR	35	NV	O	11
<b>Management Class 2: Especially High Value, Accessible, Undeveloped Lakes</b>					
Attean Pond	Attean	2745	NV	O	15
Chain of Ponds	Chain of Ponds	700	V	O	2
Crosby Pond	Coburn Gore	150	V	O	9
Flagstaff Lake	Dead River	20,300	V	S	9
Jim Pond	Jim Pond	320	V	O	4
Pierce Pond	Pierce Pond	1650	NV	O	22
Spencer Lake	Hobbstown	1819	NV	O	11
Tim Pond	Tim Pond	320	LV	O	11
<b>Management Class 3: Potentially Suitable for Development</b>					
Horseshoe Pond	Coburn Gore	37	V	-	9
Mud Pond	Jim Pond	14	NV	-	5
<b>Management Class 4: High Value Developed Lakes</b>					
Arnold Pond	Coburn Gore	148	V	O	10
Holeb Pond	Holeb	1055	LV	O	13
Big Kennebago Lake	Davis	1700	LV	O	16
<b>Management Class 5: Lakes Approaching Heavily Developed Status<sup>8</sup></b>					
Lower Enchanted Pond	Lower Enchanted	20	NV	-	19
Northwest Pond	Massachusetts Gore	45	NV	-	9
Shaw Pond	T03 R04 BKN WKR	45	NV	-	

<sup>8</sup> Management Class 5 also includes heavily developed lakes. None are in the study area.

Lake or Pond	Township	Size (acres)	Visibility <sup>1</sup>	Scenic Rating <sup>2</sup>	Distance From Project (miles)
<b>Management Class 6: Remote Ponds</b>					
Benjamin Pond	Attean	121	NV	-	
Boulder Pond	T05 R07 BKN WKR	30	NV	-	
Cedar Pond	Holeb	5	NV	-	
Clear Pond	Lowelltown	21	NV	-	
Clearwater Pond	Attean	34	NV	-	
Dixon Pond	Pierce Pond	17	NV	-	
Little Enchanted	Upper Enchanted	35	NV	-	
Gordon Pond	Upper Enchanted	28	NV	-	
Hall Pond	T05 R07 BKN	42	NV	-	
Helen Pond	Peirce Pond	15	NV	-	
High Pond	Pierce Pond	7	NV	-	
Horseshoe Pond	Attean	50	NV	-	
Long Bog	Holeb	19	NV		
Long Pond	Attean	37	NV	-	
Loon Pond	Attean	37	NV	-	
Lost Pond	Attean	5	NV	-	
McKenney Pond	Upper Enchanted	9	NV	-	
Round Pond	Appleton	5	NV	-	
Tobey Pond #1	T05 R07 BKN	35	NV	-	
Tobey Pond #2	T05 R07 BKN	32	NV	-	
Tobey Pond #3	T05 R07 BKN	14	NV	-	
Unnamed Pond	Attean	12	NV	-	
Unnamed Pond	Attean	5	NV	-	
Unnamed Pond	Holeb	2	NV	-	

<sup>1</sup> Visibility: NV= no visibility; LV= limited visibility; and V= visibility

<sup>2</sup> O=Outstanding; S= Significant; - = Unrated

### **Wilderness/Natural Areas**

No designated wilderness areas occur within the study area.

## ***Historic Sites***

Within the study area there are numerous old settlements, logging camps, and a few farmsteads which are noted as historic sites. Nearly all are in forested settings and none of the sites are known to have potential views of the project.

### **9.6.6.2 Designations of Local, State, or National Landscape Significance**

When a resource is identified in local, regional or state planning documents it implies broad public consensus as to the value and importance of the resource. Several sources were used in determining whether or not resources of local, state or national significance exist within the study area. The CLUP of the Maine Land Use Regulation Commission identifies notable resources and areas. Also, the State of Maine Bureau of Parks and Lands lists parks, historic sites, trails and other areas of state-wide importance. The Maine DEP has developed rules with respect to aesthetic impacts (Chapter 315: Assessing and Mitigating Impacts to Existing Scenic and Aesthetic Uses) and lists types of resources which should be protected. A search of Stratton and Flagstaff Lake region websites also reveals local resources that are of importance.

Within the study region, the CLUP identifies two “major public lands within the jurisdiction used for recreational purposes” (Table 1, page 63). One is the federally owned Appalachian Trail, a national park and national scenic trail which is mentioned numerous times in the CLUP and in the DEP rules on scenic resource protection. Although it is not within the 15-mile study area, the Appalachian Trail is within the larger region, and is the only resource of national significance. A second resource of state-wide significance noted in the CLUP is the Bigelow Preserve. Portions of the Bigelow Preserve along Flagstaff Lake are within the study area. Visibility from most lakeside primitive campsites would be minimal and from a distance of over 15 miles (24.2 km). Cranberry Peak is at the edge of the study area at 15 miles (24.2 km). The more prominent peaks are further: The Horns (16.5 miles [26.6 km] away), West Peak (17.5 miles [28.2 km] away) and Avery Peak (18 miles [29 km] away). Crocker Mountain, the closest mountain along the Appalachian Trail west of Route 27/16 is about 22 miles (35.4 km) away. Figure 9-15 shows that from Avery Peak on Bigelow Range the project is seen with a backdrop of more distant mountains which would further diminish its visibility. At these distances, it would be seen as a very small portion of a wide panorama of mountains, hills, and lakes.

In the Appendices, the CLUP also lists lakes and ponds of value along with a scenic character rating. Table 9-11, as previously discussed, lists lakes and ponds within the study area according to the management class. The CLUP rates Scenic Character as outstanding (O), significant (S) or unrated (-). Notes have been added indicating project visibility. Note that visibility would indicate visibility over more than a very small part of the lake or pond, but views may only include a few turbines. Views from four of these lakes and ponds are considered to be sensitive due to their visual character, and are discussed in more detail below.

## ***Number of Users***

To some degree, the number of users affects the degree of sensitivity of a scenic or recreational resource. The study area is most heavily used for hunting, fishing, and snowmobiling. Camping and boating are also common, followed by hiking. Internet searches<sup>9</sup> for area outdoor activities direct those searching for hiking and canoeing to the Bigelow Range, Flagstaff Lake, and Chain of Ponds. Among hikers, Kibby Mountain and Snow Mountain are less used.

## ***Existing Development Context***

In evaluating sensitivity, the existing character of the surrounding area is important to assess. Generally a less disturbed landscape is more sensitive to human alterations than one which is already developed or altered. Although the Kibby ridges as well as the surrounding area have been heavily logged and are surrounded by numerous logging roads, there are few other permanent structures.

From most viewpoints in the immediate vicinity (within 3 miles 4.8 km]) the landscape appears to be a working landscape into which the introduction of wind turbines will seem reasonably compatible. Nevertheless, the wind turbines will result in contrast with the predominant elements in the landscape: evolving forest and roads. Wind turbines are large, white vertical elements which will appear very different from anything else that is presently in the landscape.

From views further way (4-8 miles [6.4-12.9 km]) the turbines will be most often seen from either roadways or ponds. In these settings cars, trucks and/or motorboats may be present along with camps. The turbines will occupy a smaller part of the overall views (where they are visible at all) but, nevertheless, will be elements that contrast with the surrounding green hills and other natural elements that tend to dominate views from many public use areas in the region. The vegetative management patterns become less distinct to the untrained eye at greater distances.

At greater distances (over 8 miles [12.9 km]), the turbines will become harder to see except in clear weather conditions, though they would be identifiable as distinctly human-made elements. From few areas within the surrounding context is one far from evidence of timber harvesting. The predominance of a working landscape throughout the project study area suggests that the context is not one where an entirely undisturbed landscape setting is a predominant expectation.

## ***Proximity to the Project***

Proximity influences the prominence of a wind project in several respects. The turbines will appear larger in closer proximity and will occupy a larger part of the overall view. In some locations it may be possible to see project details such as roads and clearings. At very close range, sounds from the turbines may be audible, but this is not expected to affect any sensitive

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<sup>9</sup> Sites: [Outdoors.mainetoday.com](http://Outdoors.mainetoday.com); [trails.com](http://trails.com).

viewing areas near the Kibby Wind Power Project. As noted above, the locations where the project will be observed at close range tend to be those that are heavily logged with abundant evidence of associated logging equipment in the landscape. There are no sensitive viewing areas within the foreground (1/2 mile [0.8 km]). The fire tower at the summit of Kibby Mountain is the closest public viewing area at 0.6 mile (1 km) away at the closest point and extending to 6.5 miles (10.5 km) away at the farthest point (simulation).

Other proximate viewpoints of the proposed project include Chain of Ponds (2-6 miles [3.2-9.7 km]), Sarampus Falls (2 miles [3.2 km]), and Jim Pond (5 miles [8.1 km]).

### ***Exposure or Duration of View***

Generally a quick glimpse of a project is less significant than seeing a project over an extended time or distance. From roads in the area the project will be seen only for short durations. It would be most prominent along Gold Brook Road where the two ridges come in and out of view on several occasions as one drives from Route 27 to Mile 10. Views of potentially longer duration will occur on Jim Pond while paddling along the western shoreline. Similarly there will be potential views of long duration along some portions of Flagstaff Lake though from a very long distance. The direction means and location of travel (motorized vs. non-motorized craft) on these lakes and ponds varies so exact durations of view and the degree to which it might interfere with particular activities is difficult to predict.

### ***9.6.7 Project Related Factors***

#### ***Scale of Project***

Scale is a relative concept and must always be judged in relation to the surroundings of an object or group of objects. Scale refers to both the vertical height of a project, as well as to the horizontal area it occupies. While the turbines themselves are extremely large, their size is difficult to distinguish from the smaller turbines such as those at Searsburg, Vermont unless they are seen side by side. The height of the turbines generally is visually intrusive only when they overwhelm the size of the mountain or landform itself. On these large mountains of Maine the turbines appear relatively small. Perhaps more relevant is the overall area the project would occupy within views and the extent to which they dominate critical views (the latter question is addressed further in the following section on visual impacts). At 44 turbines, the proposed project is significantly smaller than the earlier Kenetech project which would have had up to 761 turbines, with 400 turbines proposed in Phase I.

Because the Kibby Wind Power Project is located on two ridges in a very complex system of numerous hills and mountains, it is difficult to see the entire project from most locations. Equally important in the perception of the scale of the project, is that it will be surrounded by numerous other undeveloped mountain peaks and ridges. From vantage points like Jim Pond, Chain of Ponds, and Route 27, only a few of the turbines are seen at any one time. From all viewpoints numerous other undeveloped mountains and hills would dominate views. Views from these vantage points will remain predominantly natural. Even from the summit of Kibby Mountain the

turbines will occupy a narrow arc of the view with the remaining views of undeveloped ridgelines. From this vantage point, the turbines are seen below the viewer and with a background of distant mountains further reducing their apparent scale.

The turbines would occupy a larger portion of the view from Eustis Ridge but they would be seen at a considerable distance (8 miles [12.9 km] away). The 24 Series B turbines are the most noticeable from this vantage point while the Series A turbines are even farther at 13 miles (20.9 km) away and are largely hidden by intervening hills.

From Flagstaff Lake it is the views to the south of the Bigelow Range that are dominant and seen at only 5 miles (8.1 km) away whereas the Kibby Wind Power Project will be over 10 miles (16.1 km) away and occupy only a small part of the overall views. From the Bigelow Mountains themselves the project is well over 15 miles (24.2 km) away and the turbines are seen with a backdrop of more distant mountains which considerably reduces its scale and visibility.

### ***Lighting***

Some of the turbines will lit at night with a slowly pulsing red light mounted on top of the nacelle. Preliminary FAA review suggests that 7 turbines may be lit on Kibby Mountain (Series A) and 18 on Kibby Range (Series B). On very clear nights these lights may be visible from at least 10 miles (16.1 km), though they will be tiny and difficult to see from these distances. Red lights will result in less contrast with the dark night sky than white lights but will introduce an element that is not currently part of this landscape. The greatest impacts from night lighting will be to camps on ponds in close proximity and with views of the project. From Jim Pond, for example, lights may be visible on clear nights. The lights will not be visible from the two private campgrounds on Natanis Pond or Cathedral Pond or and are unlikely to be visible from most of the undeveloped campsites around lakes and ponds in the region. The lights will also be visible from a few homes along Porter-Nideau Road on clear nights.

### ***Views of Roads and Power Lines and Other Project Infrastructure***

Views of other project infrastructure may exacerbate visual impacts by increasing visual clutter or perceived project scale. Some views will be inevitable from high elevation viewing areas, but if they are common or from highly sensitive viewing areas, or if large areas of project infrastructure are visible, the visual integrity of the mountain summits may be unduly compromised. In general there will be few off-site views of roads and power lines or power line clearing. Roads have been sited to avoid steeper slopes which would require greater cut and fill and removal of vegetation, and, therefore, increase the potential for off-site visibility. Both the 34.5 kV collection system and the 115 kV transmission line are well sited to minimize views from sensitive off-site locations. They are generally designed to run along the grade or to be hidden behind other hills.

The substation off Wahl Road is in an area of existing clear cuts. The line and substation are set back from Wahl Road so the roadside vegetation can eventually grow back (the area has

been recently cut) to help screen the line. Plantings of indigenous vegetation could be added if necessary.

Portions of roads and collector lines are most likely to be visible from Kibby Mountain, especially those in Series A. Some of these roads will be on the south side of the ridge and would not be visible. A few sections of Series B roads and some openings may be visible from Kibby Mountain but would not be prominent. It is possible that portions of the collector lines in Series A would be visible as well but most would be blocked by trees and intervening topography. Views from Snow Mountain may include some road clearing along the western prong of the B Series, but the transmission lines should be minimally visible. Some visibility of roads is possible along Gold Brook Road, but these should be minor and no more visible than existing logging roads in the area. No project infrastructure other than turbines would be visible from Chain of Ponds or Sarampus Falls. From Vine Road it is possible that some clearing around one turbine may be visible. From Jim Pond neither the roads nor the power line cut should be visible. No infrastructure should be visible from more distant viewing locations such as Eustis Ridge or Flagstaff Lake.

More discussion of the visual impact of the proposed 115 kV transmission line is provided in Volume V.

#### **9.6.8 Assessment of Visual Impacts**

This section provides an evaluation of whether the views of the project described above would result in undue visual impacts. In other words, would the project significantly degrade important views throughout the region or particular scenic resources of statewide or national importance?

The assessment focuses on the viewpoints that appear to be the most sensitive as well as the collective impacts throughout the region. Given the analysis above, the most significant visually sensitive resources within the study area are the collection of lakes and ponds, especially those identified in the CLUP as Management Class 2 since these are noted as “high value, accessible, undeveloped lakes” (Table 9-11). Class 1 lakes are significant as well but their inaccessibility makes the views less likely to be seen by recreationalists, in addition to which there would be little visibility of the project from these lakes. Both the relatively undeveloped nature of the Class 2 lakes and ponds along with their accessibility makes them potentially more sensitive to the presence of a wind power project in the view.

Therefore, this portion of the analysis focused on the aesthetic impacts to Chain of Ponds, Jim Pond, Flagstaff Lake, Crosby Pond and Tim Pond. Attean Pond, Pierce Pond, and Spencer Lake are also within the study area but would have no views of the proposed project. The analysis also examined other viewpoints including Porter-Nideau Road on Eustis Ridge, the fire tower on Kibby Mountain, Route 27, the Bigelow Range, and Cranberry Mountain, though these viewpoints are considered generally less sensitive due to either very limited views, limited use, or to the considerable distance from the proposed project. Finally, the overall impacts of the views of the project through out the area and address the issue of the value of remoteness in the project area were addressed.

The following standards are often used in evaluating the significance of aesthetic impacts, and are discussed in order to provide some additional perspective as to how this particular project would affect views from the sensitive viewpoints described above.

#### **9.6.8.1 Scenic Quality**

Certain landscapes are recognized as having particular qualities that contribute to high scenic value. Often these qualities relate to landscape diversity and involve combinations of landforms with distinct shapes, rocky summits in combination with diverse vegetative patterns or unique water features. Often such landscapes are seen in photographs of the region, and the Bigelow Range with Flagstaff Lake is a perfect example. Similarly the Appalachian Trail is recognized for its scenic attributes including numerous high-elevation open ridges with dramatic views. While the landscape around Kibby Mountain is certainly scenic in many respects, there is nothing particularly distinct about this landscape that raises it into the category of having outstanding scenic value. Indeed, moderate scenic quality is actually preferred for wind projects<sup>10</sup> versus degraded landscapes where such projects may exacerbate visual clutter (see below).

#### **9.6.8.2 Intactness**

Intactness refers to the degree to which the landscape retains either natural qualities or qualities inherent in pre-industrial agricultural or other types of cultural landscapes. From most foreground areas (within roughly 1 mile [1.6 km]) logging activities dominate views, and include roads, machinery, with occasional piles of logs, and slash. From Route 27, which is protected by a vegetative buffer, logging activities are less obvious, and to the average observer these ridges appear to be uniformly forested and, therefore, relatively intact. Most lakes and ponds are similarly protected by forested buffers, and the Class 2 lakes and ponds noted above are also relatively undeveloped with only a few camps around the shorelines. Thus, while the overall landscape may be considerably modified, the public value of leaving buffers around scenic resources such as lakes and ponds suggests that due consideration be given to the views from these areas. Nevertheless, one is never far removed from the evidence of logging in this landscape. This is characteristic of a working landscape where there is close connection between resource (wind) and harvest (turbine). Within the study area there are no landscapes where explicit public values are expressed for retaining an experience of being in a wild and undisturbed landscape. Even the Sarampus Falls Picnic Areas on Route 27 provides information about the strong historical connections between humans and the land.

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<sup>10</sup> As discussed in Appendix 9-E, this is the opinion of TransCanada's visual expert, based upon observations of many wind projects. The repetition of like elements that are characteristic of wind projects is an aspect that may increase their visual appeal for many people. Repetition provides a sense of order which is an essential element of scenic quality in combination with diversity. When wind projects are sited in areas of good wind so that there is a visual connection between the site and the structures (moving blades) the sense of order is further enhanced. Often moderately scenic landscapes have an inherent simplicity or order. Numerous contrasting or disparate elements (e.g., cell towers, ski slopes, buildings, or wind turbines) when combined together may exacerbate visual clutter and landscape degradation.

### **9.6.8.3 Focal Point**

As noted earlier, the Bigelow Range forms the dominant focal point in this region and it is visually enhanced by the contrasting flat, watery landscape of Flagstaff Lake often seen in the foreground. This is the iconic image of the Stratton/Eustis area. The “Longfellows” (Crocker/Sugarloaf to Saddleback) are also a visually distinct mountain chain that rises like a wall to the south. The prominent “Nubbles” contrast in form with surrounding more rolling mountains. The scree slopes on Crocker and Redington are also distinctive. Sugarloaf and Saddleback are also prominent and from a few locations their ski slopes are visible also drawing attention. No such distinguishing shapes or features distinguish the Kibby ranges. Many people, even locals, have trouble picking them out in the landscape.

### **9.6.8.4 Uniqueness**

All landscapes are distinct in some way, but as noted above the Kibby ranges have no particularly distinct features. They are not the tallest mountains in the areas, nor are they known as important hiking destinations. The numerous lovely lakes, ponds, streams and wetlands in the surrounding area are important resources, but they are not unique.

There are a few trails in the area, but none are notable with the exception of the hikes in the Bigelows. These hikes, however, are at a significant distance from the proposed project. There are informal trails and fire towers throughout the area that provide access to mountain summits and views above the trees.

### **9.6.8.5 Degree of Contrast**

The concept of degree of contrast has been widely used in evaluating visual impacts, but it is a much more difficult test for wind turbines. There is no question that tall white wind turbines will contrast with their surroundings. They cannot be screened and the FAA strongly prefers white turbines. Ironically, it is contrast that contributes to scenic beauty in both natural and cultural landscapes (e.g., the dramatically steep Bigelows rising above placid Flagstaff Lake, the spire of classic white churches set on a town green, or vertical lighthouses on Maine’s shorelines). It may even be the contrast that makes many people find wind energy projects attractive. White is a generally more attractive color than industrial gray (cell towers) and combined with the repetition of like elements and their logical link to a particular resource (wind) made observable with the turning blades, there may be both a contrast and a connection that works<sup>11</sup>. Nevertheless, even attractive elements are not appropriate everywhere, especially on sites with valued or identified scenic resources, or locations that are prominent within sensitive views.

The Kibby Wind Power Project turbines will appear as contrasting elements in many views. At close range, the context of a working forest will reduce the contrast to some extent. From

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<sup>11</sup> Paul Gipe discusses the idea of the link between perceived utility and aesthetic preferences. See for example, Pasqualetti, et al. 2002.

greater distances as viewed from lakes, ponds, and Route 27, the project will contrast with its surroundings, but for reasons explained elsewhere, despite the contrast, the project should fit reasonably well into most views around the area

#### **9.6.8.6 Degree of Prominence of the Proposed Project**

Degree of prominence is the extent to which the project will be seen throughout the region and the degree to which it stands out in particularly sensitive views. When a project becomes a strong focal point that conflicts with other important regional focal points, it may raise issues of undue prominence. Proximity to the project, number of turbines in the view, the duration of views, and the sensitivity of the viewing location or expectations of the viewer all play a role.

As a rule, the Kibby Wind Power Project will be seen only very intermittently throughout the region. Its general prominence from the sensitive viewing areas will be relatively low as follows:

##### ***Chain of Ponds***

Several factors reduce the prominence of the project from Chain of Ponds. Foreground ridges tend to block most views so that, at most, only the tops of about 5 turbines will be seen from most locations. The southern end of the lakes has the greatest exposure to views of the Series B turbines, but foreground trees will block most views. Route 27 runs along the east side of the lakes and its noise and visual presence diminish the sense of remoteness of paddling on the lake. From the road, however, Chain of Ponds contributes greatly to the visual experience of driving and no turbines will be seen in views of the Ponds.

##### ***Jim Pond***

From portions of Jim Pond the project would be relatively prominent due to a combination of the extent of the lake from which the project would be visible and its relatively undeveloped setting. Nevertheless, only 24 turbines along eastern prong of Series B will be visible, and from most viewpoints, only 8-10 are likely to be in view at any one time. Further, those views would be distant, at approximately 5 miles (8 km). The view of the project would occupy a relatively small portion of the overall views around the pond, which includes several foreground hills, wetlands to the northeast and views toward Round and Bag Pond Mountains. The project will not be visible from the two campsites on the Pond.

##### ***Flagstaff Lake***

As the largest and most heavily used lake in the region, Flagstaff Lake is an important regional resource. Several factors will reduce the visual impacts of the project. At over 10 miles (16.1 km) away from the lake, the turbines will appear tiny and occupy a very small portion of the views. Most importantly, the stunning views of the Bigelow Mountains from Flagstaff Lake tend to draw observers' attention in that direction. By contrast the Kibby ranges are extremely difficult to either identify or to see due to trees along most of the shoreline. Direct views of the project ridges are blocked by trees from most of the campsites within the Bigelow Preserve.

The project will not be visible from Meyer's Beach, a popular destination which faces south to the Bigelow range and offers no views of the proposed project. There is the potential for views of the entire project from on portions of the lake itself, but at such great distances, the project will be difficult to see and certainly not a prominent feature. Although the shoreline itself is largely undeveloped, the village of Stratton is on the shore along with the smoke stack of the very prominent Stratton Energy Center.

### ***Tim Pond***

Tim Pond is over 10 miles (16.1 km) away and surrounded by trees. Where views of the project are possible at all, they would occupy a small portion of the views around the pond.

### ***Crosby Pond***

Crosby Pond in Coburn Gore would be about 10 miles (16.1 km) away from the proposed project, with potential visibility of only a six turbines. Only a small portion of the turbines are likely to be visible due to intervening ridges.

### ***Porter-Nideau Road (Eustis Ridge)***

A few areas along Porter-Nideau Road would be afforded views of most of the Kibby Range turbines (Series B). At about 8 miles (12.9 km) away the turbines may be noticeable but not dominant in these distant views. Lights will be visible on clear nights. These impacts will affect relatively few locations along the road, will occur at a considerable distance away, and will have little effect on important public views in this area.

### ***Kibby Mountain Fire Tower***

Views from the fire tower on Kibby Mountain will include the full sweep of the proposed project though it occurs in a relatively narrow arc of the entire 360° panorama. This impact also does not seem unreasonable given the relatively low use of this mountain, and the extensive remaining views toward numerous undeveloped mountains within the panorama. Moreover, the viewer looks down on the project so that it is seen with a backdrop of other mountains which will diminish the prominence of the project. The project ridges do not appear as critical, distinct, or dominant landforms within the view. Roads and logging activities are presently easily visible within close proximity. This is not a trail or overlook that is noted in public documents as having particular scenic or recreational value and it is a single point, not an extended stretch or series of valued mountain summits with proximate views of the proposed project.

### ***Route 27***

Route 27 is the major public transportation route through the project area and is noted for its scenic character. The proposed project will not degrade the scenic character of this road since it is only very infrequently seen, and when seen only a few of the turbines would be visible. Only a few turbines will be seen from the Sarampus Falls Rest Area and are unlikely to detract from the scenic waterfall that is the focal point at this location. It is entirely possible that for

travelers along Route 27, the turbines will appear as an attraction. The Searsburg wind turbines were noted on area scenic driving tours, as have other projects in New York been identified on area websites as something for visitors to see.

### ***Bigelow Mountains***

The spectacular and popular views from the Bigelow Mountains will not be degraded by the proposed project which is located between 15 to 18 miles (24.2 to 29 km) away. The project will be seen with a backdrop of more distant mountains from this location further diminishing its prominence and making it very difficult to see except in the clearest weather conditions. It will occupy only a very small portion of the overall views from these mountain summits.

#### **9.6.8.7      *Contribution to Visual Clutter***

Visual clutter results from the cumulative effect of discordant built elements that contrast with surrounding patterns or surrounding elements of form, line, color and texture. This will not be an issue with the proposed project since visibility of project infrastructure other than turbines is expected to be minimal. The relative simplicity of this landscape generally, along with the generally horizontal and unspectacular ridges with uniform forest cover, will further reduce any concerns with visual clutter. Wind projects often appear less cluttered than other forms of development due to the repetition of simple forms, especially when there is no other existing site development such as cell tower or buildings. Most project-related infrastructure is expected to be visible only from the Kibby Mountain fire tower. Roads are already part of the view from this perspective and the visibility of the roads along the ridge will not result in excessive visual clutter.

#### **9.6.8.8      *Impacts to Wildlands***

During public meetings and field visits some people expressed concerns about introducing a wind energy project into an area where there is currently minimal development with the exception of logging roads and logging activities. The Boundary Mountains is an area that is viewed as still retaining a sense of wildness. The protection of wildlands is a subject worthy of consideration, but at present there are no designations which provide a meaningful basis for evaluating important wildlands values or how they should be judged. Neither the project site, nor its surroundings have been designated as wildlands or roadless areas.

The project is unlikely to substantially diminish the sense of remoteness of the surrounding area. There is an impressive array of mountain ridges and hills surrounding the project in all directions. Some of the most scenic, most visually diverse, and least disturbed areas are north and east of the project site along Spencer Road. The project will not be seen from this area.

Additionally, wind turbines are generally very quiet. Unlike housing developments, wind farms are seldom full of people, traffic, or activity.

#### **9.6.8.9 Visual Impact Assessment Conclusions**

The site for this project has been very well selected for minimal visual impacts in numerous respects. Other ridges were considered for development but rejected in order to retain a project of a reasonable scale in relation to its surroundings. The site was also selected for reasonably accessible terrain and minimal disturbance of areas over 2,700 feet (823 m). The highest summit, Kibby Mountain would be protected. The Kibby ridges are not visual distinctive ridges within the region and the Kibby Mountain ridge (Series A) is very difficult to see from almost anywhere. The complex ridgelines and numerous intervening ridges mean that in most views only a few of the turbines can be seen. It also means that in nearly all views there are numerous other mountains that can be seen as well. The visual impact assessment demonstrates that the project as currently designed fits very well with relatively few adverse impacts and none that could be considered undue.

#### **9.6.9 LURC Commission Standards for Determining Acceptable Versus Undue Aesthetic Impacts**

The analysis above demonstrates that while the project would affect views from a few locations, it by no means reaches a level of undue aesthetic impact. While no project can avoid visibility from some residences and some recreation areas, neither the ridges themselves nor the views of the project involve unique or highly significant scenic resources. The project will not detract from important regional focal points and would generally be a subordinate element in nearly all views around the area.

The LURC review process in this case must first determine that a zoning change for the project ridges is warranted. Portions of the project would be located in areas currently zoned General Management (D-GN), while areas over 2,700 feet (823 m) in elevation are zoned as High Mountain Areas (P-MA). Regarding the P-MA areas, the CLUP notes the “fragile nature of these environments” (page 54) as well as that “mountains and the scenic, natural, recreational, economic and other values they possess are limited resources in Maine.” Wind power, unlike many forms of development, must be located where wind resources are suitable, and the high mountains of Maine offer some of the best sites within the northeastern United States. Since federal and state energy policy has concluded that development of additional non-polluting energy resources is essential, the goal is to find sites on which a project can be designed that will minimize impacts to fragile and unique resources.

From a visual point of view the Kibby Ranges are relatively indistinct horizontal ridges, difficult to see from most locations, and are relatively low in elevation in relation to many surrounding mountains in the region. In addition, they are well removed from more scenic and popular recreational resources. The highest summit in the range and the site of the Kibby Mountain fire tower would remain undisturbed while the lower elevation ridges to the south would be developed. These ridges are lower than many surrounding mountains and considerably lower than the much more prominent mountains to the south such as the Bigelow Range, Black Nubble, Redington, Crocker, Sugarloaf, and Saddleback, many of which are close to or over 4,000 feet (1,220 m) in elevation. Numerous mountains surrounding the Kibby ridges would not

be developed and would continue to provide intact high elevation environments. Visually there is an inherent fit when wind power projects are located on sites where there is an excellent resource, especially when the ridges involved are not visually distinctive in form or location, and are not unreasonably visible or prominent from surrounding sensitive use areas.

The general standard for approval of the proposed projects under LURC review is as follows:

*Adequate provision has been made for fitting the proposal into the existing natural environment in order to assure there will be no undue adverse effect on existing uses, scenic character, and natural and historic resources in the area likely to be affected by the proposal. (LURC rules Section: 10.24 General Criteria for Approval of Permit Applications)*

The project is located within a scenic but not spectacular area that includes numerous mountain peaks, streams and ponds. Forest harvesting is an integral part of the landscape historically and today. While portions of the project are visible from many ponds in the area, views of turbines will not dominate the views in the region generally or from any particular viewing locations. Where views do occur, in most cases only a few of the turbines will be visible and the project will not dominate the viewscape. Neither the ridges themselves, nor views of the project ridges are unique or distinct.

Other more specific review criteria are:

#### 1. Scenic Character

- a. *The design of a proposed development shall take into account the scenic character of the surrounding area. Structures shall be located, designed and landscaped to reasonably minimize their visual impact on the surrounding areas, particularly when viewed from existing roadways or shorelines,*

Siting is critical with wind energy projects and the proposed Kibby Wind Power Project is extremely well sited to minimize views from sensitive public viewing areas. The wind turbines cannot be hidden from view, but intervening hills, mountains and ridges minimize the numbers of turbines that can be seen from viewing areas, and in most cases block views entirely. Site terrain is generally moderate in slope so that roads and transmission lines can be constructed with minimal site alterations and with very little off-site visibility.

- b. *To the extent practicable, proposed structures and other visually intrusive development shall be placed in locations least likely to block or interrupt scenic views as seen from traveled ways, water bodies, or public property.*

The project will not block or interrupt scenic views or be visually intrusive from any public viewing locations. Views from public roads are intermittent and infrequent. From areas accessible from hiking trails, the project occupies only a small portion of the overall views; and in most cases is seen at a considerable distance. From the shorelines and water bodies from which the project would be visible, it would not dominate views. Because the project is located

along two ridgelines, and is surrounded by numerous other mountains and hills, its visibility is extremely limited and most often only portions of the project would be visible, if at all, especially from nearby viewing areas.

- c. If a site includes a ridge elevated above surrounding areas, the design of the development shall preserve the natural character of the ridgeline. (LURC Rules Section 10.25.E.1 Scenic Character, Natural and Historic Features)*

Viewed from offsite locations the wind turbines would be seen emerging from the forested ridgeline. One exception will be the top of Kibby Mountain, from which the project will be seen below the viewer receding to the south. This would be the only vantage point from which project infrastructure including some roads and site clearing would be visible. Even from this vantage point, most of the ridge forest will remain intact. Existing logging roads and clear cuts are currently visible from this vantage point.

The Kibby Wind Power Project will not have undue adverse impacts on the scenic and natural beauty of the surrounding area. The project is very well sited and designed. No wind project can be hidden from view, but this project will result in no undue impacts to highly valued or unique scenic resources. The Boundary Mountains consist of abundant mountains, lakes and streams. It is a scenic but not unique landscape with none of the mountains exceeding 4,000 feet (1,220 m), and neither of the project ridges is among the highest, even within its surroundings. Kibby Mountain itself, the highest portion of the project ridges and the site of a fire tower overlook, would be protected as part of the project. The complex system of numerous mountains limits visibility from most viewpoints. The proposed project would be over 15.5 miles (25 km) from the closest point along the Appalachian Trail. The spectacular Bigelow Mountains form the dominant focal point in the region and most views are oriented in that direction. The numerous lakes and ponds are the primary scenic resource surrounding the project site and visibility from these is limited. Where there are views they are generally of only a portion of the project. The proposed project would not be a dominant element in any views. Project infrastructure such as roads and transmission lines will be minimally visible off site.

## **9.7 Roads and Transportation**

### **9.7.1 Existing Public Roads**

The only public road in the immediate vicinity of the proposed Kibby Wind Power Project is State Route 27 which runs northwest from Stratton to the U.S./Canada boundary to the west of the project area, generally following the North Branch of the Dead River and hugging the northeast edge of the Chain of Ponds. In Stratton, south of the project area, Route 27 intersects State Route 16, which runs generally southwest toward Rangeley and then on to New Hampshire. Beyond Stratton, Route 27 continues south toward Augusta. Route 27 and Route 16 are the only two public routes leading to the project area from the south and southwest north of Rangeley and Kingfield.

The northernmost 47 miles (75.7 km) of Route 27 between the United States/Canada border and Kingfield are designated as a Maine State Scenic Highway. Travelers along this road enjoy views of the North Branch Dead River, Kibby Range, and other mountains to the north and south. Sarampus Falls, the start of the North Branch Dead River canoe trip, is a popular fishing, swimming and picnicking location.

Route 27 has been the subject of several road improvement projects in recent years. The Maine Highway Adequacy Report prepared by the MDOT Systems Management Division in August 2006 identifies the majority of Route 27 in Chain of Ponds Township as proposed for a highway improvement project. In addition, the same report characterizes the adequacy of the portion of Route 27 in the southeastern section of Chain of Ponds Township as either Poor or Critical under the Highway Adequacy Index. In fact, the portion of Route 27 north of Stratton has been undergoing improvements and widening over the past several years.

MDOT is responsible for collection of traffic data and maintenance of a statewide traffic volume database. MDOT develops its database through two traffic count programs: the Continuous Count program and the 24-hour or Coverage Count Program. Traffic volumes in the project area are determined through the short-term coverage count program. Under this program, traffic count and vehicle classification data are collected for 24 hours using traffic (tube) counters, and adjusted to an Annual Average Daily Traffic (AADT) volume. For the project area, counts are conducted twice during a 5-year cycle. Northbound counts were taken at two locations on Route 27 in Chain of Ponds Township in 1999 and 2001, and at a third location in 2003. The 1999 and 2001 counts indicate an increase in daily northbound traffic volumes from between 780-820 to between 900 and 940, respectively. The 2003 recreational northbound volume count of 780 indicates that the majority of the traffic in that section of Route 27 varies seasonally. Traffic levels are higher further south on Route 27, as evidenced by similar northbound counts in Eustis (ranging from 920 – 3,280 in 1999 to 910 – 3,150 in 2003) and Carrabassett Valley (ranging from 2,450 – 3,150 in 1999 to 2,720 – 3,340 in 2003).

### **9.7.2 Existing Private Roads**

With the exception of Route 27, all roads in the project vicinity are private forest management company roads. These private roads are currently all unimproved dirt and/or gravel roads. The principal private road to be used to access all turbine locations is Gold Brook Road (also known as Beaudry Road), which intersects Route 27 just south of Lower Pond in Chain of Ponds Township and runs generally north through the project area, crossing into Kibby and Skinner Townships. Gold Brook Road is approximately 20 feet (6.1 m) wide.

Access to the turbine sites from Gold Brook Road will be via existing logging roads (generally about 13 to 15 feet [4 to 4.6 m] wide). TransCanada will upgrade the access roads in the project area for use as permanent access roads for construction and operation as described in detail in Section 2.4. All private roads to be used for project access are owned by Plum Creek. As private commercial forestry roads, they are predominantly utilized by logging trucks. Public access is allowed, and the roads are used by local travelers.

Some roads within the project site are closed each year during the spring “mud season.” As conditions each year and along each road vary, the land owner uses its discretion with regard to seasonal roadway use.

### **9.7.3 Proposed Access Roads**

The proposed new roads are described in detail in Section 2.4.3. As described in Section 2.4.3 and shown on Figure 2-5, a total of 17.4 miles (28 km) of new road will be constructed to access the turbines.

In addition to construction of new access roads, it is estimated that widening of sections of Gold Brook Road will be required to accommodate project construction. Selected bridges may also require upgrading, pending more detailed engineering analysis. In addition, approximately 15 locations will be established as locations that will allow construction vehicles to pull over to allow logging vehicles or other construction traffic to safely pass. These pull-off areas will be located approximately every half mile (0.8 km) along Gold Brook Road (adjusted to minimize affect to sensitive environmental resources), on alternating sides of the road. Each pull-off area will be about 20 feet (6.1 m) wide and 250 feet (76.2 m) long.

Wahl Road and Spencer Bale Road will also be widened in certain sections. Selected bridges may require upgrades, pending more detailed engineering study. Pull-out areas will not be required for Wahl Road; rather, TransCanada will coordinate with Plum Creek to ensure that active logging use of that roadway is compatible with road and turbine construction. Limited pull-out areas will be established along Spencer Bale Road.

Access roads between the turbines will be 34 feet (10.4 m) wide in order to accommodate movement of large cranes and installation equipment. Portions of the construction area will be allowed to naturally revegetate following construction. The road segments to access the ridgelines (between existing logging roads and ridgetop accessways) will be approximately 20 feet (6.1 m) in travel width. The narrower width can be accommodated by transporting the construction crane to the ridgetop disassembled, and reassembling it on site.

### **9.7.4 Construction Transportation Management Plan**

A transportation and logistics study has been conducted to consider potential routes for delivery of turbines and other equipment to the project site during construction. This study is provided in Appendix 2-L. The wind turbine generator components will be transported from the Port of Quebec to the Kibby Wind Power Project site. The study evaluated the capabilities of the Port of Quebec to support deliveries of the turbine components, as well as routing possibilities from the Port of Quebec to the site.

Based on the results of the study, it has been determined that over-the-road delivery of the turbine components is the most cost-effective and feasible approach to delivery to the project site. Although the potential for rail access to the site was assessed, it was determined that rail delivery would entail a more complex and longer delivery route, would require construction of

sidings and additional laydown area, and would not eliminate the need for an over-the-road delivery component.

The study determined that the most direct and appropriate delivery route for the turbine components from the Port of Quebec would be traveling south through Canada to the United States/Canada border crossing at Coburn Gore and then south along Route 27. Preliminary routing review has confirmed the viability of this route with respect to overhead obstructions and road suitability for the delivery vehicles. TransCanada will utilize appropriate heavy load hauling contractors for turbine deliveries.

TransCanada will work with appropriate Canadian provincial and Maine state agencies to manage deliveries to minimize impacts to roads and other users. Overlimit Permits for size and weight will be acquired from the Maine Bureau of Motor Vehicles as appropriate. TransCanada will coordinate with the Maine State Police to ensure that all safety precautions, including escort, if required, are taken to protect other highway users during equipment deliveries. TransCanada will coordinate with MDOT to ensure equipment deliveries will not adversely impact any ongoing highway improvement projects on Route 27.

Construction traffic is divided into three major activities: heavy hauling of cranes and turbine components; construction traffic associated with concrete trucks and other service vehicles; and vehicle traffic for construction workers. Heavy hauling of cranes and turbine components will involve movement via land from Quebec City, Canada via Canadian roads to the US border crossing at Coburn Gore, Maine. From the Canada/USA border, an estimated 220 heavy haul loads will travel on Route 27 to Gold Brook Road

A majority of construction traffic will occur along Gold Brook Road and other branch roads (e.g., Wahl Road and Spencer Bale Road) to construction areas. TransCanada plans to construct a batch plant at the intersection of Gold Brook Road and Route 27, so most traffic associated with the movement of concrete during construction will not be along Route 27. In addition, the planned construction center will be used for construction worker vehicle parking and will serve as a point for organizing transportation to construction areas.

Construction worker vehicle traffic will be from local towns, generally via Route 27, to the construction center. At the peak construction period, an estimated 200 to 250 construction workers will be required.

In addition to the trips generated by delivery of the turbine components, deliveries of equipment for the transmission line, substation and service building construction will occur. These additional deliveries will most likely be from the south rather than from Canada. As with the turbine deliveries, TransCanada will coordinate with the MDOT, Maine State Police and others as appropriate to ensure that all appropriate safety precautions are taken and to minimal effect to other roadway users.

### **9.7.5 Anticipated Construction Impacts**

In addition to equipment delivery impacts as described above, construction impacts will result from construction personnel use of local roadways for access. Construction is planned to occur over a two construction seasons, commencing in fall of 2007 and continuing through 2009. A detailed discussion regarding construction timing is provided in Section 2.8.

Throughout much of the site preparation efforts, effects on surrounding roadways are anticipated to be minimal. Clearing, grading and road preparation efforts are similar to typical construction efforts. Areas for construction worker parking will be provided.

Foundation preparation will also result in minimal influence on community roadways, since a batch plant will be located at the site and construction workers will be located within the site property.

Once the turbine component deliveries and installation process begins, logistics will be carefully timed to minimize the need for double-handling of equipment. Timing of the installation process will be such that the installation team can move from one site to the next in sequence.

It is anticipated that construction personnel will travel to the site from the south via Routes 27 and 16. The limited numbers of additional trips generated due to construction are not anticipated to result in any adverse impacts to these roadways or traffic conditions at impacted intersections. TransCanada will work with MDOT to ensure that construction traffic is coordinated with any ongoing MDOT highway improvement projects to avoid/minimize impacts. TransCanada will provide any additional traffic control personnel or equipment determined to be needed for safe traffic control on area roadways during construction.

### **9.7.6 Operational Traffic Levels**

Once the wind turbines are operational, very limited traffic volumes will be generated by TransCanada staff and contractors during their routine maintenance and inspection activities.

## **9.8 Solid Waste**

### **9.8.1 Anticipated Construction Impacts**

The Kibby Wind Power Project will not generate significant amounts of solid waste during construction. Construction of the project will generate solid waste consisting of construction debris, packaging material, and associated construction wastes. Clearing of overstory vegetation will be required for construction of the turbine locations, and for portions of the new access road and electrical connections. Stumps will be used on-site for creating erosion control mix for site stabilization.

All marketable vegetation will be removed from areas to be cleared by a wood-harvesting contractor, with the exception of certain steep slopes where it is not practical to operate harvesting equipment. In these areas, the cleared vegetation will be left along the downhill

edge of the cleared area. All other clearing related wood waste will be either chipped and used on site for sediment control berms, or chipped and broadcast onsite within the cleared areas. In addition, certain areas of non-marketable woody stems may simply be mowed and left in place in order to complete the necessary clearing. Stumps will be cut to the ground level and left in place, except where removal is necessary for construction of roads, turbine foundations and placement of utility poles. Excess stumps will be few enough in number to be incorporated into the larger fill areas located along the ridgelines.

Most packing and transportation for the turbines and transformers will be materials returned to the supplier and reused. It should be noted that solid waste volumes will be greatly reduced through the use of re-useable form work for fabrication of the wind turbines foundations. Further, wind turbine blades will be delivered in re-useable cradles which will be returned to the manufacturer after the project is completed. Other packing such as plastic wrapping associated with the nacelle and tower components is minimal and will be recycled or disposed of in portable refuse containers. Any surplus debris associated with the project will be disposed of by the contractor at appropriately licensed facilities.

TransCanada intends on using existing permitted landfills for the disposal of construction wastes. No onsite landfill areas are planned. Portable refuse container will be stationed at the construction center and at selected locations within the construction area and used as central points for the collection of solid waste materials. Construction personnel will monitor these roll-offs on a daily basis and have them emptied as appropriate. Periodically during, and at the conclusion of construction, TransCanada will have personnel survey construction areas for any litter that may be present in the area. Any litter found will be disposed of in the portable refuse containers.

Based on construction experience on the Baie-des-Sables wind project, portable refuse containers only needed to be emptied every 7-10 days. The construction work force at Baie des Sables was about 350 persons and is considerably larger than the 200 - 250 workers needed for the Kibby Project. As such, it is anticipated that the typical frequency for emptying portable refuse containers will be greater than 10 days.

The solid waste provisions for this project are similar to methods employed for construction of access roads and construction sites in this area. This solid waste plan conforms to the solid waste disposal guidelines set forth by Section 10.25H of LURC standards, which require provision be made for the regular collection and disposal of site-generated solid wastes at a state-approved landfill or transfer station, as well as for the legal disposal of all construction debris, stumps, brush, wood wastes, asphalt and pavement products.

### **9.8.2 Anticipated Operational Impacts**

Solid waste during facility operations will be limited to small amounts of office waste associated with the service building. The commercial waste resulting from the operation of the project will be transported by a commercial trash company and disposed of in a designated landfill.

## 9.9 References

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