

APPLICATION
GRANITE RELIABLE
POWER LLC
CERTIFICATE OF
SITE AND FACILITY

NEW HAMPSHIRE SITE EVALUATION COMMITTEE

Docket No. 2008 —



APPLICATION OF GRANITE RELIABLE POWER, LLC
FOR CERTIFICATE OF SITE AND FACILITY

Granite Reliable Power Windpark
Coos County, New Hampshire
JULY 2008

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A/S:	Aktieselskab (Danish name for a stock-based corporation)
AC:	Alternating current
APE:	Area of Potential Effect
ATV:	All-terrain vehicle
AWEA:	American Wind Energy Association
AWS:	AWS True Wind
BMP:	Best Management Practices
C:	Celsius
CGP	EPA's National Pollution Discharge Elimination System Construction General Permit
cm:	centimeter
CO ₂ :	Carbon Dioxide
COE:	U.S. Army Corps of Engineers
cu m:	cubic meter
dBa:	decibels A-weighted
DES:	Department of Environmental Services
DHR:	Division of Historical Resources
DOD:	U.S. Department of Defense
DSM:	Demand Side Management
F:	Fahrenheit
FAA:	Federal Aviation Administration
FERC:	Federal Energy Regulatory Commission
ft:	foot
GIS:	Geographic Information System
GPS:	Global Positioning System
GRP:	Granite Reliable Power, LLC
HB:	House Bill
IEA:	International Energy Agency
IEC:	International Electrotechnical Commission
IPCC:	Intergovernmental Panel on Climate Change
ISO:	Independent System Operator
JEDI:	Jobs and Economic Development Impact
kg:	kilogram

LIST OF
ACRONYMS

NEW HAMPSHIRE SITE EVALUATION COMMITTEE PERMIT APPLICATION

km:	kilometer
kV:	kilovolt
kW:	kilowatt
kwh:	kilowatt-hour
lbs:	pounds
LIDAR:	Laser Imaging Detection and Ranging
LLC:	Limited Liability Company
m:	meter
mi:	mile
mm:	millimeter
mph:	miles per hour
m/s:	meters per second
MW:	megawatt
MWH:	megawatt-hour
NAIP:	National Agricultural Imagery Program
NCC:	North Country Council, Inc.
NE-ISO:	The New England Independent System Operator
NEP:	Noble Environmental Power, Inc.
NH DES:	New Hampshire Department of Environmental Services
NHDHR:	New Hampshire Division of Historical Resources
NH DOT:	New Hampshire Department of Transportation
NHFG:	New Hampshire Fish and Game Department
NHNHB:	New Hampshire Natural Heritage Bureau
NH OEP:	New Hampshire Office of Energy and Planning
NH PUC:	New Hampshire Public Utilities Commission
NHRHP:	New Hampshire Register of Historic Places
NH SEC:	New Hampshire Site Evaluation Committee
NOX:	Nitrogen Oxides
NPDES:	National Pollutant Discharge Elimination System
NREL:	National Renewable Energy Laboratory
NRHP:	National Register of Historic Places
O&M:	Operations and Maintenance
OEP:	Office of Energy and Planning
OSHA:	Occupational Safety and Health Administration
PILOT:	Payment in lieu of taxes
PLLC:	Partners of Limited Liability Company

PSNH:	Public Service Company of New Hampshire
PTC:	Production Tax Credit
REC:	Renewable Energy Credits
REPP:	Renewable Energy Policy Project
GGI:	Regional Greenhouse Gas Initiative
ROW:	Right of way
rpm:	revolutions per minute
RPS:	Renewable Portfolio Standards
RV:	recreational vehicle
RSA:	Revised Statutes Annotated
SB:	Senate Bill
SCADA	supervisory control and data acquisition
SEC:	Site Evaluation Committee
SO ₂ :	Sulfur Dioxide
SODAR:	Sonic Detection and Ranging
SPNHF:	Society for the Protection of New Hampshire Forests
SWPPP:	Storm Water Pollution Protection Plan
TKA:	Thomas Kokx Associates
UN:	United Nations
USDA:	U.S. Department of Agriculture
USEPA:	U.S. Environmental Protection Agency
USGS:	U.S. Geological Survey
UWIG:	Utility Wind Integration Group
VERA:	Vermont Environmental Research Associates, Inc.
WHO:	World Health Organization
WMNF:	White Mountain National Forest

EXECUTIVE SUMMARY

Granite Reliable Power, LLC (“GRP” or the “Applicant”) submits this Application to the New Hampshire Site Evaluation Committee (“SEC” or the “Committee”) and requests a Certificate of Site and Facility to construct and operate the Granite Reliable Power Windpark, in one town and four unincorporated places in the central portion of Coos County, New Hampshire. This Executive Summary summarizes the contents of the Application and the purpose for proposing this Windpark.

APPLICANT INFORMATION/ FINANCIAL, TECHNICAL & MANAGERIAL CAPABILITY

Granite Reliable Power, LLC is a Delaware Limited Liability Company and is registered with the New Hampshire Secretary of State to do business in New Hampshire. GRP proposes to develop the Granite Reliable Power Windpark (the “Project”) in central Coos County in northern New Hampshire. Wind turbines and/or electrical interconnection facilities will be located in the unincorporated places of Millsfield, Ervings Location, Dixville and Odell, and in the town of Dummer. GRP is majority-owned by Noble Environmental Power, LLC (“NEP” or “Noble”), a Delaware Corporation based in Essex, Connecticut, a leading wind power development company in the United States with over 150 employees throughout the U.S. and over 1,000 megawatts of wind generation that are in the later stages of development or construction, or are in operation. NEP also has projects in various stages of development in New England. Noble’s management team has extensive knowledge of every aspect of the development, financing, construction and operation of windparks, as well as many years of experience in traditional independent electricity generation. Noble has a fully-integrated, cross-functional organizational structure that enables the company to develop, finance, construct, own and operate each of the projects, including GRP, with a long-term ownership perspective.

SITE INFORMATION

The Granite Reliable Power Windpark is proposed to be built on private land in an upland region of central Coos County. The wind turbines will be located on three tracts of commercial timber land, the Phillips Brook, the Bayroot land, and a smaller portion of privately owned land on Dixville Peak, as shown in **Figure 3**.

The Project includes the construction of approximately 12 miles (19.3 km) of new access road and upgrading of about 19 miles (30.6km) of existing private logging roads. A 34.5 kV electrical collection line will gather the power from the wind turbines and deliver it to a substation to be built approximately 1.5 miles (2.4km) south of the Wind turbine strings. A 115kV electrical interconnection line will be constructed to deliver the power from the substation to the interconnection switching station located adjacent to the existing 115 kV electric transmission line owned by Public Service Company of New Hampshire (“PSNH”). This electrical interconnection line will span approximately 5.8 miles (9.3 km) along the existing Dummer Pond Road. A maintenance building and laydown yard will be constructed in the vicinity of the substation to accommodate construction and operation of the Project.

RENEWABLE ENERGY FACILITY INFORMATION

The facility layout incorporates environmental and meteorological studies conducted on the property. The Project will be powered by 33 wind turbines with a name plate capacity of 3.0 megawatts (MW) each, for a total installed capacity of 99 MW. The Project is estimated to

produce approximately 300,000 MWH per year, or enough power to serve 40,000 households with clean renewable energy. The wind turbines to be used are the “V90” series manufactured by Vestas Wind Systems A/S.

CONSTRUCTION SCHEDULE

The proposed construction start date is in mid 2009, assuming Committee approval and weather conditions permitting. Turbine and component delivery should begin in mid summer and continue well into the fall months. The Project is expected to be completed and in service in Summer 2010.

Construction of the Granite Reliable Power Windpark, including all ancillary facilities, is anticipated to take place in 2009 and 2010 straddling the winter months of 2009. Precursors to construction activities include the acquisition of all state and federal approvals for the construction of the Project and related transportation.

SITE LOCATION AND ALTERNATIVES

An extensive wind site prospecting and screening process was conducted to determine the location for the Granite Reliable Power Windpark. First, on a regional level, using mostly publicly available wind resource mapping technologies, knowledge of existing electrical infrastructure, and obtaining background on various environmental attributes, the most promising geographical locations were selected. Second, site specific screening was conducted to better assess wind characteristics, community support for a Windpark and potential ecological issues.

The present design minimizes the impacts to ecological resources while achieving the Project’s goal of providing 99MW of clean renewable energy through the harnessing of wind. Further explanation of how the final design for the Windpark came to be is found in Section (h)(2).

POTENTIAL HEALTH AND ENVIRONMENTAL EFFECTS AND MITIGATION PLANS

AESTHETICS & VISUAL IMPACTS

No environmental, health, or safety impacts are expected to occur due to the visual impacts of the Project, but the prospect of seeing wind turbines in a previously undeveloped area is of concern to some people. However, visibility by itself does not necessarily mean there will be unreasonably adverse effects on the site or surrounding landscape. The visual assessment of the Project evaluated views from federal, state and local roads, recreation areas, village centers and historic sites and concluded that the visual impacts would not rise to the level of unreasonably adverse and that the visibility of the Project is relatively low. The Project was not found to obstruct views from any high scale value sites.

SHADOW FLICKER: A separate analysis was undertaken for another potential visual impact known as shadow flicker. Shadow flicker is the periodic change in light intensity or shadows created by the rotating blades of the wind turbines. The analysis calculated the potential for this occurrence from each turbine for every sun position for every minute of the year.

Due to the remote nature of the Project, even when excluding all interference from vegetation, no residences or businesses are expected to experience shadow flicker at any time of the year.

TURBINE SAFETY LIGHTING: The turbines will require safety lighting as determined by the Federal Aviation Administration (“FAA”).

CULTURAL AND HISTORIC RESOURCES

A Phase IA archeological survey was conducted to identify and assess areas of archeological sensitivity within 3 miles (4.8 km) of the Project site. Based on the preliminary results of this survey, and in consultation with the New Hampshire Division of Historical Resources (“NHDHR”), a Phase IB archeological survey has been recommended and will provide the basis for determining the need for further work.

Based on the work conducted to date, the Project is unlikely to have an unreasonable adverse effect on any known historic resources. No historic structures will be physically impacted and at present it appears unlikely that the Project would demonstrably diminish any aspects of a setting that might contribute to the significance of such historic properties.

It is anticipated that the Project is unlikely to have an unreasonable adverse effect on significant archeological resources due largely to the remoteness of the Project site. In on-going consultation with the NHDHR, effects on archeological resources will be characterized and evaluated.

AIR QUALITY AND CLIMATE CHANGE

Granite Reliable Power Windpark, in its long-term operation, will produce no air emissions; it will not have adverse impacts on local air quality. Moreover, as a source of clean, renewable energy the Project will positively contribute to regional air quality by offsetting fossil unit generation on the ISO New England Grid. Using the marginal emission rates developed by ISO-NE in July, 2007, the Project is estimated to offset over 332,000,000 pounds of carbon dioxide emissions annually. These offsets will improve local and regional air quality and help mitigate the worldwide impacts of global warming and climate change.

WATER QUALITY

The Project will generate power without any water intake or discharge that requires study, mitigation or permitting. The Project will avoid all environmental problems associated with the intake and discharge of cooling water (which is typically required for other types of electric generating facilities).

Due to the alteration of terrain required for the construction of access roads and other Project facilities, the Project will have temporary impacts related to stormwater, soil erosion and sediment control. These issues have been addressed in the detailed plans and mitigation measures as submitted in the Standard Dredge & Fill Permit Application and Site Specific Application submitted as part of this Application. Civil engineering design of the Project was based on extensive on-site investigations of wetlands and other surface waters, soils, natural communities and wildlife, research with environmental agencies, and best practices used in constructing similar roads and facilities.

With minimal impact to wetlands and other surface water bodies, no water intake or pollution discharge, and detailed soil erosion and sediment control measures in place to mitigate stormwater discharge, the Project’s impact on water quality is expected to be very minimal.

PLANT LIFE

The Granite Reliable Power Windpark worked in collaboration with the New Hampshire Natural Heritage Bureau to document specific findings and assess potential impacts to plant life. Based on studies completed to date, no impact to rare or exemplary plant species is anticipated as a result of this Project.

TREE CLEARING

The Project is sited on privately-owned land and maintained by forest management companies that allow various degrees of public access. As a result of longstanding, pre-existing forestry activities, a network of logging roads and skid trails has been developed over the years.

In terms of forest types, higher elevations (above 2700 feet or 823 m) are dominated by balsam fir (*Abies balsamea*) and red spruce (*Picea rubens*) forests and are mainly undisturbed by commercial forestry practices. However, the surrounding side slopes and valleys have experienced large scale forest harvesting activities resulting in an unevenly aged forest community consisting primarily of yellow-birch (*Betula alleghaniensis*), American beech (*Fagus grandifolia*), balsam fir, red spruce, and sugar maple (*Acer saccharum*), species typically found in northern hardwood-conifer forests. Tree clearing activities will utilize “Best Management Practices for Forestry: Protecting New Hampshire’s Water Quality” during clearing activities

WILDLIFE

The ongoing forestry activities at the proposed Project site have resulted in a patchwork mosaic of unevenly aged forest stands resulting in a diversity of habitats that are utilized by a variety of wildlife species. Some species are present in the area as resident individuals or populations while others use the area during migration or a specific portion of their life cycle. Not all species present will be affected by the Project.

Wildlife surveys were conducted to address concerns for state-listed threatened and endangered wildlife species. These surveys were designed in coordination with the New Hampshire Fish and Game Department (“NHFGD”) and include information about mammals, birds, bats, wetlands and vernal pools.

Specific findings of the wildlife surveys are summarized below along with proposed mitigation measures when appropriate.

BIRDS

MIGRATING BIRDS: The Project has the potential to have direct and indirect impacts to birds that are either resident at or migrating through the Project site. Direct impacts are fatalities caused by collision with wind turbines and potential indirect impacts refer to habitat loss and fragmentation, disruptions in foraging or breeding behavior caused by access roads, the wind turbines’ physical presence and operation, and lighting of some wind turbines.

Consultations with NHFGD and United States Fish and Wildlife Service (“USFWS”) were held in order to identify state or federally-listed species that may be of concern. State-listed species include the peregrine falcon (state-listed endangered), and three-toed woodpecker (state-listed threatened) and Bicknell’s thrush (*Catharus bicknelli*) and the Rusty blackbird (*Euphagus carolinus*) (state-listed species of special concern). No federally-listed threatened or endangered birds were identified as likely to breed within the surveyed area.

To assess the relative abundance and presence of migrating and nesting species, radar nocturnal migration and breeding bird studies were conducted. During the three consecutive seasons of radar surveys, relative flight height and direction of migrating birds were assessed starting in the fall of 2006. The results of these studies were consistent with each other. In all three studies the mean flight height was over 1089 feet (332 meters) with less than 15 percent of the targets flying below the maximum height of the turbines. The results suggest that the migration is occurring on a “broad front” basis where areas of concentrated nighttime

migration activity are not likely to occur. This implies that the risk of collision with the wind turbines is minimal. Therefore the Project is not expected to have an unreasonable adverse impact on migrating birds species.

NESTING BIRDS: The New Hampshire Audubon Society conducted a breeding bird survey in the spring of 2007 for GRP. While the study confirmed no observations of state-listed threatened or endangered species, it did result in unconfirmed detections of the state-threatened three-toed woodpecker along the Mt. Kelsey ridgeline. The study also documented the presence of two state-listed species of special concern. Bicknell's thrush and Rusty blackbird were found in the higher elevation spruce/fir forests on Mt. Kelsey, Fishbrook Ridge, and Whitcomb Mountain.

Measures to reduce and mitigate impacts to these bird species were considered through careful site design in the initial stages of development. With this impact-reducing design and the implementation of the mitigation measures, the Project is not expected to have an unreasonable adverse impact on breeding bird populations.

RAPTORS: To address potential concerns for raptors in the Project site, a fall 2007 raptor migration study was conducted. The results of this study documented very low passage rates compared to other established hawk watch sites in the region. However, three state-listed species of concern were observed flying over the Project site during the raptor survey. These include the Cooper's hawk (*Accipiter cooperii*), Osprey (*Pandion haliaetus*), and Red-shouldered Hawk (*Buteo lineatus*). Although these species were detected during the survey, risk to these species is expected to be low. The state-listed endangered Peregrine Falcon was not observed during any of the on-site raptor migration surveys during the fall 2007, therefore impact to this species is not anticipated.

Additionally, modern wind projects consist of wider-spaced turbines, taller tubular towers (to limit perching or nesting), and blades that spin slowly enough to be visible by migrating raptors even at high wind speeds¹.

Because New Hampshire lies at the northern range of many species' breeding grounds, there are fewer birds passing through New Hampshire compared to other more southern locations in the North American hawk flyways.

No unreasonable adverse impacts are expected to any avian populations.

BATS: The potential of bat mortality is of concern with respect to wind energy projects, particularly because of the cumulative effects. Because bats are known to have a relatively slow reproductive rate, there would be long recovery periods if significant levels of cumulative impacts were to occur. However, northern New Hampshire is at the northern end of the range of most bat species in the northeast and thus has fewer bat species and lower populations.

Bats species of concern in New Hampshire are "tree-roosting" bats that migrate or have shown to be impacted by other modern wind facilities. In this state only one bat species is listed as endangered: the small-footed bat (*Myotis leibii*) from the genus *Myotis*. State-listed species of special concern include Eastern pipistrelle (*pipistrellus subflavus*), Eastern red bat (*Lasiurus borealis*), Hoary bat (*Lasiurus cinerus*), and silver-haired bat (*Lasionycteris noctivagans*). A federally-endangered species, the Indiana bat (*Myotis sodalis*), could also occur in the Project site, however the USFWS considers it unlikely. The Project has conducted three full seasons

¹ Johnson, Erickson, Strickland, et al. "Collision Mortality of Local and Migrant Birds at a Large-Scale Wind-Power Development on Buffalo Ridge, Minnesota." *Wildlife Society Bulletin*, Vol. 30, No. 3 (Autumn, 2002), pp. 879-887.

of acoustic bat detector surveys in a single year to document bat activity at the site and timing of activity throughout the year.

Bat activity documented within the Project site was found to be low and the species detected during the surveys are common to this part of New Hampshire. The northern latitude of Granite Reliable Power Windpark and the habitat present further suggest the presence of Indiana bats to be highly unlikely. For these reasons no unreasonable adverse impacts to bat populations are expected to result from the Granite Reliable Windpark.

OTHER WILDLIFE: Granite Reliable Power wildlife experts, in consultation with the NHFGD, deemed that fish and amphibians were not likely to be adversely impacted. Two mammals, pine marten and Canada lynx, however, were of concern. Pine marten is listed as endangered in New Hampshire and Canada lynx is federally-listed as threatened and state-listed as endangered. A winter tracking survey was conducted in 2007, as were area searches by vehicle and snowmobiles, to document the species present. Pine marten presence was found in the higher elevations of the Project area. No Canada lynx presence was evident. The potential indirect impact to these species would most likely be due to habitat loss and area avoidance. Because, the total loss of wildlife habitat resulting from the Project will be relatively low (i.e.) approximately 203 acres and no unreasonable adverse impact is expected. In addition, possible indirect impacts to these species will be minimized by careful site design and mitigation. Overall, unreasonable adverse impacts are expected to occur to wildlife populations as a result of the construction of the Granite Reliable Power Windpark.

PUBLIC HEALTH AND SAFETY

In general, modern wind turbines are extremely safe, and have public health benefits due to their positive environmental attributes. However, issues have been raised about potential safety impacts such as ice shedding, risk from lightning strikes, tower collapse, or blade throw, stray voltage, fire, and risk to air navigation.

In northern climates such as New Hampshire, the potential for ice shedding from wind turbine blades needs to be considered in connection with public safety issues. Operational procedures will be developed because the Project is entirely on private land. Where access given to the general public will be controlled, the risks to the general public from ice shedding will be very minimal. Where existing recreational trails come within 1000 ft (305 m) of a wind turbine, reflective signage will be installed at trailheads and trail junctures, and frequently on trailside to warn recreational users of the potential danger.

The wind turbines will be equipped with a state-of-the-art “total lightning protection” system that conducts the lightning from both sides of the blade tip down to the hub, the nacelle, tower and into the grounding system. If an electrical problem is detected, the wind turbine will shut down automatically, or at a minimum, be inspected to assure that damage has not occurred. The wind turbines and associated electrical systems will not present any lightning hazards to the general public.

Technological improvements and mandatory safety standards during turbine design, manufacturing, and installation have largely reduced occurrences of catastrophic failures such as tower collapse or blade throw. State-of-the-art braking systems, pitch controls, sensors and speed controls on wind turbines have greatly reduced the risk of such occurrences. Siting the wind turbines a safe distance away from public areas, as Granite Reliable Power has done,

drastically reduces public safety concerns.

Stray voltage can occur in electrical equipment from a damaged or poorly connected wiring system, corrosion on either end of the wires, or weak/damaged wire insulation materials, and can present danger of electrocution to persons in close proximity to these defects. The electrical system and all components of the generation side of the Project will be electrically isolated from any offsite retail electric system and installed in accordance with recognized electrical codes and insulating and grounding practices. These procedures, together with measures to restrict public access, effectively eliminate stray voltage as a public safety concern.

Emergency/fire situations at a wind turbine site or substation that are beyond the capabilities of the local service providers will be the responsibility of the Project owner/operator. Fire or emergency incidents would generally not expose local emergency service providers or the general public to any public health or safety risks beyond those normally associated with such incidents. While fires associated with wind turbines are extremely rare, the remoteness of the Granite Reliable Power Windpark, together with the development of a Fire Protection and Emergency Response Plan, minimizes risks to the general public.

The FAA has established quantitative parameters to determine if a structure is going to be a hazard to air navigation and therefore will require mitigation. Granite Reliable Power has concluded in consultation with the FAA that the Project will not pose a hazard to air navigation if the wind turbines are lit in accordance with FAA regulations. The Project will comply with all FAA minimum requirements.

NOISE

Wind turbines are mechanical devices that emit sounds when operating. There are essentially three sources of sound: 1) the rotor blades moving through the air (a swishing aerodynamic sound); 2) the gearbox or transmission; and 3) the yaw drive, a device that allows the nacelle to rotate on the tower. In this case, because of the unusually large buffer distances between the Granite Reliable Power Windpark turbines and the nearest residences, no long-term impacts are expected from Project operating noise. The nearest residence will be over 2.9 miles (4.7 km) from any of the wind turbines and most other residences will be considerably farther. At such distances Project noise is likely to be well below the background level and therefore inconsequential.

The maximum construction sound levels are estimated to be less than 22 dBA at any permanent residence see Hessler Associates study found at **Appendix 28**. Such an extremely low sound level is far below the normal background sound level, even during calm and quiet conditions, and therefore highly unlikely to be audible. This report includes a field survey of existing sound levels within the Project region, along with a computer model of predicted sound levels from the Vestas V90 wind turbines. The report supports the conclusion that the Project will not have an unreasonable adverse impact on health or the environment as the result of noise produced.

EFFECTS ON ORDERLY DEVELOPMENT OF THE REGION

The Granite Reliable Power Windpark is consistent with and conforms to the “orderly development of the region”, in that it will help supply a new source of needed electricity generated with a clean, renewable source of energy (wind), and provide for economic growth, while respecting the environmental values of the northern New Hampshire region. Plans for

Granite Reliable Power Windpark have been discussed with all of the directly affected and neighboring communities in Coos County. The Project will provide substantial economic benefits to the region in the form of employment opportunities and tax revenues, including but not limited to an annual payment of \$495,000 to Coos County through a Payment in Lieu of Taxes (PILOT) agreement.

COMMERCIAL TIMBER PRODUCTION

The Project is proposed on over 80,000 acres of private land actively used for commercial timber production. Over 140 miles (225 km) of existing private logging roads have been constructed over the past century to support timber harvesting.

Wind power development is compatible with forestry-based activities. Access roads built or in place for one use can be used for the other. Wind turbines occupy a relatively small amount of the forest, while providing a substantial additional source of revenue for the property owners, thus improving the economic attractiveness of continuing commercial forestry management.

Once in operation, the Project is expected to have little or no negative impact on continued use of this land for commercial timber production, and could enhance its continued use for this purpose. As such, the Granite Reliable Power Windpark is not expected to have unreasonable adverse impacts on the use of the private lands on which it is proposed.

OUTDOOR RECREATION

The large tracts of remote private land on which the Project is located, together with neighboring public and private land, support many types of outdoor recreation. Examples include golfing, hiking, cross country skiing, snowmobiling, ATVing, hunting, fishing and outdoor activities. Several state recognized snowmobile trails (#28, 110, and 134) pass through or near the Project. Some existing logging roads are permitted trails for ATV use in the summer. Many trails are used and maintained by five or six established snowmobile or ATV clubs. The COHOS hiking trail crosses Dixville Peak, sharing the trail with ATV and snowmobiles. This Dixville Peak trail will be the closest to the wind turbines.

The Project's impact on these recreational uses will be almost entirely related to intermittent views of the Project from various open areas on these trails. This potential for visual impact was examined by an independent visual consultant who determined that the Project will not have an unreasonable adverse impact on the aesthetics of the region, including recreational uses. Potential safety issues for wintertime users in close vicinity to Dixville Peak turbines will be addressed with cautionary signs, and other controlled access measures.

ECONOMIC IMPACTS

The forestry and tourism/recreational industries are the two main sources of economic activity in Coos County, with forestry activities predominating in the Project area, and tourism in the southern portion of the County. The County continues in a state of transition following the closure of several paper mills that previously have been important employers in the region. The negative economic impacts from the loss of these paper mills are expected to be felt throughout the region's economy into the next decade.

The development of the County's renewable energy resources will bring much needed economic activity to the County, and help support timber harvesting uses or otherwise help fill the eco-

conomic void left by the decline of the local paper industry. The Granite Reliable Power Windpark will be an important first part of the development of the region's wind power resource. At 99 megawatts in size, the cost of the Project will be approximately \$275 million. A large portion of this, approximately \$19.4 million dollars, will be infused into the local economy for the purchase of local goods and services during construction activities. Clearing, earthwork, project management, civil engineering, construction, crane services, electrical services, sand and gravel, and concrete services are examples of these Project-related economic benefits.

In addition to the influx of construction dollars into the local economy, the Project will have substantial long-term economic benefits, including:

- Direct and indirect employment related to the operation of the Windpark.
- Increased commerce in the region from the purchase of services for the Project and spending by the Project's employees.
- An increased annual flow of revenue into the County as a result of the Payment in Lieu of Taxes (PILOT) agreement with the Windpark, change of use tax and timber tax.
- Improved sustainability of the existing forestry industry and related economic benefits through additional revenues to land owners.
- Increased economic diversification of revenue sources.

To estimate the direct and indirect economic effects of the Project on the local economy, a "Jobs and Economic Development Impact" (JEDI) computer model was used, with certain employment estimates and other project-specific economic inputs. The results of the model indicate that with the creation of six skilled operators, management, and administrative personnel, an additional 19 more indirect and induced jobs will be created county-wide (with a total estimated payroll and benefits of \$800,000). Local economic benefits during plant operations are estimated to be \$2.2 million annually, including payrolls, supplies, materials, payments in lieu of property taxes, and Windpark lease payments. Total economic benefits accruing to the local economy, based upon regional multipliers applied to direct Project expenditures in original capital investment and ongoing operational expense, are estimated to be \$63.4 million over 20 years.

In addition to these local and regional impacts, the Project will have a beneficial effect at the state level as well by contributing to various taxes including: the statewide utility property tax, the business enterprise tax, and the business profits tax.

The Project is not expected to have an adverse impact on the region's or state's economy or property values, nor is it expected to have an adverse effect on tourism and its contribution to the local economy. In fact, GRP believes that the overall effect will be extremely positive

LOCAL OUTREACH ACTIVITIES

Consideration of the Views of Municipal Governing Boards

Representatives of the Project have met with many town leaders, planners, residents, area businesses, and civic organizations from all the surrounding towns and beyond. Granite Reliable Power views the development of this Project as a collaborative effort in which local involvement and support are imperative. The success of these efforts is best measured by the strong support this Project enjoys from officials at the local, county, and state levels.

CONSISTENCY WITH STATE ENERGY POLICY

RSA 378:37 states that it is the energy policy of this state “to meet the energy needs of the citizens and businesses of the state at the lowest reasonable cost while providing for the reliability and diversity of energy sources; the protection of the safety and health of the citizens, the physical environment of the state, and the future supplies of nonrenewable resources; and consideration of the financial stability of the state’s utilities.” This Project, by providing clean, renewable electricity, will help to meet the energy needs of citizens and businesses of the state. The additional power provided by this Project will be used to meet current and future electricity demands via non-polluting generation. Adding a cost efficient source of electricity to the region will help to maintain or lower prices for all customers, since windpower will help to promote fuel diversity and a supply shift away from New England’s historical reliance on natural gas. By producing electricity from a source that does not contribute to greenhouse gases, the Project will help preserve the physical environment of the state from further degradation caused by certain air emissions. Finally, by adding a renewable source of electricity, this Project will help New Hampshire utilities meet their requirements under the new Renewable Portfolio Standard law, RSA 362-F, passed by the New Hampshire Legislature in 2007 and thereby maintain their financial stability.

- APPENDIX 1: Financial Statements for Granite Reliable Power, LLC. Information Redacted – Confidential Treatment Requested
- APPENDIX 2: Standard Dredge and Fill Permit Application
- APPENDIX 3: Site Specific Terrain Alteration Permit
- APPENDIX 4: 401 Water Quality Certification Request
- APPENDIX 5: REGIONAL PLANNING DOCUMENTS
- 5a:** Master Plan for the Unincorporated Places in Coos County. Office of the County Commissioners. October 17, 1989.
- 5b:** “Millsfield and Erving’s Location: Land Use Guidance Map.” Complex Systems Research Center, University of New Hampshire. November, 1990.
- 5c:** “Dixville and Dix Grant: Land Use Guidance Map.” Complex Systems Research Center, University of New Hampshire. November, 1990.
- 5d:** “Odell: Land Use Guidance Map.” Complex Systems Research Center, University of New Hampshire. November, 1990.
- 5e:** Zoning Ordinances: Coos County Unincorporated Places. Coos County Planning Board. April 20, 1991.
- 5f:** Town Of Dummer Master Plan. Dummer Planning Board. April, 2000.
- 5g:** Zoning Ordinance: Town of Dummer, New Hampshire. March 9, 1999.
- APPENDIX 6: New Hampshire Department of Transportation Application for Driveway Permit.
- APPENDIX 7: V90- 3.0 MW: An Efficient Way to Move Power. Vestas Americas. July 1, 2006.
- APPENDIX 8: System Impact Study for Granite Reliable Power.
- APPENDIX 9: “Utility Wind Integration: State of the Art”. Summary Document, Utility Wind Integration Group. May, 2006.
- APPENDIX 10: 2005 New England Marginal Emissions Rate Analysis. Systems Planning Department, ISO New England, Inc. July, 2007.
- APPENDIX 11: *Granite Reliable Power Windpark Visual Impacts Report*. Jean Vissering Landscape Architecture and Thomas Kokx Associates (TKA). December, 2007.
- APPENDIX 12: New Hampshire Division of Historical Resources
- 12a:** New Hampshire Division of Historical Resources Project Area Form, Granite Reliable Power Windpark. April, 2008.
- 12b:** Phase IA Archeological Survey, Granite Reliable Power, LLC Proposed Windpark. April, 2008.
- APPENDIX 13: The U.S. Electric Power Sector and Climate Change Mitigation.

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- Pew Center on Global Climate Change. June, 2005.
- APPENDIX 14: Intergovernmental Panel on Climate Change Presentation to United Nations, September 24, 2007:
- 14a:** "Introductory Speech." Dr. Rajendra Pachauri. United Nations Headquarters, New York. September 24, 2007.
- 14b:** "The IPCC Fourth Assessment Working Group Reports: Key Findings". Presentation, United Nations Headquarters, New York. September 24, 2007.
- APPENDIX 15: Reconnaissance-Level Rare Plant Survey at the Proposed Windpark, Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). October 12, 2007.
- APPENDIX 16: Natural Community Characterization, Granite Reliable Power's proposed Wind Power project in Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). May, 2008.
- APPENDIX 17: Rare Plant Survey at the Proposed Windpark, Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). Spring 2008.
- APPENDIX 18: Reconnaissance-Level Wetland and Vernal Pool Survey Proposed Windpark in Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). August 17, 2007.
- APPENDIX 19: Fall 2006 Radar Surveys of Nighttime Migration Activity at the Proposed Windpark in Coos County, New Hampshire. Woodlot Alternatives (now known as Stantec Consulting). October, 2007.
- APPENDIX 20: Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). October, 2007.
- APPENDIX 21: Fall 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). January, 2008.
- APPENDIX 22: Coordinated Survey Results for Proposed Granite Reliable Power and North Country Wind Projects in Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). January, 2008.
- APPENDIX 23: Breeding Bird Study for Proposed Granite Reliable Windpark, Coos County, New Hampshire. New Hampshire Audubon. October, 2007.
- APPENDIX 24: Breeding Bird Study for Proposed Granite Reliable Windpark, Coos County, New Hampshire, Dixville Peak Supplement. New Hampshire Audubon. April 22, 2008.
- APPENDIX 25: 2007 Winter Track Survey at the Proposed Windpark in Coos County, New Hampshire. Stantec Consulting (formerly Woodlot Alternatives, Inc.). October, 2007.
- APPENDIX 26: Risk Analysis of Ice Throw from Wind Turbines. Seifert, Westerhellweg, et al. April, 2003
- APPENDIX 27: Advisory Circular: Obstruction Marking and Lighting. U.S. Department of Transportation, Federal Aviation Administration. February 1, 2007.

- APPENDIX 28: Environmental Sound Survey and Noise Impacts Assessment. Hessler Associates, Inc. November 26, 2007.
- APPENDIX 29: Facts About Wind Energy and Noise. American Wind Energy Association. No date.
- APPENDIX 30: Studies on Wind Turbines and Property Values:
- 30a:** The Effect of Wind Development on Local Property Values. Renewable Energy Policy Project. May, 2003.
 - 30b:** Impacts of Windmill Visibility on Property Values in Madison County, New York. Hoen, Ben. April 30, 2006.
- APPENDIX 31: "Executive Summary." New Hampshire Energy Plan. Governor's Office of Energy and Community Services. November, 2002.
- APPENDIX 32: New Hampshire Clean Power Strategy. New Hampshire Department of Environmental Services. January, 2001.
- APPENDIX 33: New Hampshire Policy Documents Encouraging the Use of Renewable Energy:
- 33a:** "Fact Sheet ARD-23: Global Climate Change and Its Impact on New Hampshire." NH Department of Environmental Services. 2005.
 - 33b:** "Information on Regional Greenhouse Gas Initiative (RGGI)." NH Department of Environmental Services. October, 2007.
 - 33c:** "Energy Programs: The Climate Change Challenge." NH Department of Environmental Services. December 2005.
 - 33d:** "Overview of House Bill 284." NH Department of Environmental Services. November 2007.
 - 33e:** "Energy Programs: NH Greenhouse Gas Registry." NH Department of Environmental Services. December 2005.
 - 33f:** "About Us." New Hampshire Office of Energy Planning. No date.
- APPENDIX 34: Proposed Exhibit List
- APPENDIX 35: Reserved for Documentation Indicating that Copies of the Application have been Provided to the Town of Dummer and the Coos County Commissioners

- FIGURE 1: Map of regional geographic features in the vicinity of the Granite Reliable Power Windpark.
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- FIGURE 8: Major tasks in the construction schedule for 2009.
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- FIGURE 16: Photograph of a typical maintenance building similar to that which is proposed for the Granite Reliable Power Windpark (photo is of similar facility in western New York)
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TABLE A:	Breakdown of Earth Alteration Area by Project Component.
TABLE B:	Planning and Zoning Regulations in Effect in each of the Towns and Unincorporated Places.
TABLE C:	Viewpoints: describes characteristics of the five viewpoints which were selected as simulation points.
TABLE D:	Calculated New England Marginal Emissions Rates and Estimated Annual Offset.
TABLE E:	Total Acres of Impact to Natural Communities Above 2700 ft at GRP's Proposed Windpark.
TABLE F:	Comparison of Three Seasons of Nocturnal Radar Surveys- Granite Reliable Wind Project.
TABLE G:	Raptor Mortality found during post-construction mortality surveys at wind farms in the U.S.
TABLE H:	Results of the JEDI model for Granite Reliable Power Project.