

**STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE**

Docket No. 2010-01

**Application of Groton Wind, LLC, for a Certificate of Site and Facility
for a 48 MW Wind Turbine Facility in Groton, Grafton County,
New Hampshire**

**DECISION GRANTING
CERTIFICATE OF SITE AND FACILITY
WITH CONDITIONS**

May 6, 2011

APPEARANCES: Susan S. Geiger, Esq., Douglas L. Patch, Esq., of Orr & Reno, for the Applicant; Bernard Waugh, Esq., of Gardner, Fulton & Waugh, for the Town of Rumney; Miles Sinclair, Selectman, Laura Spector, Esq., of Mitchell Municipal Group, P.A. for the Town of Groton, John McGowan, Esq., of Donahue, Tucker & Ciandella, for the Towns of Plymouth and Holderness; James Buttolph, Cheryl Lewis, Carl Springer, *pro se*, Intervenors; Richard Wetterer, Dr. Lawrence Mazur, Sarah Mazur, Christine DeClercq-Mazur, Theodore Mazur, *pro se* Intervenors; Evan Mulholland, Esq., Assistant Attorney General, Peter Roth, Esq., Senior Assistant Attorney General, Counsels for the Public.

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I. APPLICATION

On March 26, 2010, Groton Wind, LLC, (“Applicant”) filed with the Site Evaluation Committee (“Committee”) an Application for a Certificate of Site and Facility (“Application”) to construct and operate a renewable energy facility (“Facility” or “Project”) consisting of 24 wind turbines each having a nameplate capacity of 2 megawatts (“MW”) for a total nameplate capacity of 48 MW. Ex. App. 1.¹ On April 26, 2010, the Vice-Chairman of the Committee accepted the Application as administratively complete. The Chairman then appointed a Subcommittee (“Subcommittee”) to review the Application as provided in RSA 162-H:6-a, III and RSA 162-H:4, V. See, Order Accepting Application for Certificate of Site and Facility (issued April 26, 2010).

The Applicant is a limited liability company owned and managed by Iberdrola Renewables, Inc. (“Iberdrola Renewables”). Iberdrola Renewables is in various stages of financing, constructing, and operating 40 wind energy facilities in the United States. Ex. App. 1, at 3, 56. Iberdrola Renewables is owned by Iberdrola Renewables Holding, Inc., which in turn is owned by Iberdrola Renovables (“Iberdrola Renovables”), a company with 10,700 MW of installed wind energy capacity worldwide. 3,591 MW of that capacity is located within the United States. Ex. App. 1, at 4, 56.

The Facility is proposed to be located in the Town of Groton in Grafton County. Ex. App. 1, at 6. The Facility does not yet have a formal street address but is accessible from an

¹ The exhibits introduced by the parties have been designated in the following manner: (1) Applicant’s exhibits – Ex. App. ____; (2) Town of Groton’s exhibits – Ex. Groton ____; (3) Town of Plymouth’s exhibits – Ex. Plymouth ____; (4) Town of Rumney’s exhibits – Ex. Rumney ____; (5) Counsel for the Public’s exhibits – Ex. PC ____; Buttolph Intervenor Group’s exhibits – Ex. Buttolph ____; and (7) Mazur Intervenor Group’s exhibits – Ex. Mazur ____.

access road off of Groton Hollow Road in Rumney, New Hampshire.² Ex. App. 1, at 6. The proposed site for the Facility (“Site”) consists of 4,180 acres and is bounded by Route 25 to the North, Tenney Mountain Ski Resort to the East, the Forest Society’s Cockermouth Forest to the South, and Halls Brook Road to the West. Ex. App. 1, at 6. This area consists of two distinct ridgeline features known as Tenney Mountain and Fletcher Mountain, which are separated by a valley known as Groton Hollow. Ex. App. 1, at 6. Both ridges are northeast/southwest oriented and range in peak elevation from 1,850 to 2,300 feet. Ex. App. 1, at 6. The Applicant has leased 4,180 acres from landowners in order to construct the Facility, but will retain only approximately 3% of this acreage after the construction of the Facility. Ex. App. 1, at 6. As proposed, the Facility will consist of twenty-four (24) Gamesa G87 wind turbines. Ex. App. 1, at 17. Twelve wind turbines will be situated generally in a north-south direction along the Tenney Ridge, six turbines will be oriented on the southern knob of Fletcher Mountain, and six turbines will be oriented on the northwest knob of Fletcher Mountain. Ex. App. 1, at 6.

Each wind turbine consists of a four section tower that will be approximately 256 feet tall, a nacelle containing a drive train, gearbox and generator measuring 28 feet in length, 10 feet in height, and 11 feet in width, and a rotor consisting of three fiberglass composite blades each measuring 139 feet in length. Ex. App.1, at 17-18. The overall height of each wind turbine is proposed to be approximately 399 feet from base to the tip of the rotor. Ex. App. 1, at 17-18, 21.

In addition to the turbines, the Project will consist of: (1) the roads; (2) an electrical collection system; (3) an electrical switchyard; (4) transmission lines; and (5) a voltage step-up facility; (6) an operations and maintenance building; and (7) a meteorological tower. Ex. App. 1, at 17, 40-42.

² While the Project is located in the Town of Groton, access to the Project is obtained from Route 25 and Groton Hollow Road in Rumney, New Hampshire.

The Applicant anticipates extending and using the existing logging road at the end of Groton Hollow Road in order to have access to the Facility. Ex. App. 1, at 40. The Applicant will upgrade approximately 2.4 miles of existing roads by improving the gravel surface, grading, and drainage.³ Ex. App. 1, at 40. Approximately 9.3 miles of new road will be constructed to support the Project. Ex. App. 1, at 40.

The individual turbines will be connected to a 34.5 kV collection system. Ex. App. 1, at 40. Each turbine will be connected to a 2,350 kV transformer and connection cabinet. Ex. App. 1, at 40. Several turbines will be loop-connected through the collection circuits and junction boxes, which, in turn, will be connected to the Facility's switchyard. Ex. App. 1, at 40. It is anticipated that the switchyard will be pole-mounted near the operations and maintenance building. Ex. App. 1, at 41. The collection system will utilize underground and overhead power lines. Ex. App. 1, at 41. As proposed, underground cables will be installed in a trench approximately 4 feet in depth and will be accompanied by a fiber-optic cable for communication purposes. Ex. App. 1, at 41. Overhead cables will be installed on single poles approximately 40 feet in height. Ex. App. 1, at 41.

Once operational, the Facility is expected to have an average annual net capacity factor of 33-36% and expected to produce approximately 144,375 to 157,680 megawatt hours ("MWH") of electricity – an amount sufficient to meet the needs of about 19,000-21,000 homes. Ex. App. 1, at 23. The generated output will be transmitted via 34.5 kV transmission line. Ex. App. 61, at 2. This line will run from the Project to Route 25 and will be comprised of approximately 37 poles, 10 to 12 of which will be located on the existing leased premises and approximately 25 of which will be located along easements on private property. Ex. App. 61, at 2. Once the line

³ The Applicant asserts that the roads will have to be improved in order to comply with all existing regulations. Tr., 11/03/2010, Morning Session, 67-68.

reaches Route 25, it will travel along Route 25 on poles currently utilized by New Hampshire Electric Cooperative. The interconnection line will eventually leave Route 25 and will connect with a 34.5 kV-115 kV voltage step-up facility located on a 5 acre parcel of privately-owned land in Holderness, New Hampshire. Ex. App. 62, at 2. The output will then be transmitted to a Northeast Utilities Beebe River Substation via a 115 kV line. Ex. App. 62, at 2.

As part of the Facility, the Applicant also seeks to construct an operations and maintenance complex. Ex. App. 1, at 41. This complex will include a single story 4,000 square feet building, a 50 by 75 feet parking area and outdoor storage. Ex. App. 1, at 41. The Project will also include a permanent meteorological tower, which will replace the currently existing temporary meteorological tower, with a height of 262 feet. Ex. App. 1, at 42.

The Applicant contends that it has the financial, technical and managerial capabilities to construct and operate the Facility. Ex. App. 1, at 56-57. The estimated cost of the construction of the Facility is approximately \$117-\$120 million. Tr., 11/02/2010, Morning Session, at 25. It is anticipated that the Project will be financed by Iberdrola Renewables through equity investments by Iberdrola Renewables' corporate parent, Iberdrola S.A. Ex. App. 1, at 56-57. The Applicant asserts that Iberdrola S.A.'s investment in the Project will be supported by long-term contracts for the purchase of power and renewable energy credits from the Project. The Project may also qualify for other tax credits or grants from the federal government as provided by the American Recovery and Reinvestment Act of 2009. Ex. App.1, at 56-57.

II. PROCEDURAL BACKGROUND

The Application was filed on March 26, 2010. See, RSA 162-H:7. As required by RSA 162-H:6-a, I, and NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES SITE 301.01, copies of the Application were made available to each state agency having jurisdiction to regulate matters pertaining to the siting, construction, or operation of the Facility. Notice of the filing of the Application was also provided by Counsel to the Committee, to the Select Board and Town Clerk for the Town of Groton, the North Country Council, and the Grafton County Commissioners. The Committee did not receive information from any state agency indicating that the Application did not contain sufficient information to carry out the purposes of RSA 162-H. See, Order Accepting Application for Certificate and Site Facility, at 2 (issued April 26, 2010). The Application was deemed sufficient and accepted. Id. A Subcommittee was then designated to consider the Application. See, Order Designating Subcommittee Pursuant to RSA 162-H:6-a (issued May 7, 2010).⁴

On June 25, 2010, the Subcommittee issued a Report of Prehearing Conference and Technical Session and a Procedural Order scheduling discovery, hearings, and other procedural deadlines. See, Report of Prehearing Conference and Technical Session and Procedural Order (issued June 25, 2010).

On June 28, 2010, the Subcommittee visited the Site and inspected various places within or adjacent to the Site and the proposed location of the Facility. The Subcommittee held a Public Informational Hearing on June 28, 2010, at Plymouth State University in Plymouth, Grafton

⁴ The following members of the Committee (or statutory designees) were designated to serve on the Subcommittee in this docket: (1) Thomas B. Getz, Chairman, Public Utilities Commission; (2) Robert Scott, Director, DES Air Resources Division; (3) Brook Dupee, Senior Health Policy Analyst, Department of Health and Human Services; (4) Richard Boisvert, State Archeologist, Department of Historical Resources; (5) Michael Harrington, Staff Engineer; Public Utilities Commission; (6) Stephen Perry, Chief, Inland Fish and Game Department; (7) Eric Steltzer, Energy Policy Analyst, Office of Energy and Planning; (8) Charles Hood, Administrator, Department of Transportation; (9) Donald Kent, Designee, NH Natural Heritage Bureau.

County, New Hampshire. At the informational hearing, the Applicant presented general information about the Facility and answered questions from the public. The Subcommittee also heard public comment regarding the Project.⁵

Technical sessions were held on August 9, September 27, and September 28, 2010. The purpose of the technical sessions was to permit the parties to obtain additional discovery and information from each other.

An adjudicatory hearing in this docket commenced on November 1, 2010, and continued through November 5, 2010, at which time, the proceeding was recessed to the call of the Chair. At the commencement of the adjudicatory hearings, the Subcommittee was advised that the Applicant had designated an alternate route for the transmission line that would deliver power from the project area in Groton to the Beebe River Substation. The re-designated interconnection with the substation would be required to interconnect at 115 kV, necessitating the construction of a step-up transformer station not contemplated in the original Application. The Subcommittee was also informed that the New Hampshire Division of Historical Resources (DHR) had rejected the project area form submitted by the Applicant as part of its federal review under Section 106 of the National Historic Preservation Act of 1996 (as amended). (See, Letter from Linda Ray Wilson, New Hampshire Division of Historic Resources and Memorandum from Nadine Peterson (Oct. 28, 2010)). Ex. Buttolph 29.

On December 3, 2010, the Sub-Committee found it to be in the public interest to extend deliberations in this docket until April 26, 2011, to allow hearing and deliberation pertaining to the alternate transmission line route and the issues pertaining to historic sites. See, Order on Pending Motions and Further Procedural Order (issued Dec. 14, 2010). On December 22, 2010, the Subcommittee issued a Report of Prehearing Conference/Technical Session and a Procedural

⁵ Approximately 82 questions and comments were submitted by the public to the Applicant.

Order scheduling additional discovery, hearings, and other additional procedural deadlines necessary to address the issues raised by new submissions. See, Report on Prehearing Conference/Technical Session and Procedural Order (issued Dec. 22, 2010). In accordance with the Subcommittee's Order, the parties participated in additional Technical Sessions on February 23, 2011 and March 7, 2011. On April 22 and 23, 2011, the Subcommittee resumed its adjudicative hearing.

In addition to the hearings, the Subcommittee received numerous comments from the public in regards to the Application. Members of the public have identified a number of concerns including, but not limited to, the issues of effect of the Facility on aesthetics, and historic sites; the natural environment; the local real estate market, the orderly development of the region, and public health and safety. The Subcommittee has considered the views and comments of the public as expressed at public hearings and in writing in its consideration of the record in this docket. The transcripts of public comments can be reviewed on the Committee's website or at the Office of the Chairman of the Committee. Written public comment was also reviewed by the Subcommittee and is available for public review at the office of the Chairman of the Committee.

III. INTERVENTION AND HEARINGS

The Town of Groton was permitted to intervene in the proceedings in this docket. Participation of local municipalities is consistent with RSA 162-H:16, IV(b), requiring the Subcommittee to give due consideration to the views of municipal and regional planning agencies and municipal governing bodies with respect to the orderly development of the region. Participation of local communities is also consistent with RSA 541-A: 39. See, Report of

Prehearing Conference and Technical Session and Procedural Order, at 6 (issued June 25, 2010). The Applicant did not object to the Town of Groton's intervention.

The Town of Rumney was also permitted to intervene. Rumney abuts the project area and the Applicant proposes to access the Project through roads in Rumney. The transmission lines will run through the Town of Rumney, and the turbines will be visible from various locations in the Town of Rumney. See, Report of Prehearing Conference and Technical Session and Procedural Order, at 7 (issued June 25, 2010). Id. The Applicant did not object to the Town of Rumney's intervention.

The Town of Plymouth also filed a Motion to Intervene, alleging that the rights, duties and substantial interests of the Town of Plymouth and its residents may be affected by this proceeding due to the proximity of the Town to the proposed development site. The Applicant did not object to the Town of Plymouth's intervention. The Subcommittee granted the Town of Plymouth's Motion finding that it has a substantial interest in the outcome of the case where it either abuts or is in close proximity to the Site. See, Report of Prehearing Conference and Technical Session and Procedural Order, at 7 (issued June 25, 2010).

Once the alternative transmission route and the location of the step-up transformer station were identified, the Town of Holderness also sought intervention. Counsel for the Public and the Town of Groton assented to the Motion to Intervene. The Applicant partially objected to the Motion, arguing that the Town's participation should be limited to "issues relating solely to the facilities that are proposed to be located in the Town of Holderness." The remaining parties did not file formal objections and did not assent to the Town of Holderness' motion. The Subcommittee granted the Town of Holderness's Motion on February 28, 2011. See, Order on Motion Pertaining to the Participation of the Town of Holderness (issued February 28, 2011).

The following residents of the Town of Rumney sought to intervene in these proceedings: Annie Valdmans, Lawrence Mazur, Richard Wetterer, Kathleen Park, Christine G. DeClerq-Mazur, Sarah Mazur, Theodore Mazur, Carl S. Spring and the members of his household, James M. Buttolph, and Cheryl Lewis. These residents asserted that they live in close proximity to the proposed site and will suffer individualized harm, either as a result of perceived health and safety issues, or by virtue of the reduction of the value of their real property. The Applicant objected to the Rumney residents' request, stating that their issues and concerns were similar to the concerns that would be effectively represented by the Town of Rumney and Counsel for the Public. The Subcommittee granted the request for intervention to the residents of the Town of Rumney and consolidated them in two groups: a "Buttolph/Lewis group, including Mr. Buttolph, Ms. Lewis and Mr. Spring ("Buttolph/Lewis Group"), and the Mazur/Park/Valdamis/Wetterer group of intervenors including the Mazurs, Ms. Park, Ms. Valdamis, and Mr. Wetterer ("Mazur Group"). See, Report of Prehearing Conference and Technical Session and Procedural Order, at 7, 8 (issued June 25, 2010); Order on Partially Assented Motion to Amend order and Notice and Supplemental Order Regarding Intervention (issued July 7, 2010).

Pursuant to RSA 162-H:9, I, Senior Assistant Attorney General Peter C.L. Roth and Assistant Attorney General Evan Mulholland were appointed as Counsel for the Public in order to "represent the public in seeking to protect the quality of the environment and in seeking to assure an adequate supply of energy." RSA 162:9, I. Counsel for the Public is accorded all the rights, privileges and responsibilities of an attorney representing a party in a formal action.

Between November 1, 2010 and November 5, 2010, and April 22 and April 23, the Subcommittee held adjudicatory hearings. The Subcommittee met in adjudicatory hearings on 7

separate days and heard testimony of various witnesses. In addition, the Subcommittee held a hearing to take public comments and conducted a site visit.

On April 7-8 and 11, the Subcommittee met publicly to deliberate on the Application. During this time, the Subcommittee addressed the criteria for granting of a Certificate under RSA 162-H:16 and the arguments in support of and against the issuance of a Certificate. After careful consideration and intensive deliberation, the Subcommittee voted to approve the Application and to issue a Certificate of Site and Facility for the Facility as set forth in the Application, as amended, subject to a number of conditions. See, RSA 162-H:4, I(b) (authorizing the Committee to grant a Certificate subject to conditions.)

IV. POSITIONS OF THE PARTIES

A. Applicant

As a part of its Application, the Applicant submitted the pre-filed testimony of the following individuals:

- Edward Cherian, New England Development Director for Iberdrola Renewables, Inc., Ex. App. 1;
- Pablo Canales, Senior Vice President and Chief Financial Officer for Iberdrola Renewables, Inc., Ex. App. 1;
- John D. Hecklau, Executive Vice-President for EDR Environmental Services, LLC, Ex. App. 1, Tr., 11/01/2010, Afternoon Session, at 57;
- Hope E. Luhman, Assistant Director for Cultural Resources and Senior Archaeologist of The Louis Berger Group, Inc., Ex. App. 1;
- Nancy B. Rendall, Senior Environmental Scientist for Vanasse Hangen Brustlin, Inc., Ex. App. 1;
- Adam J. Gravel, Project Manager for Stantec Consulting., Ex. App. 1;
- Michael J. Leo, Senior Project Manager/Civil Engineer for Vanasse Hangen Brustlin, Inc., Ex. App. 1;

- Robert D. O’Neal, INCE, CCM, Principal of Epsilon Associates, Inc., Ex. App. 1;
- Kevin E. Devlin, Vice President, Commercial Operations for Iberdrola Renewables, Inc., Ex. App. 1;

The Applicant also submitted the pre-filed testimony of Trevor Mihalik, a Senior Vice President of Finance for Iberdrola Renewables, Inc. (Ex. App. 5); supplemental pre-filed testimony of Robert D. O’Neal (Ex. App. 5), Michael J. Leo (Ex. App. 5), Adam J. Gravel (Ex. App. 5), Nancy B. Rendall (Ex. App. 5), Peter J. Walker (Ex. App. 5), Hope E. Luhman (Ex. App. 5), Edward Cherian (Ex. App. 5) and John D. Hecklau (Ex. App. 59); second supplemental pre-filed testimony of Nancy B. Rendall (Ex. App. 64), Peter J. Walker (Ex. App. 64), Edward Cherian (Ex. App. 61), Adam J. Gravel (Ex. App. 66), Hope E. Luhman (Ex. App. 51), John D. Hecklau (Ex. App. 60), Robert D. O’Neal (Ex. App. 68); and third supplemental pre-filed testimony of Adam J. Gravel (Ex. App. 67), Nancy B. Rendall (Ex. App. 65), Peter J. Walker (Ex. App. 65), Hope E. Luhman (Ex. App. 52), and Edward Cherian (Ex. App. 62).

The Applicant asserts that the information contained in its Application, pre-filed testimony, and exhibits clearly demonstrates that the Applicant has the financial, managerial and technical capacity to construct, manage, and operate the Facility in accordance with the conditions of the Certificate. In addition, the Applicant asserts that the Facility will not unduly interfere with the orderly development of the region and will not have an unreasonable adverse effect on aesthetics, historic sites, air and water quality, natural environment, or public health and safety. Therefore, the Applicant asserts that the Subcommittee should grant the Application and issue a Certificate to the Applicant.

B. Counsel for the Public

Counsel for the Public retained Gregory C. Tocci of Cavanaugh Tocci Associates, Inc., to study potential noise impacts of the Project and Mr. Trevor Lloyd-Evans of the Manomet Center for

Conservation Sciences to study the effect of the Facility on birds and flying mammals. Counsel for the Public submitted pre-filed and supplemental pre-filed testimony from Gregory C. Tocci and pre-filed testimony from Trevor Lloyd-Evans. Ex. PC 1-3.

Counsel for the Public asserts that the Subcommittee should require the Applicant to conduct a three-year post-construction bird and bat mortality study. In addition, Counsel for the Public asserts that in order to prevent unreasonable adverse effect of the Project on public health and safety, the Subcommittee should ensure that the noise generated by the Project will not exceed 40 dBA at residential uses and should apply a baseline sound level requirement. Finally, Counsel for the Public asserts that the Applicant did not satisfy its burden and failed to demonstrate that the Project will not have an unreasonable adverse effect on historic sites of the region and requests the Subcommittee to retain its powers in order to review the Applicant's proposal for mitigation of the adverse effects caused by the Project on the region's historical resources.

C. Town of Groton

The Town of Groton generally supports the issuance of a Certificate. The Applicant entered into an Agreement with the Town of Groton addressing the Town's concerns including, but not limited to, the issues of noise, road usage, blasting, and decommissioning. Ex. App. 32. The Applicant also agreed that the Agreement with the Town of Groton should be a condition of the Certificate issued in this docket. Tr. 11/01/2010, Morning Session, ay 70.

In addition, the Groton Board of Selectmen and Groton Planning Board advised the Subcommittee that the Project was well received and was supported by the vast majority of the townspeople. See, Ex. App. 1, at 39, 40. As a result, the Groton Board of Selectmen and Planning Board expressed their support to the construction and operation of the Facility and

urged the Subcommittee to approve the Application, with conditions as contained in the Agreement with the Applicant. See, Ex. App. 1, at 39, 40.

D. Town of Rumney

During the adjudicatory proceedings, the Town of Rumney advised the Subcommittee that it entered into an Agreement with the Applicant addressing concerns raised in connection with the anticipated construction and operation of the Project. Tr. 11/01/2010, Morning Session, at 25; Ex. App. 7; Rumney 1. According to the Town of Rumney, this Agreement satisfied the “official concerns” of the Town of Rumney with respect to the Project. Tr. 11/01/2010, Morning Session, at 26. Therefore, the Town of Rumney does not oppose the construction of the Project, and requests the Subcommittee to incorporate the Agreement between the Town and the Applicant into conditions of the Certificate. Tr., 11/01/2010, Morning Session, at 26.

E. Town of Plymouth

The Town of Plymouth submitted the pre-filed testimony of Casino Clogston, Fire Chief for the Town of Plymouth. See, Ex. Plymouth 1. Chief Clogston expressed concerns that neither the Plymouth nor Rumney Fire Departments have sufficient equipment and training to address a fire emergency which may be caused by the Project. Ex. Plymouth 1, at 4. The Town of Plymouth requested the Subcommittee to require the Applicant to provide training to its Fire Department and to supply the Plymouth Fire Department with two “Type 6 brush trucks”, two six-person ATVs, three forestry high pressure portable pumps and associated equipment. Ex. Plymouth 1, at 4.

In addition, the Plymouth Board of Selectmen expressed concerns with the visual impact of the turbines on aesthetics and the economy of Plymouth. The Town of Plymouth urged the

Subcommittee to consider the relocation of the turbines. See, Correspondence from the Board of Selectmen of the Town of Plymouth, December 6, 2010.

F. Town of Holderness

The Town of Holderness requests the Applicant be required to comply with the Town's "dark sky" ordinance as applied to the voltage step-up facility located within the Town's boundaries. The Applicant agreed to comply with the Town's "dark sky" ordinance, as applied to the step-up facility, for so long as the provisions of the ordinance are not in conflict with applicable fire, safety and building codes.

G. Buttolph/Lewis/Spring Group of Intervenors

The Buttolph/Lewis intervenors submitted pre-filed testimony from the following:

- James Buttolph, Ex. Buttolph 24;
- Carl Spring, Ex. Buttolph 26;
- Cheryl Lewis, Ex. Buttolph 25; and
- Michael S. McCann, CPA., Ex. Buttolph 1-K.

In his pre-filed testimony, Mr. Buttolph urges the Subcommittee to carefully scrutinize the Project's impact on wild life, economy, and real estate market of the region. In addition, Mr. Buttolph asserts that turbine sound emissions may have an adverse effect on the health of the people living in proximity to the Project. Ms. Lewis asserts that the Project will have an adverse effect on the region in general and, specifically, the campground owned by her. Ms. Lewis claims that increased noise levels and the visibility of the turbines will adversely impact the attraction and visual appeal of the region to tourists. The Intervenors also assert that the Project may have an adverse effect on water quality of the region and may affect the value of local real estate. Mr. Spring asserts that the Project will have an adverse effect on "the people of Rumney

and surrounding areas, as well as aesthetics, water quality, the natural environment, public health and safety, tourism and other aspects of local life and environment.” Ex. Buttolph 26, at 3.

H. Mazur/Park/Valdamis/Wetterer Group of Intervenors

The Mazur intervenors submitted pre-filed testimony from the following individuals:

- Lawrence A. Mazur, MD, Ex. Mazur 13; and
- Christine Mazur and Sarah Mazur, Ex. Mazur 14; and
- Prefiled testimony of Richard Wetterer dated August 31, 2010.

Christine Mazur and Sarah Mazur assert that the turbines will be visible from the residential areas of the Town of Rumney and the noise will reverberate and echo between the mountain slopes of the Baker River Valley and cause adverse effects on the aesthetics, natural environment, and health and safety. In addition, Dr. Mazur submits that the sound generated by the Project may cause irreparable damage to the health and safety of the residents living nearby. Mr. Wetterer echoes Dr. Mazur’s concerns, and urged the Subcommittee to consider a number of articles addressing the impact of noise generated by wind turbines on human health. Dr. Mazur expressed concerns that the turbines may cause wind turbine syndrome and/or vibroacoustic disease in certain individuals in the population that lives near the Project.

V. ANALYSIS AND FINDINGS

A. State Permits

Irrespective of the process employed by the Site Evaluation Committee, RSA 162-H requires an applicant to file applications for all state permits that would normally be required for the Project. The construction and operation of the Facility requires the Applicant to make application for the following permits, certifications and determinations: (1) Standard Dredge and Fill Permit, commonly known as a “Wetlands Permit”; (2) Alteration of Terrain Permit; (3)

Section 401 Water Quality Certification; (4) Federal Aviation Administration (FAA) 7460-1 Determinations; and, (5) Section 106 Review (lead by the U.S. Army Corps of Engineers in consultation with the N.H. Division of Historical Resources). The FAA Determinations and the Section 106 Review are part of the process under federal law and not subject to the jurisdiction of the Committee. The Section 401 Water Quality Certification, although a federal program, is delegated to the Department of Environmental Services.

1. Wetland Permit

The Standard Dredge and Fill Application, commonly referred to as the “Wetlands Permit” is issued under the authority of RSA 458-A:3 and in accordance with administrative regulations promulgated by the New Hampshire Department of Environment Services (“DES”). See, NH CODE OF ADMINISTRATIVE RULES, ENV-WT 300, *et. seq.*

The Applicant filed its Wetland Permit Application with the Wetlands Bureau of the New Hampshire Department of Environment Services in March, 2010. See, Ex. App. 2, Appx. 1. The Applicant asserted that the construction of the Project will have a permanent effect on 1.63 acres and a temporary effect on 0.33 acres of wetlands, intermittent streams, and perennial streams. Ex. App. 1, at 71.

On June 29, 2010, staff members of DES conducted a field inspection of the Project. On July 26, 2010, DES issued a Progress Report requesting the Applicant to consider a number of mitigation conditions, including, but not limited to an “in-lieu fee.” See, Wetlands Bureau 07/26/2010 Progress Report.

On October 8, 2010, after considering all provided documents and comments, DES issued its Final Decision, approving the issuance of a Wetlands Permit, subject to certain conditions. See, Ex. App. 5, Appx. 51. Specifically, DES found that the Project will impact

more than 20,000 square feet of wetlands and will be a “major project” as defined by the NH CODE OF ADMINISTRATIVE RULES ENV-WT 303.02. See, Ex. App. 5, Appx. 51. Twenty-five conditions were recommended . See, Ex. App. 5, Appx. 51. For example, DES required the Applicant to restore 14,450 square feet of wetlands and streams that will be temporarily impacted by the Project. See, Ex. App. 5, Appx. 51. In addition, DES required the Applicant to make an “in-lieu fee” payment of \$150,000 to the DES Aquatic Resources Mitigation Fund in order to upgrade nine existing stream crossings along Groton Hollow Road and to provide technical assistance to the Society for the Protection of New Hampshire Forests. See, Ex. App. 5, Appx. 51.

Pursuant to RSA 162-H:16, I, the Certificate in this docket will be conditioned upon the Applicant’s compliance with the conditions and limitations identified within the Wetlands Permit. The Wetlands Permit is incorporated into the Certificate to be issued in this docket. Pursuant to RSA 162-H:4, III, the Subcommittee delegates its authority to approve amendments to the Wetlands Permit.

2. Alteration of Terrain Permit

RSA 485-A:17 regulates activity that involves construction that significantly alters terrain characteristics in such a manner as to impede natural runoff or create an unnatural runoff. See, RSA 458-A:17. Alteration of Terrain Permits are issued by DES, Water Division.

The Applicant anticipates that approximately 5,036,579 square feet or 116 acres of land will be disturbed during the construction of the Project. Ex. App. 2, Appx. 2. The Applicant submitted an Alteration of Permit Application to the Water Division on October 8, 2010. The Water Division issued an Alteration of Terrain Bureau Final Decision approving the permit, with conditions. See, Ex. App. 5, Appx. 51; Ex. App. 2, Appx. 2.

The Water Division's approval of the Applicant's request "includes permit conditions from the Watershed Management Bureau (WMB) to satisfy §401 Water Quality Certification concerns, and from the Drinking Water and Groundwater Bureau (DWGB) to satisfy concerns regarding ledge blasting and monitoring Best Management Practices." See, Ex. App. 5, Appx. 51. Among other things, the permit requires the Applicant to employ the services of an environmental monitor to inspect the Site during the activities causing the alteration of terrain. See, Ex. App. 5, Appx. 51. The Alteration of Terrain Permit contains 22 conditions. See, Ex. App. 5, Appx. 51.

The Certificate of Site and Facility will be conditioned upon the Applicant's compliance with the conditions and limitations identified by the Alteration of Terrain Permit issued by DES, and said permit, including all of its enumerated conditions and limitations, is incorporated into the Certificate to be issued in this docket. Pursuant to RSA 162-H:4, III, the Subcommittee delegates its authority to approve amendments to the Alteration of Terrain Permit to the New Hampshire Department of Environmental Services, Water Division.

3. Federal Review

The Applicant is required to address the following requirements in order to construct and operate the Project in compliance with federal law: (1) §401 Water Quality Certification review; (2) FAA 7460-1 Determinations; and (3) §106 Review (lead by the U.S. Army Corps of Engineers (USACE) in consultation with the N.H. Division of Historical Resources). We find the federal process to be helpful in informing the Subcommittee.

a. Section 401 Water Quality Certification

Under §404 of the Clean Water Act (33 U.S.C. § 1344), the United States Army Corps of Engineers (USACE), may issue general permits for the discharge of dredged or fill material

into the navigable waters at specified disposal sites to the States. See, 33 U.S.C. §1344 (a)(e). On July 2, 2007, USACE issued a statewide Programmatic General Permit (“PGP”) for minimal-impact activities. Subject to certain exclusions and conditions, the PGP eliminated the need to apply for separate approval from USACE under §404 of the Clean Water Act for minor work in New Hampshire when that work is authorized by the New Hampshire Department of Environmental Services, Wetlands Bureau.

In addition, §401 of the Clean Water Act (33 U.S.C. §1341) regulates any activity including, but not limited to, the construction or operation of facilities, which may result in a discharge into navigable waters of the United States. In order to comply with §401, the Applicant must obtain a license or permit from the State in which the discharge originates. See, 33 U.S.C. §1341, *et. seq.*

On March 30, 2007, the New Hampshire Department of Environmental Services issued a §401 Certificate to the Applicant. Under this Certificate, the Applicant must comply with the following terms and conditions: (1) construction or operation of the Project should meet New Hampshire water quality standards; (2) application under the USACE PGP should be reviewed by DES to determine whether additional conditions or individual §401 Certification application is necessary; (3) construction of the Project under the PGP should not commence until all other applicable permits and approvals have been granted; and (4) all applicable conditions of the PGP should be followed. See, Water Quality Certification dated May 30, 2007, at 5.

The Project is also required to comply with §404 of the Clean Water Act, which is administered by the United States Army Corps of Engineers under the provisions of a general programmatic permit. On September 3, 2010, the Corps of Engineers confirmed, in writing, that

the Project meets the requirements of the general programmatic permit for New Hampshire. See, Ex. App. 5, Appx. 41.

b. FAA 7460-1 Determination

Under 14 C.F.R. §77.13, each sponsor who proposes any construction or alteration of a structure more than 200 feet above ground level shall notify the Federal Aviation Administration (“FAA”) of such proposed construction or alteration. 14 C.F.R. § 77.13 (a)(1).

It is anticipated that the turbines and the meteorological tower will be approximately 428 feet high. Therefore, under 14 C.F.R. §77.13, the Applicant is required to notify FAA of the construction of the Facility. On March 16, 2010, the Applicant submitted 25 Notices of Proposed Construction or Alteration for the wind turbines and the meteorological tower to FAA. See, Ex. App. 3, Appx. 8.

On March 25, 2010, FAA issued 25 Determinations of No Hazard to Air Navigation as applied to the 24 wind turbines and meteorological tower, determining that the turbines and the tower will not create a hazard to air navigation under conditions that the Applicant implements the following requirements: (1) each turbine must be marked and/or lightened in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights – Chapter 4,12 and 13 (turbines); and (2) the Applicant will complete and return to FAA Form 7460-2, Notice of Actual Construction or Alteration, when the Applicant abandons the Project or within 5 days after the turbine construction reaches its greatest height. See, App. 5, Appx. 49.

c. §106 Review – The National Historic Preservation Act

In this case, the Project requires review pursuant to §106 of the Historic Preservation Act of 1996. (16 U.S.C. 470, *et. seq.*) The lead federal agency for §106 review in this docket is the

USACE. Pursuant to Section 106, the USACE must consult with DHR. We note that the §106 process is an interactive process that may continue beyond the time frames set forth in RSA 162-H:6-a.⁶ However, review under Section 106 of the National Historic Preservation Act has a direct bearing on our decision whether construction and operation of the Facility will have an unreasonable adverse effect on historic sites in the region. Our consideration of historic sites is addressed in detail under Section V, C 3(3), below.

B. Consideration of Alternatives

The Subcommittee should consider available alternatives in deciding whether the objectives of the statute would be best served by the issuance of the Certificate. See, RSA 162-H:16, IV.

Historically, the Committee considers alternatives presented by the Applicant. See, Decision Granting Certificate of Site and Facility with Conditions, Application of Granite Reliable Power, LLC, 2008-04 (July 15, 2009), (“[t]he Site Evaluation Committee normally considers the evidence of alternatives presented by an applicant. The Committee also considers any other evidence in the record pertaining to alternative sites.”). Accordingly, the Applicant explained its alternatives analysis which included: (1) different site locations; (2) different size of the Project; (3) interconnection alternatives; (4) different turbine types; and (5) different road configurations. See, Ex. App. 1, at 45-53.

In selecting the Site, the Applicant sought to identify a site that would exhibit adequate speed and quality of the wind. See, Ex. App. 1, at 42. The Applicant also asserts that, when selecting the Site, it considered such factors as environmental appropriateness, community acceptance, distance to grid-interconnection, transmission access, accessibility of the Site to

⁶ RSA 162-H:16, VI specifically recognizes that state or federal permit consideration may exceed the time frames set forth in RSA 162-H.

construction equipment and heavy machinery, economic factors, wetlands and water bodies, communication interference, cultural resource, wildlife habitat, and the fact that the minimum setback between towers and the nearest non-participating resident should be 2,700 feet and setback between the turbines and the public roads should be 2,400 feet. See, Ex. App. 1, at 42-44.

In undertaking its site choice analysis, the Applicant asserts that it considered a construction of an 80 MW Project with more turbines along Fletcher Mountain on additional land parcels. See, Ex. App. 1, at 45. However, the Applicant ruled out this alternative after determining that it would require very difficult engineering for access roads, a much greater length of road, and a more expensive interconnection. See, Ex. App. 1, at 45. In addition, the Applicant indicates that this alternative became unavailable when a landowner became disinterested in the Project. See, Ex. App. 1, at 45.

In addition, the Applicant asserts that it considered the alternative interconnection points including: (1) interconnection into the 230 kV lines that transit Groton west of the Site; (2) interconnection with the Rumney Substation; and (3) interconnection with Beebe River Substation at 34.5 kV level. See, Ex. App. 1, at 45; Tr., 11/01/2010, Afternoon Session, at 18. The Applicant ruled out interconnection with the Rumney Substation when it determined that Rumney Substation did not have adequate capacity for the interconnection. See, Ex. App. 1, at 45. The Applicant further determined that the relatively small size of the Project would not economically support construction of a new substation to step-up voltage to interconnect at the 230 kV level. See, Ex. App. 1, at 45. Therefore, the Applicant initially sought to interconnect directly with the Beebe River Substation at 34.5 kV level. Ex. App. 1, at 23. The owner of the Beebe River Substation, PSNH, conducted additional internal studies of the Project and raised

concerns pertaining to the Applicant's proposed interconnection at 34.5 kV level. Ex. App. 1, at 23. Consequently, the Applicant decided to interconnect at the 115 kV voltage level. Ex. App. 1, at 23; App. 61, at 2-3.

The Applicant also chose an alternative interconnection route. Originally, the Applicant considered a route along Quincy Road. Tr. 11/01/2010, Afternoon Session, at 23. However, the Town of Rumney opposed that route. Tr. 11/01/2010, Afternoon Session, at 23. In addition, the Applicant discovered that the New Hampshire Electric Cooperative was unable to document easements for the existing poles and anchors. Tr. 11/01/2010, Afternoon Session, at 23; Tr. 11/01/2010, Afternoon Session, at 23. Therefore, the Applicant decided in favor of connecting the Site with the existing power line running along Route 25 and connecting the Project with the Northeast Utilities connection via alternative overhead power line. Tr. 11/01/2010, Afternoon Session, at 23; Ex. App. 61, at 2-3; Ex. App. 62, at 4. This power line will follow existing logging roads and skidder trails, where possible, and will include multiple angles and shifts in orientation. See, Ex. App. 62, at 1. It is anticipated that the cleared width of the right-of-way for this power line will be approximately 35 feet. See, Ex. App. 62, at 1. Ultimately, the Applicant decided in favor of the Route considered by this Subcommittee because it takes under consideration concerns expressed by the residents of the Groton Hollow Road and New Hampshire Electric Cooperative, and reduces the length of the overhead line by approximately 1.5 miles. Ex. App. 61, at 2-3.

Furthermore, the Applicant asserts that it considered Mitsubishi, Suzlon, and General Electric turbines as alternatives to the Gamesa G87 model. See, Ex. App. 1, at 46. However, it determined that, considering the wind data received from Groton Wind modeling, Gamesa G87 turbines will be the most efficient turbines. See, Ex. App. 1, at 46. The Applicant also asserts

that in selecting Gamesa G87 it considered the fact that its company has an extensive experience in constructing and operating this model of the turbines. See, Ex. App. 1, at 46.

Alternative layouts, as well as other road configurations, were also considered. See, Ex. App. 1, at 46-53. For example, the Applicant considered access to the West Ridge from Halls Brook Road and Access to the East Ridge via Tenney Mountain. See, Ex. App. 1, at 47-48. However, the Applicant asserts that the access from the Halls Brook Road did not meet engineering specifications. See, Ex. App. 1, at 48. As to the access via Tenney Mountain, the Applicant ruled out this alternative when it determined that the access road from NH Route 3A was too steep for the transportation of wind turbine components and the use of the ski area access road could create traffic and safety conflicts. See, Ex. App. 1, at 48. In addition, although the Applicant determined that the access from Groton Hollow Road represented the best available alternative, it considered seven major alternative route alignments while finalizing the Project's layout. See, Ex. App. 1, at 48-53; Ex. App. 1, Figure 7. As a result, the Applicant chose the east ridge access, allowing the Applicant to utilize an existing bridge across Clark Brook and to minimize the number of stream crossings, allowing for a shorter route to the midpoint of East Ridge Crate Road, and consisting of approximately 8,400 feet of road length. See, Ex. App. 1, at 49; Ex. App. 1, Figure 7. As to the west ridge access, the Applicant chose the alternative, avoiding stream crossings associated with other routes, minimizing grading requirements, and providing the shortest feasible route from Groton Hollow Road to the west ridge. See, Ex. App. 1, at 52.

We will also discuss the Buttolph/Lewis assertion that the Subcommittee should deny certification of the Project because the Project is not the most efficient and the most beneficial renewable energy facility alternative. Tr. 11/05/2010, Morning Session, at 99-100. Specifically,

Mr. Buttolph stated that a biomass renewable energy facility would be more efficient and cause less impact than a wind energy facility. Tr. 11/05/2010, Morning Session, at 99-100. A similar argument was addressed by the Subcommittee in its decision granting the Certificate of Site and Facility to the Laidlaw Berlin BioPower, LLC. See, Decision Granting Certificate of Site and Facility with Conditions, Application of Laidlaw Berlin BioPower, LLC, Docket No. 2009-02, at 37 (Nov. 8, 2010). There, the intervenor similarly asserted that another biomass facility would present a better alternative than the one proposed by the Applicant. Id. In Laidlaw, it was noted that such arguments would require consideration of the entire universe of energy facilities rather than “available alternatives” as set forth in RSA 162-H. Id. RSA 162-H does not require the Subcommittee to consider every possible alternative, including ones unavailable to the Applicant. Id.

The Buttolph/Lewis Intervenors also pose a generalized balancing argument and urge the Subcommittee to deny the Certificate, alleging that the negative aspects associated with the construction and operation of the Facility outweigh its benefits. See, Final Brief of Intervenors Group Buttolph/Lewis/Spring Group of Intervenors dated April 1, 2011, at 3. According to the Intervenors, RSA 162-H:16, IV and RSA 162-H:1-19 support their position that the Subcommittee should balance the benefits and negatives of the Facility in reaching the decision whether to grant the Certificate to the Applicant. See, Final Brief of Intervenors Group Buttolph/Lewis/Spring Group of Intervenors dated April 1, 2011, at 3.

Under RSA 162-H:16, IV, the Subcommittee should consider other relevant factors bearing on the objectives of RSA 162-H:1-19 in deciding whether the objectives of the statute would be best served by the issuance of the Certificate. See, RSA 162-H:16, IV. The objectives of RSA 162-H:1-19 and factors bearing on such objectives are defined by RSA 162-H:1:

. . . it is in the public interest to maintain a balance between the environment and the need for new energy facilities in New Hampshire; that undue delay in construction of needed facilities be avoided and that full and timely consideration of environmental consequences be provided; that all entities planning to construct facilities in the state be required to provide full and complete disclosure to the public of such plans; and that the state ensure that the construction and operation of energy facilities is treated as a significant aspect of land-use planning in which all environmental, economic, and technical issues are resolved in an integrated fashion, all to ensure that the state has an adequate and reliable supply of energy in conformance with sound environmental principles.

RSA 162-H:1, I.

The Intervenors urge the Subcommittee to deny the Certificate because, according to them, the State of New Hampshire will gain only a minimal benefit as a result of construction of the Facility, but the Project will have a significant negative impact on the environment, economy, aesthetics, and health and safety of the region. See, Final Brief of Intervenor Group Buttolph/Lewis/Spring Group of Intervenors dated April 1, 2011, at 36. Specifically, the Intervenors assert that the Facility's benefits will be minimal where its capacity factor is much lower than the capacity factors of other renewable energy facilities; the Applicant will sell the output generated by the Facility out of state; the Facility will substitute for a minimum amount of carbon dioxide emissions; and there is no conclusive evidence that would demonstrate the Project's economic benefit to the region. See, Final Brief of Intervenor Group Buttolph/Lewis/Spring Group of Intervenors dated April 1, 2011, at 4-14. Furthermore, according to the Intervenors, the Project will have an unreasonable adverse effect on the natural environment of the region, may pose significant risk to the health and safety of the residents of Groton Hollow Road or to any other residents living near the Project, may have adverse effect on the value of real estate, and, finally, may cause annoyance and other health complications to the

residents exposed to the noise generated by the Project. See, Final Brief of Intervenor Group Buttolph/Lewis of Intervenor dated April 1, 2011, at 14-30. Therefore, the Buttolph/Lewis Intervenor asserts that the potential negative effects of the Project clearly outweigh its minimal potential benefits and, consequently, does not serve the objectives of RSA 162-H:1. See, Final Brief of Buttolph/Lewis Intervenor dated April 1, 2011, at 36.

Counsel for the Public partially concurs with the position taken by the Buttolph/Lewis Intervenor and asserts that the Applicant failed to provide solid evidence demonstrating that there is a need for additional generation in New Hampshire, that the power produced by the Project will be used and will be available in New Hampshire, or that the Project will make a meaningful contribution to any perceived needs of the State of New Hampshire. See, Closing Memorandum and Proposed Conditions dated April 1, 2011, at 2.

In contrast, the Applicant asserts that the Project will meet the objectives of RSA 162-H:1, I by assisting with meeting the State's demand for renewable energy resources articulated in RSA 362-F and will reduce the greenhouse gas emissions in compliance with RSA 125-O:19, *et seq.* See, Applicant's Post Hearing Brief dated April 1, 2011, at 16-17.

The Intervenor's balancing argument mistakenly conflates the general language of the Declaration of Purpose, RSA 162-H:1, with the specific findings required under RSA 162-H: 16. The Legislature's desire for a "balance between the environment and the need for new energy facilities in New Hampshire" is achieved by the statutory scheme adopted in RSA Chapter 162-H, and part and parcel of that balance is the requirement that the Site Evaluation Committee, or Subcommittee as the case may be, make specific enumerated findings in order to issue a certificate of site and facility. The findings, which focus on the capabilities of the applicant, whether the project would unduly interfere with the orderly development of the region, and

whether the project would have unreasonable adverse effects, constitute the test that an applicant must meet before a certificate is issued; if the test is failed then the certificate is denied.

The Intervenors essentially pose another test, a general balancing test, that is not contemplated under the statute and that is not justified by the Declaration of Purpose. While, in the prefatory language, RSA 162-H:16, IV does speak to the consideration of “other relevant factors bearing on whether the objectives of this chapter would be best served by the issuance of the certificate,” that language does not give *carte blanche* authority to create a new test that would weigh negative impacts against benefits. Those other factors are properly considered in the context of the necessary findings set forth in subsections a, b and c of RSA 162-H:16, IV.

In a related vein, Counsel for the Public contends that the Applicant has not demonstrated the need for the project. Such may be the case but, RSA 162-H: 16 does not require a finding of need. Formerly, RSA 162-H:16, V, required a finding that construction was needed to meet the present and future need for electricity but the Legislature repealed that requirement.

In any event, while, at present, New Hampshire may not need additional electrical supply, the Applicant intends to sell its output to a Massachusetts based distribution company, Nstar. See, Tr., 03/22/2011, Afternoon Session, at 5-6. New Hampshire’s resources are transmitted through the New England wide grid administered by ISO-New England and the state has recognized a need for low emission renewable electric power. RSA 362-F:1 states, “[i]t is in the public interest to stimulate investment in low emission renewable energy generation technologies in *New England* and, in particular, in New Hampshire, whether at new or existing facilities.” RSA 362-F:1 (emphasis added). Therefore, the construction of the Project is consistent with legislative objectives insofar as it will supply renewable power for New England.

The Subcommittee has considered the alternatives and arguments introduced in this record and finds that the Intervenors' interpretation of the statute is erroneous. Nothing in the statute would permit the Subcommittee to conduct the generalized balancing analysis articulated by the Intervenors. The Subcommittee finds that the location and design for this renewable energy facility are reasonable considering the purpose and goals of RSA 162-H.

C. Statutory Criteria

In deciding whether to issue a Certificate to the Applicant, the Subcommittee must consider the following statutory factors: (1) whether the Applicant has adequate financial, managerial, and technical capability to assure construction and operation of the Facility in continuing compliance with the terms and conditions of the Certificate; (2) whether the Facility will unduly interfere with the orderly development of the region having considered the views of municipal and regional planning committees and municipal governing bodies; and (3) whether the Facility will have an unreasonable adverse effect on aesthetics, historic sites, air and water quality, the natural environment, and public health and safety. See, RSA 162-H:16, IV.

1. Financial, Managerial, and Technical Capability

Under New Hampshire law, the Subcommittee must consider the Applicant's "financial, managerial and technical capability to assure construction and operation of the Facility in continuing compliance with the terms and conditions of the Certificate." RSA 162-H:16, IV (a).

The Applicant anticipates that it will cost between \$117 and \$120 million to construct the Facility. Tr. 11/02/2011, Morning Session, at 25. The Applicant asserts that it has adequate financial, managerial, and technical capacity to construct and operate the Facility in continuing compliance with the terms and conditions of the Certificate. See, Ex. App. 1, at 56-57. The Applicant's financial capacity is based on its affiliation with Iberdrola, S.A., the owner of 80%

of Iberdrola Renewables. In turn, Iberdrola Renewables is the principal owner of Iberdrola Renewables Holdings, Inc. See, Ex. App. 1, at 56-57; Tr. 11/02/2010, Morning Session, at 45-47. Iberdrola Renewables Holdings, Inc. is the sole owner of Iberdrola Renewables. See, Ex. App. 1, at 56-57; Tr. 11/02/2010, Morning Session, at 45-47. The Applicant asserts that it has financial capacity to construct and operate the Facility inasmuch as it will arrange for the capital needed for construction, finance, equipment orders, and long-term investment in the Project through Iberdrola, S.A. corporate structure. See, Ex. App. 1, at 56. The financing of the Project will be provided by Iberdrola Renewables through equity investments by Iberdrola S.A. Ex. App.1, at 56-57. It is anticipated that the investment in the Project by Iberdrola S.A. will be supported by long-term contracts for the purchase of power and renewable energy credits from the Project, as well as by a cash grant in lieu of investment tax credit from the federal government as provided by the American Recovery and Reinvestment Act of 2009. Ex. App. 1, at 56-57; Tr. 11/02/2010, Morning Session, at 26. At the adjudicatory proceeding held on March 22, 2011, the Applicant informed the Committee that it had reached a Power Purchase Agreement (PPA) with NStar. Tr. 03/22/2011, Afternoon Session, at 26. The PPA, although not finalized, includes the sale of electricity and renewable energy credits. Tr. 03/22/2011, Afternoon Session, at 26. Although the Applicant admits that it relies on the government's subsidies in construction of the Project and assuring that the Project will be profitable, it asserts that it does not need the investment tax credit or grants for the successful operation of the Facility. Tr. 11/02/2010, Morning Session, at 51-52. According to the Applicant, Iberdrola, S.A. is capable of providing such financing because it maintains a corporate bond rating of A- from Standard and Poor's and A3 from Moody's. See, Ex. App. 1, at 56. The Applicant's direct principal, Iberdrola Renewables, is capable of providing the financial support needed for the

construction and operation of the Project; it does not have any substantial debt and has over \$9 billion in assets. Tr. 11/02/2010, Afternoon Session, at 23.

Significantly, the Applicant not only demonstrated its financial capability to construct and operate the Facility, but also demonstrated its financial capability to decommission the Project, if needed, by agreeing to provide a decommissioning fund assurance to the Town of Groton prior to the commencement of the construction of the Project in an amount equal to the site-specific decommissioning estimate or \$600,000, whichever is greater. See, Ex. App. 32, ¶14.2.2.

The Applicant asserts that it has a sufficient technical and managerial capability to construct and operate the Project where its principal, Iberdrola Renewables, has already successfully constructed and currently operates 40 wind energy facilities in the United States including, among others, the Lempster Wind Project. Ex. App. 1, at 56; App. 3, Appx. 22. The Applicant explicitly asserts that “Groton Wind will construct and operate the Project consistent with Iberdrola Renewables’ corporate commitment to meeting all applicable state and Federal OSHA safety regulations.” Ex. App. 1, at 56.

The Applicant also submits that it has enough personnel to ensure successful construction and operation of the Facility, where Iberdrola Renewables employs a full time in-house construction management staff, including project managers, site managers, superintendents, and quality assurance inspectors. Ex. App. 1, at 56. According to the Applicant, the Project will be operated and maintained by a team of approximately 5 to 10 full-time locally based operations and maintenance personnel. Ex. App. 1, at 57; Tr. 11/02/2010, Morning Session, at 63.

The Project will also be equipped with a central supervisory, control and data acquisition system, which will provide remote operation of the wind turbines and will collect operation and performance data 24 hours per day. Ex. App. 1, at 57. In addition, the operation of the Project will be continuously monitored and controlled by Iberdrola Renewables' control center located in Portland, Oregon. Ex. App. 1, at 57.

Neither Counsel for the Public nor any Intervenor credibly disputes that the Applicant has sufficient financial, managerial and technical capacity to construct and operate the Project in accordance with the conditions of the Certificate.

The Subcommittee carefully reviewed all the exhibits, testimony, and comments regarding the financial, managerial, and technical capability of the Applicant and finds, subject to the conditions contained herein, that the Applicant has demonstrated the financial, managerial, and technical capability to construct and operate the Facility in accordance with the terms and conditions of the Certificate. It is noted, however, that under RSA 162-H, any transfer of the Certificate and amendments to the Certificate by the Applicant are required to be approved by the Committee. The Committee's authority to approve or deny a proposed transfer or amendment is set forth at RSA 162-H: 4, RSA 162-H: 5, I, and N.H. CODE OF ADMINISTRATIVE RULES, Site 203. Therefore, as a condition of the Certificate, it is required that the Applicant shall immediately notify the Site Evaluation Committee of any change in ownership or ownership structure of the Applicant and shall seek approval of the Site Evaluation Committee for such changes.

2. Orderly Development of the Region

RSA 162-H:16, IV (b) requires the Subcommittee to consider whether the proposed project will unduly interfere with the orderly development of the region with due consideration

given to the views of municipal and regional planning commissions and municipal governing bodies. RSA 162-H:16, IV (b).

a. Views of Municipal and Regional Planning Commissions and Municipal Governing Bodies

The Applicant has the support of Grafton County Commissioner for District #3, Martha B. Richards, and Grafton County Commissioner for District #2, Raymond S. Burton. The Project is supported by the Groton Board of Selectmen and Groton Planning Board, which advised the Subcommittee that the Project is welcomed by the vast majority of the townspeople and urged the Subcommittee to issue the Certificate to the Applicant, subject to the conditions contained in the Agreement between the Applicant and the Town. See, Ex. App. 1 at 39, 40; Ex. App. 5, Appx. 39-40; Ex. App. 32. The Agreement addresses a broad range of concerns including, but not limited to, site access, turbine requirements, site security, public communication and emergency response, use of public roads, noise and setbacks and containing liability, as well as an indemnification provisions.

The Applicant has also entered into an agreement with the Town of Rumney. See, Ex. Rumney 1. The Town of Rumney abuts the Project area. The agreement with the Town of Rumney addresses issues such as emergency response and turbine safety; site security; lines of communication and the use of public roads in Rumney. See, Ex. Rumney 1. In addition, the Agreement contains liability insurance requirements and indemnification provisions. See, Ex. Rumney 1.

The Town of Plymouth also intervened in these proceedings. At first, the Town of Plymouth did not oppose the Project, but requested that the Subcommittee order the Applicant to provide the Plymouth Fire Department two Type 6 Brush Trucks, two six-passenger ATV's and three high pressure forestry portable pumps. Tr. 11/04/2010, Morning Session, at 106, 117, 125.

Tr. 11/04/2010, Morning Session, at 106, 117, 125. However, on December 6, 2010, the Town of Plymouth supplemented its position in regard to the Project and asserted that the Project will have a negative effect on Plymouth's "character and scenic beauty." See, Letter from the Plymouth Board of Selectmen dated December 6, 2010. Thereafter, on April 5, 2011, the Town expressed its position that the Project will impact the real estate values in the region and requested the Subcommittee to condition the certificate upon requiring the Applicant to provide a "Property Value Guarantee" to impacted homeowners. See, Brief of the Town of Plymouth dated April 1, 2011, at 6.

The Town of Holderness also intervened. Holderness seeks only to ensure that, to the extent it is not inconsistent with other building codes, life safety codes and electrical codes, that the step-up transformer station be required to comply with the Town's "Dark Skies" ordinance limiting nighttime light pollution.

The North Country Council, the regional planning commission for all of Coos County and parts of Grafton and Carroll Counties, requests the Subcommittee to adopt, as a Condition to the Certificate, the agreement resulting from the negotiations between the Town of Groton and the Applicant. See, Letter from the North Country Council dated October 19, 2010. North Country Council also urges the Subcommittee to consider conditions that would ensure that the Project will not interfere with the capacity of the region's transportation and emergency response system. See, Letter from the North Country Council dated October 19, 2010.

Finally, the New Hampshire Timberland Owners Association, a trade association representing New Hampshire's entire forest products industry and timberland owners, asserts its position that the Project would "complement the property's forest management activities and

recreational uses.” See, Letter from the New Hampshire Timberland Owners Association dated December 6, 2010.

Considering the views of the municipal and regional planning commissions and municipal governing bodies, the Subcommittee conditions the Certificate upon the Applicant’s compliance with the conditions and limitations identified within the agreements with Towns of Rumney, Ex. Rumney 1, and Groton, Ex. App. 2. As to the requirements and concerns raised by the Town of Plymouth and the Town of Holderness, these concerns are more pertinent to the issues of human health and safety and the impact of the Facility on aesthetics, which are addressed in more detail below.

b. Economic Impacts

The Facility’s effect on the economy and the real estate market of the region was vigorously disputed by the parties in terms of the “orderly development of the region” as that phrase is contained in RSA 162-H:16, IV (b).

The term “orderly development” is not defined within RSA 162-H. In the past, the Committee has considered matters that have a direct impact on the economic development of the region. See, Decision Granting Certificate of Site and Facility with Conditions, Application of Laidlaw Berlin BioPower, LLC, Docket No. 2009-02, at 58-59 (Nov. 8, 2010). The Subcommittee must consider whether the Project will unduly interfere with the “orderly development of the region”, as opposed to isolated impacts on a limited number of residences or businesses in the region. RSA 162-H:16, IV (b); see also, Impact Food Sales v. Evans, 160 N.H. 386, 397 (2010) (defining the rules of statutory construction and stating that in the absence of a statutory definition, the term should be interpreted in accordance with the plain meaning of the words used with the focus on the statute as a whole and with presumption that the legislature did

not use superfluous or redundant words). In considering whether the Project will unduly interfere with the orderly development of the region, the Subcommittee must first determine whether such interference impacts the entire region, as opposed to a limited number of residences. Thereafter, the Subcommittee must consider whether the degree of such interference is so excessive that it warrants mitigation or denial of the Certificate.

Here, the Applicant asserts that the Project will not unduly interfere with the orderly development of the region's economy and local employment and will, in fact, have substantial positive effects upon the region's development. Ex. App. 1, at 90. In support, the Applicant introduces a study of economic impact of the Project conducted by Professor Ross Gittell of the University of New Hampshire Whittemore School of Business and Economics. Ex. App. 1, at 88; Ex. App. 1, App. 36, 37. According to Professor Gittell, the Project will have an estimated regional economic benefit of approximately \$81.5 million over 20 years and will provide approximately \$24.5 million in local area benefits during the construction. Ex. App. 1, at 88; Ex. App. 1, Appx. 36. Professor Gittell further estimates that a total of 229 local jobs will be created as a result of the construction of the Project. Ex. App. 1, at 89; Ex. App. 4, Appx. 36.

The Applicant also asserts that the Project will not adversely affect the real estate of the region. Ex. App. 1, at 88. In support of its conclusion the Applicant submitted "The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis" as updated in 2009 by the Lawrence Berkley National Laboratory (LBNL Study). Ex. App. 4, Appx. 37. In the LBNL Study, three different potential impacts of wind projects on property values were identified and analyzed: (i) Area Stigma⁷; (ii) Scenic Vista Stigma⁸; and (ii)

⁷ Area Stigma is defined as "a concern that the general area surrounding a wind energy facility will appear more developed, which may adversely effect home values in the local community regardless of whether any individual home has a view of the wind turbines." Ex. App. 4, Appx. 37, at 69.

Nuisance Stigma⁹. Ex. App. 4, Appx. 37. The potential impacts were assessed through the application of a primary hedonic model, exploration of seven alternative hedonic models, reconstruction of repeat sales analysis, and revaluation of possible impacts on sales volumes. Ex. App. 4, Appx. 37. As a result of the analysis, it was concluded that there is no evidence of a “widespread and statistically significant” area stigma among the homes in this sample, no evidence of scenic vista stigma, and, as to nuisance stigma, the study found that the sale prices of the homes within a mile of wind turbines “are not measurably affected compared to those homes that are located more than five miles away.” Ex. App. 4, Appx. 37, at 70, 73-74. Generally, the Analysis found no evidence that home prices surrounding wind facilities are “consistently, measurably, and significantly” affected by either the view of wind facilities or the distance of the turbines. App. 4, Appx. 37, at 74.

The Gittell Study and the LBNL Study were contested by the Intervenors. The Intervenors introduced the testimony of Michael S. McCann to support their position that the Project will have an unreasonable adverse effect on the value of their real estate. Generally, Mr. McCann asserts that the LBNL Study does not support the Applicant’s conclusion. Ex. Buttolph 1-K, at 1. Mr. McCann submits that a thorough reading of the report shows that there are isolated areas where impacts on real estate market may occur. Ex. Buttolph 1-K, at 1. Furthermore, Mr. McCann asserts that the report demonstrates that impaired or less desirable views reflect measurably lower sale prices than homes with average or premium view. Ex. Buttolph 1-K, at 1. As a result, Mr. McCann concludes that a 25% or greater value reduction per

⁸ Scenic Vista Stigma is defined as “a concern that a home may be devalued because of the view of a wind energy facility, and the potential impact of that view on an otherwise scenic vista.” Ex. App. 4, Appx. 37, at 70.

⁹ Nuisance Stigma is defined as “a concern that factors that may occur in close proximity to wind turbines, such as sound and shadow flicker, will have a unique adverse influence on home values.” Ex. App. 4, Appx. 37, at 73.

square foot can be reasonably expected for many of the approximate 200 homes and structures located in close proximity to the turbines. Ex. Buttolph 1-K, at 2; Tr. 11/05/2010, Morning Session, at 17. Generally, based on the study of the Mendota Hills wind project's effect on the property values in Adams County, Illinois, Mr. McCann asserts that, anywhere in the United States, the 25% real estate value reduction should be expected within two miles of any wind project. Tr. 11/05/2010, Morning Session, at 39-40, 80-81; Ex. Buttolph 1-K, at 2. Therefore, Mr. McCann asserts that the Subcommittee should require the Applicant to construct the Project so far away from the occupied residences that there is no chance that the Project will have any impact on the values of this houses. Tr. 11/05/2010, Morning Session, at 19. In the alternative, Mr. McCann urges the Subcommittee to require the Applicant to mitigate the effect of the Project on local real estate market by requiring the Applicant to enter into a so-called "Property Value Guarantee Agreement" with potentially impacted owners of real estate within 2 miles of the Facility. Tr. 11/05/2010, Morning Session, at 19. Under the conditions of the "Property Value Guarantee Agreement," the Applicant would have to pay to the owners of allegedly impacted real estate the "assessed value" of this real estate if it cannot be sold within 180 days. Ex. Buttolph 33; Tr. 11/05/2010, Morning Session, at 20. Significantly, the Applicant would be required to reimburse the owner for any loss in the value of the real estate if the owner sells the real estate for the price below assessed value and the owner "believes" that such price reduction was due to the turbines' proximity. Ex. Buttolph 33, ¶11. In addition, if the owners of potentially impacted houses decide to keep their houses, but the value of the houses decrease after the construction of the Project, the Applicant will be required to compensate such owners and pay them the difference in the values. Tr. 11/05/2010, Morning Session, at 94-95.

Based on Mr. McCann's analysis and recommendation, the Intervenors request the Subcommittee to either deny the Certificate or adopt a "Property Value Guarantee" and to provide a proper notification to the owners within two miles of the Project of the availability of the option to enter into agreement with the Applicant under the Property Value Guarantee as conditions to the Certificate. See, Final Brief of Intervenor Group Buttolph/Lewis dated April 1, 2011. The Town of Plymouth supports the Intervenors' position and requested the Subcommittee to condition the Certificate upon the Property Value Guarantee. See, Brief of the Town of Plymouth dated April 5, 2011, at 6. The Applicant objects to such request, stating that such condition would be unprecedented and unworkable. See, Applicant's Response to Conditions Proposed by Counsel for the Public and Intervenors dated April 1, 2011, at 2.

Considering the testimony and exhibits provided, it is noted that all parties agree that the Project will have some impact on the values of the homes surrounding it. The degree of such impact is, however, in dispute. The LBNL Study acknowledges that it is possible that individual or small number of homes may be negatively impacted by the construction of wind project. Ex. App. 4, Appx. 37, at 74. Mr. McCann defines the area of impact as approximately 200 homes within a 2 mile radius of the Project. Ex. Buttolph 1-K, at 2; Tr. 11/05/2010, Morning Session, at 17. The issue is, however, whether such effect will unduly impact the orderly development of the region, and not the value of individual houses.

The Intervenors did not introduce any formal scientific study or extensive analysis to support its position that the Project will adversely impact the real estate market of entire region. In addition, as admitted by Mr. McCann, he has never been on the Site and has never evaluated the properties surrounding the Project. Significantly, the "Property Value Guarantee" offered as a condition by Mr. McCann has never been used before and, based on a review of the terms of

this condition, it is unclear how it may be implemented as a practical matter, taking into consideration other factors impacting the values of real estate in the area.

The Applicant relies extensively on the LBNL Study to support its conclusion that the real estate market in the region will not be impacted by the Project but the authors of the study were not made available by the Applicant to testify in front of the Subcommittee and have never been in New Hampshire. Unlike Mr. McCann's report, however, the LBNL study is based on the comprehensive analysis of thousands of sites across the country conducted by five different individuals familiar with hedonic methodologies.

Mr. McCann's opinions are not based on any specific knowledge of the Grafton County region or the real estate market in Grafton County. Even assuming, *arguendo*, that the Project will have the effect suggested by Mr. McCann on the value of the homes located in close proximity of the Facility, we cannot conclude that such impact will unduly interfere with the orderly development of the entire region. Thus, while the Intervenors introduced evidence that the Project may have some impact on the value of some residences in the region, they did not introduce evidence showing that the project will unduly interfere with the orderly development of the region. Hence, the Subcommittee finds that it would be inappropriate to consider and apply any blanket mitigation measures, including the Property Value Guarantee, when it has not been demonstrated that the Project will unduly interfere with the orderly development of the region. As a result, after considering the testimony and exhibits offered by the parties, the Subcommittee finds that, while the Project may affect certain real estate values, it will not unduly interfere with the orderly development of the region. Furthermore, the Subcommittee finds that the economy will not be affected in any way that would unduly interfere with the orderly development of the region.

c. Land Use and Tourism

The Applicant asserts that the Project will not have an unreasonable adverse impact on the land use and tourism of the region. Ex. App. 1, at 87-88. Specifically, the Applicant asserts that such activities as commercial timber harvesting, outdoor recreation, and the use of non-motorized and motorized trails conducted and located within the Site will not be impacted by the Project. Ex. App. 1, at 87-88. As to tourism, the Applicant asserts that there is “no empirical basis for a significant adjustment – positive or negative – to likely tourism visitation or expenditures as a result of the Groton Wind Project.” Ex. App. 1, at 89. The Applicant’s conclusion about the impact of the Project on the tourism in the area is largely based upon its experience with its other New Hampshire wind project, Lempster Wind. Ex. App. 1, at 89.

As to the interconnection line and step-up voltage facility, the Applicant asserts the impact will be “consistent” with the orderly development of the region. Ex. App. 62, at 5-6. For example, according to the Applicant, the interconnection line running along Route 25 will be located in existing rights-of-way, where poles and wires have been located for many years. Ex. App. 62, at 5-6. The Applicant believes that the usage of currently existing poles may have a positive impact on the region since NHEC will design and construct the line according to NHEC standards and codes and will replace out-of-date and non-compliant poles and wires. Ex. App. 62, at 5-6. As to the impact of the step-up facility on the orderly development of the region, the Applicant asserts that the facilities will be sited in an area zoned for commercial usage and used as a right-of-way for the 115 kV Northeast Utilities transmission line. Ex. App. 62, at 3. The Applicant also asserts that the step-up facility will not have an adverse impact on the orderly development of the region because it will be located in an area with other commercial and industrial facilities and will be set back from Route 175. Ex. App. 62, at 3.

The parties did not present any credible evidence indicating that the siting, construction and operation of the transmission line and step-up transfer station would interfere with the orderly development of the region.

Intervenor, Cheryl Lewis, disagrees with the Applicant's statement that the turbines will not have an adverse impact on the tourism in the area. Ex. Buttolph 25. According to Ms. Lewis, the tourists and visitors who frequent her campground are attracted to the natural, wild, and uninhabited environment of the region. Ex. Buttolph 25. She asserts that many of the tourists and visitors to the area are outdoorsmen and women engaged in rock climbing and fishing. See, Letter from Ms. Lewis dated June 3, 2010. She believes that the visibility of the wind turbines and the noise generated by these turbines may make the region unattractive to these tourists. Ex. Buttolph 25. The noise impacts associated with the Project are addressed in Section C. 3.(e)(iii) and the visual impact of the Project on the Campground is addressed in Section C. 2. (c) , below.

The proposed site is currently used for timber harvesting. In addition, as stated above, the New Hampshire Timberland Owners Association supports the Applicant's position that the Project will not adversely affect the land use and tourism in the region and asserts that the Project would "complement the property's forest management activities and recreational uses." See, Letter from the New Hampshire Timberland Owners Association dated December 6, 2010. The Subcommittee did not receive any evidence demonstrating that the tourism in the region will be impacted by the Project. Ms. Lewis testified about her belief that the Project will have an adverse effect on her Campground. Her concerns regarding noise that may be heard at her campground are addressed below but those concerns do not support a finding that the region's tourism, overall, will suffer any impact if the Project is constructed. The Subcommittee finds

that the Project will not affect land use and tourism in a manner or degree that would unduly interfere with the orderly development of the region.

d. Decommissioning

Modern wind turbine generators typically have a life expectancy of 20 to 25 years. Typically, older wind projects are replaced or re-powered by upgrading older equipment with more efficient turbines. However, if turbines become non-operational and there is no expectation of return to operation, they should be decommissioned. Decommissioning ordinarily involves dismantling and removing the turbines from the project sites. Such activity may conceivably impact the orderly development of the region, the natural environment, and water quality. Therefore, it is important that the Applicant demonstrate a well designed decommissioning plan addressing the issues of preservation of the orderly development, natural environment, and water of the region.

The Applicant does not have any first-hand experience with the decommissioning of wind farms. Tr. 11/02/2010, Morning Session, at 73. However, the Applicant asserts that, if required, it will apply the following procedure to decommission the turbines: (1) provide a decommissioning schedule to Town of Groton; (2) mobilize crane(s) to the Site; (3) dismantle and remove the rotor, nacelle and towers and transport the entire wind turbine generator off Site; (4) remove the concrete foundations; (5) cut off all the metal and cable below 18 inches at each foundation site; (6) backfill the holes with the soil; (7) remove switchyard equipment, concrete foundations, and gravel and fencing from the Site; and (8) acquire approvals for transport of oversized/overweight loads from the Site. Ex. App. 1, at 33-34.

The issue of decommissioning was also addressed in the Agreement between the Applicant and the Town of Groton. Ex. App. 32, §14. Under §14 of the Agreement, the

Applicant is required to “submit a detailed site-specific decommissioning estimate of costs associated with decommissioning activities to the Town before the commencement of the construction of the Project” and a decommissioning plan no less than three months before the beginning of the decommissioning. Ex. App. 32, ¶¶14.1.1-2. In addition, the Agreement requires the Applicant to complete the decommissioning of the project within twenty-four months after the end of useful life of the wind farm or any individual wind turbine. Ex. App. 32, ¶¶ 14.1.1-3. Finally, under the terms of the Agreement with the Town of Groton, the Applicant will be required to provide to the Town of Groton a Decommissioning Funding Assurance in an amount equal to the site-specific decommissioning estimate or \$600,000, whichever is greater. Ex. App. 32, ¶ 14.2.2.

The Town of Groton and the Applicant have thoroughly addressed the issue of decommissioning. The Applicant clearly has the financial capacity to construct and operate the Project. Therefore, we find it unnecessary to require the Applicant to comply with completion of construction conditions similar to those required of the Granite Reliable Power project. See, Joint Application of Granite Reliable Power, LLC and Brookfield Renewable Power Inc., for Approval to Transfer Equity Interests in Granite Reliable Power, LLC under RSA Ch. 162-H (Dec. 3, 2010); Decision and Order Approving Transfer of Ownership Interest in Granite Reliable Power LLC, Docket No. 2010-03 (issued Feb. 8, 2011).

The Subcommittee conditions the Certificate upon compliance with the terms and conditions of the Agreement with the Town of Groton. Said Agreement shall become a part of the Certificate in this docket. After considering the testimony, comments, and exhibits in this docket, the Subcommittee finds, subject to the Conditions identified herein, that the Project will not unduly interfere with the orderly development of the region.

3. Adverse Effects

Under New Hampshire law, the Committee may issue the Certificate if it finds that the Facility will not have an unreasonable adverse effect on: (1) aesthetics; (2) historic sites; (3) air and water quality; (4) the natural environment; and (5) public health and safety. See, RSA 162-H:16, IV (c).

a. Aesthetics

The Subcommittee must consider whether the Facility will have an unreasonable adverse impact on aesthetics. See, RSA 162-H:16, IV(c). The Applicant addressed aesthetics by reference to a visual impact study for three major components of the Project: (1) the turbines; (2) the transmission lines; and (3) the voltage step-up facility.

i. Turbines

As proposed, the Facility will consist of twenty-four wind turbines with approximate heights of 399 feet. Ex. App. 1, at 17-18, 21. The Applicant's study addressed three major effects of the turbines on the aesthetics of the region: (1) the effect of the turbines during the day; (2) shadow flicker effect; and (3) the effect of the turbines' safety lighting. Ex. App. 1, at 59-64.

The visual effect of the turbines during the day time was addressed by the Applicant through a Visual Impact Assessment ("VIA"). Ex. App. 3, Appx. 24. The VIA included visual simulations demonstrating the visibility of the Project from 11 view points within a 10-mile radius of the proposed turbines. Ex. App. 3, Appx. 24.

The VIA demonstrated that the Project will likely be visible from a small portion of the area within a 10-mile radius of the proposed turbines. Ex. App. 3, Appx. 24. According to the VIA, the views of the Site will be largely restricted to areas of open road corridors, agricultural fields, water bodies, areas of exposed rock, and the cleared yards of some rural homes. Ex. App.

3, Appx. 24. The VIA determined that the turbines would be visible from 49.4% of the area of potential effect without considering the effect of vegetation screening. Ex. App. 3, Appx. 24. The potential visibility within the area of potential effect is reduced to 4% when the screening effect of the vegetation is taken into consideration.¹⁰ Ex. App. 3, Appx. 24.

Altogether, the Applicant asserts that the visual impacts of the Project will be mitigated because the Project will be located in a remote forested area and the turbines will be white and have a uniform design, speed, height, and rotor diameter. In addition, the Applicant asserts that the towers will include no exterior ladders or catwalks, new road construction will be minimized by utilizing existing roads whenever possible, forest clearing along access roads and at turbine sites will be minimized to the extent practicable, and the placement of advertising devices on the turbines will be prohibited. The proposed switchyard and the operation and maintenance facility will be located on a lightly used private road. Ex. App. 1, at 62.

The Intervenors and Counsel for the Public dispute the Applicant's claim that the Project will have a minimal impact on aesthetics. Specifically, the exhibits offered by the Counsel for the Public demonstrate that approximately 19 to 24 turbines will likely be visible from the surface of Loon Lake. In addition, a significant part of the northern portion of Loon Lake will be exposed to the turbines. Ex. PC 12-13. The Applicant did not analyze the visibility of the turbines from Loon Lake and did not provide the simulations of the visibility of the turbines from Loon Lake. Ex. PC 12-13; Tr. 11/01/2010, Afternoon Session, at 80-82. In addition, Ms. Lewis asserts that the Project will have an unreasonable adverse impact on the aesthetics of her

¹⁰ The Subcommittee notes that the VIA's cross-sections contained an error by stating that the turbines will be 300 feet high when in fact the turbines will be 399 feet high. App. 3, Appx. 24, Figure 9; Tr., 11/01/2010, Afternoon Session, at 60. The Applicant, however, addressed this inconsistency by providing an amended cross-section sheet for Subcommittee's review. Tr., 11/01/2010, Afternoon Session, at 64, 70. Ex. App. 37.

campground because the turbines will be visible. Ex. Buttolph 25. The Applicant's VIA, Applicant Ex. 11, demonstrates that approximately 7 to 12 turbines may be visible from the beach area of the Campground, if vegetation screening is not considered. Ex. App. 11. According to the Applicant, none of the turbines will be visible, if vegetation is taken into consideration. Ex. App. 11. The Intervenor's position was supported by the Town of Plymouth. The Town of Plymouth also claimed that the turbines may have adverse effects on the aesthetics of the region and that the Project will have a negative effect on Plymouth's "character and scenic beauty." See, Letter from the Plymouth Board of Selectmen dated December 6, 2010. However, the Town of Plymouth did not present any evidence to support this claim.

Ultimately, only one scientific analysis addressed the visual effect of the turbines. Although the Intervenor and Counsel for the Public dispute the conclusion of this study, none of the parties introduced any evidence demonstrating that the VIA is inaccurate. The VIA did contain an initial error and failed to specifically address the impact of the turbines on Loon Lake. However, the error pertaining to the turbine height was corrected by the Applicant's expert, John D. Hecklau. In addition, we believe that it would be inappropriate to require an applicant to present a visual impact assessment that addressed the visual impact of a project from every possible point in the area of potential effect. Therefore, we accept the conclusions in the VIA and find that the turbines will not have an unreasonable adverse effect on the aesthetics of the region.

A common aesthetic concern with wind turbines is "shadow flicker". Shadow flicker can occur when the revolving rotors of a wind turbine cast flickering shadows across the landscape. The Applicant presented a computerized study of the Project's shadow flicker using WindPRO 2.6 software. Ex. App. 1, at 62; Ex. App. 1, Appx. 25. The shadow flicker analysis concluded

that out of the 207 structures identified within a 1.0 mile radius, 98.5% will not experience a shadow flicker effect. Ex. App. 1, Appx. 25. 0.5% may be affected less than 1 hour per year. Ex. App. 1, Appx. 25. 1% may be affected from 1 to 3 hours per years, and none will be affected more than 3 hours per year. Ex. App. 1, Appx. 25. Therefore, the Applicant argues that the shadow flicker impact of the Project is almost non-existent. Ex. App. 1, at 63. Neither the Intervenor nor Counsel for the Public offered evidence disputing the Applicant's shadow flicker analysis.

The Applicant admits that it is possible that the synchronized pulsing of red aviation warning lights on the turbines could have an adverse effect on rural residents and vacationers. Ex. App. 1, at 64. However, the Applicant submits that such effect will be decreased by the trees screening the Project and by effect of the lights in town centers and along the highways. Ex. App. 1, at 62. In addition, in order to mitigate the effect of the Project's lights, the Applicant agrees to use lights that pulse 20 times per minute and have a vertical beam spread of 3 degrees. Ex. App. 1, at 62. Ultimately, the Applicant agreed to use the device with the lowest light pollution envelope as long as this device is in compliant with FAA requirements. Tr. 11/02/2010, Morning Session, at 91. The Intervenor, however, request the Subcommittee to apply an additional requirement that the Applicant utilize the latest technology in safety light pollution reduction consistent with FAA regulations. See, Final Brief of Intervenor Group Buttolph/Lewis/Spring Group of Intervenor dated April 1, 2011. We find that the language of the requirement is ambiguous and less protective than the condition offered by the Applicant. Additionally, we find that the FAA safety lighting performs a very important function and any adverse effect that such lighting may cause is reasonable considering the importance of aviation

safety. As a result, after considering all evidence introduced for our consideration, we find that the turbines will not have an unreasonable adverse effect on the aesthetics of the region.

ii. Distribution Lines and Voltage Step-Up Facility

The Facility will transmit electricity via a 34.5 kV line running from the Project to Route 25 and comprise approximately 37 poles, 10 to 12 of which will be located on the existing leased premises and approximately 25 of which will be located along easements on the private property. Ex. App. 61, at 2. Once the line reaches Route 25, it will travel along Route 25 using existing right of ways. The line will eventually branch from Route 25 and will connect with the proposed 34.5 kV-115 kV voltage step-up facility located in Holderness, New Hampshire. Ex. App. 62, at 2. Thereafter, the output will be transmitted to a Northeast Utilities connection by a short 115 kV line. Ex. App. 62, at 2. The step-up facility will be constructed on a five acre parcel of property that currently hosts a gravel pit and other commercial and industrial facilities. Ex. App. 62, at 3.

The Applicant conducted a visual analysis of the effect of the transmission lines and the voltage step-up facility on the region, which showed that forest vegetation will limit the visibility of the interconnection between the Project and Route 25 to a very short section of Route 25 and that, depending on the extent of clearing, a portion of the power line and the poles may be visible for less than 0.2 miles when approached from the east. Ex. App. 60, at 6. The views from the west will be limited to the area where the power line intersects with Route 25. Ex. App. 60, at 6. In addition, the power line and/or cleared right of way will be visible from the Quincy Road area, approximately 0.5-1.7 miles to the northeast. Ex. App. 60, at 7. The step-up transformer station will only be visible at one location along Route 175 and it will be partially screened from the higher elevation residences to the east. Ex. App. 60, at 7. No party disputed the Applicant's

conclusion that the transmission lines will not have unreasonable adverse effect on the aesthetics of the region.

As to the voltage step-up facility, Counsel for the Public asserts that the Subcommittee should require the Applicant to maintain a vegetative screen around the Holderness step-up facility. See, Closing Memorandum and Proposed Conditions dated April 1, 2011, at 13. The Applicant asserts that vegetative screening would offer little to no reduction of visibility of the facility. See, Applicant's Response to Conditions Proposed by Counsel for the Public and Intervenors dated April 5, 2011, at 14. We note that the voltage step-up facility, as proposed, will be constructed in an area currently used for industrial purposes. The Facility will not change the character of the site, which has an industrial appearance. Because the step-up transformer station will not measurably change the character of the site, the mitigation measure suggested by Counsel for the Public would provide no discernible benefit.

The Town of Holderness has a "dark skies" ordinance designed to assure the minimization of light pollution in the evening and nighttime sky and expressed concerns pertaining to the impact of the voltage step-up facilities' external lighting. See, Pre-Filed Testimony of Walter Johnson (March 9, 2011). At the same time, the Applicant must construct and operate the facility (including the step-up facility in Holderness) in conformity with fire, life safety and electrical codes. See, Closing Memorandum and Proposed Conditions dated April 1, 2011, at 13. The building codes governing the step-up facility may conceivably require some nighttime lighting that is not consistent with the Holderness ordinance. Thus, the Applicant and the Town of Holderness reached an agreement that the lighting at the step-up transformer facility would comply with the Town's "dark skies" ordinance to the extent that the "dark skies" ordinance is consistent with fire, life safety and building codes. See, Tr. 03/22/2011, Morning

Session, at 27. The Subcommittee finds the agreement to be an acceptable way to satisfy the concerns of the Town of Holderness and to ensure that the step-up facility is operated safely. Therefore, the Certificate will require the Applicant to comply with the Town of Holderness' "dark sky" ordinance, at the step-up transformer facility, to the extent it is not contrary to applicable life safety codes, building codes or fire codes .

b. Historic Sites

In order to issue a Certificate to the Applicant, the Subcommittee must decide that the Project will not have an unreasonable adverse effect on historic sites in the region. See, RSA 162-H:16, IV(c). In this case, the proposed Project is subject to a review process governed by §106 of the Historic Preservation Act of 1996. The lead federal agency for §106 review in this case is the USACE. However the USACE is required to act in consultation with the New Hampshire Division of Historic Resources (DHR). See, 16 U.S.C. 470 *et. seq.*

As a general matter, review of the impact on historic resources encompasses two separate types of resources: (1) archeological resources; and (2) historic structures. Historic review generally involves three major stages: (1) authentication; (2) evaluation; and (3) mitigation. However, the evaluation and mitigation stages are not triggered if the study demonstrates that the Site does not contain any archeological resource or there are no historic structures in the vicinity of the site.

To date, the Applicant has completed a Phase IA and Phase IB archeological survey. The Applicant introduced the testimony of Dr. Hope Luhman who, based on the Phase IA and Phase IB archeological surveys, concluded that the Project will not pose any significant impacts to any archeological resources and that no cultural resource will be impacted. Ex. App. 5, Appx. 50, at 7; Ex. App. 51, at 2. Dr. Luhman also asserted that the transmission line and the voltage step-up

facility will not have an unreasonable adverse impact on archeological resources. Additional subsurface testing in these areas did not disclose any archaeological deposits. Ex. App. 51 at 2; Ex. App. 52, at 2. Dr. Luhman's testimony regarding the archeological surveys is uncontested. Therefore, we find that the Facility will not have unreasonable adverse effect on archeological resources.

The Project's impact on above ground historic resources was a major source of contention in these proceedings. Generally, as discussed above, the Applicant is first required to identify the historic structures that may be impacted by the Project. The identification phase of the process is concluded with the submission of the Project Area Form (PAF) to DHR. The Applicant submitted a Project Area Form to DHR in July, 2010 and an Amended Project Area Form in October, 2010. Ex. App. 38, 39. On October 28, 2010, the New Hampshire Division of Historical Resources informed the Subcommittee that the Applicant's Project Area Form and Amended Project Area Form submitted in July and October, 2010 were deficient and that DHR was unable to determine the effect of the Project on the historic sites without a "well-researched document to act as a solid basis of information." Ex. App. 38, 39; Buttolph 29. Two and a half months later, on January 11, 2011, the Applicant submitted a second Amended Project Area Form. Consistent with DHR guidance, the area of potential effect (APE) covered was within a three mile radius of the proposed turbines. Ex. App. 71. On February 1, 2011, DHR informed the Subcommittee that the PAF filed on January 11, 2011, "succinctly summarize[d] the themes of development in the project area, outline[d] expected resource types, and la[id] a solid foundation for future survey needs." Ex. App. 51, at 1.

Counsel for the Public, however, asserts that the Applicant did not meet its burden and did not demonstrate that the Project will not have an unreasonable adverse effect on historic sites

because there is, as yet, insufficient data to determine whether any impact will be adverse. See, Closing Memorandum and Proposed Conditions dated Apr. 1, 2011, at 8. Therefore, Counsel for the Public urges the Subcommittee to condition the Certificate and require the Applicant to submit for the Subcommittee's approval any proposal for mitigation of adverse effects on the historic sites of the region. See, Closing Memorandum and Proposed Conditions dated Apr. 1, 2011, at 10.

The Subcommittee recognizes that the identification and evaluation of historic resources in compliance with §106 and the requirements of DHR is an iterative process that will continue beyond the time frames set forth in RSA 162-H:6-a. The comprehensive identification and evaluation process that accompanies §106 review provides assurance that any adverse effect on historic sites will not be unreasonable. However, certain conditions are necessary to ensure that construction and ultimate operation of the proposed Facility does not cause an unreasonable adverse impact on historic sites. In previous cases it has been determined that continual consultation with the DHR throughout the construction and operation of a facility will assure that impacts on historic sites will not be unreasonably adverse. In the Application of Lempster Wind, LLC, the Applicant was required to adhere to the following conditions:

- 1) continue its consultations with the DHR and comply with all agreements and memos of understanding with that agency; 2) complete its Phase 1-a archeological survey and provide copies to DHR and the Committee; and, 3) undertake a Phase 1-b archeological survey in all archaeological sensitive areas and file the reports of the survey with DHR and the Committee. Additionally, in the event that new information or evidence of a historic site, or other cultural resources, are found within the project site, the Applicant shall immediately report said findings to the DHR and the Committee.

See, Decision Issuing Certificate of Site and Facility with Condition, Application of Lempster Wind, LLC, Docket No. 2006-01, 29 (issued June 28, 2007).

The Applicant has completed the archeological surveys and, therefore, conditions pertaining to such surveys are inapplicable. Additionally, the Applicant points out that §106 review procedures will continue and that it will be required to mitigate the effect of the Project on the historic sites in the area in accordance with the results of such review. Ex. App. 51, at 3. Therefore, the Applicant states that inclusion of an additional condition in the Certificate is unnecessary. We note, however, that the purpose of the §106 review is slightly different than the purpose for which the Subcommittee applies its standard. The §106 process is designed to preserve the historic resources, while RSA 162-H:16, IV(c) requires the Subcommittee to ensure that the Project will not have unreasonable adverse effect on historic resources. See, 16 U.S.C. 470 *et. seq.*; RSA 162-H:16, IV(c). In addition, federal involvement in the §106 process is not guaranteed for the life of the project.¹¹ Therefore, the Subcommittee finds that the effect of the Project on the historic sites is best addressed by maintaining a continuing role for the DHR by requiring conditions similar to those that we required in the Lempster Wind, LLC matter. The following conditions will be required as part of the Certificate to be granted in this docket:

The Applicant shall 1) continue to consult with the Division of Historical Resources with respect to the impact of the project on historic resources; and, 2) comply with all agreements and memos of understanding with the DHR; and, 3) in the event that new information or evidence of a historic site or other cultural resource is found in the project area the Applicant shall immediately report said findings to the DHR and the Committee. The Subcommittee hereby delegates the authority to monitor the project and for compliance with this condition of the Certificate and with all laws and regulations pertaining to historic resources to the Division of Historic Resources. The DHR is hereby delegated the authority to specify the use of any technique, methodology, practice or procedure as may be necessary to effectuate this condition of the

¹¹ The Subcommittee recognizes that a change in design for the Project or a change in administrative determination by the USACE could eliminate federal review of the Project under §106. In such a circumstance, and in the absence of a condition to the Certificate, the DHR may find itself to be without a practical method to enforce agreements and memos of understanding that have been executed to date through that process.

Certificate, however, any action to enforce the condition must be brought before the Site Evaluation Committee.

See, RSA 162-H: III, III-a.

Furthermore, the Subcommittee is cognizant that the excavation conducted for the purposes of the construction of the Facility may reveal some archeological deposits or resources. In the event of such discovery, the Applicant shall notify DHR, which in turn shall determine whether there is a need for evaluation, studies or mitigation. In addition, the Applicant shall notify the DHR of any change in the construction plans of the Facility and of any new community concerns for any historic property affected by the Site.

The Intervenors requested two conditions pertaining to historic sites. First, they request the Applicant be required to hire a consultant to handle all aspects of the nomination process of any building eligible for the National Register and to pay for that process. The Intervenors' second request is for the Applicant to pay \$75,000.00 to the Town of Rumney to be used for renovations of Rumney Historic Society. The Subcommittee interprets the Intervenors' proposed conditions as requests for mitigation. However, it is premature to identify what, if any, mitigation measures will be appropriate. Mitigation is a component of the ongoing §106 review and of the processes used by DHR. Consistent with the above written conditions, the Subcommittee will, at least at this point, leave mitigation requirements, if any, to those processes.

Having considered the Application, the testimony, the exhibits and the arguments of all parties, the Subcommittee finds that, subject to the conditions set forth herein, the proposed Facility will not have an unreasonable adverse effect on historic sites.

c. Air and Water Quality

The Subcommittee may issue a Certificate if it concludes that the Facility will not have an unreasonable adverse effect on air and water quality. See, RSA 162-H:16, IV(c). The Project will not create air emissions and, therefore, will not have an unreasonable adverse effect on air quality. The Applicant asserts that the Project will not have an unreasonable adverse effect on water quality based on comprehensive construction planning and mitigation efforts to minimize the effects of the Project on the water quality. Ex. App. 1, at 67-73. Specifically, the Applicant points to efforts undertaken for purposes of state permits and indentifies three major impacts related to construction of the Project: (1) impact on surface water; (2) soil erosion and sedimentation; and (3) impact on wetlands. Ex. App. 1, at 67-73.

Each of these is addressed in the permits issued by the Department of Environmental Services discussed above. As a result of such review, DES identified the Conditions with which the Applicant is expected to comply to ensure that the Site will not have unreasonable adverse effect on water quality. Ex. App. 5, Appx. 51. We have already adopted the conditions contained in those permits. Irrespective of the water quality conditions contained in the permits issued by the Department of Environmental Services, which will be conditions of the Certificate, the Intervenors and Counsel for the Public raise several water quality concerns. These concerns include: (1) the effect of construction blasting on the aquifer in the region; (2) the effect of construction blasting on local drinking wells; (3) the leakage of transformer oil into streams and groundwater; and (4) the effect of the transmission line on natural features affecting water quality.

The Intervenors express concerns that blasting required for the construction of the Project may impact the aquifer located under Groton Hollow Road and may change the subsurface water

tables. These concerns, however, are amply addressed in the Alteration of Terrain Permit, which is adopted as part of the Certificate. The Alteration of Terrain Permit requires the Applicant to comply with the following Best Management Procedures for blasting in order to reduce the potential for groundwater contamination:

- a) Explosive products shall be selected that are appropriate for site conditions and safe blast execution.
- b) Explosive products shall be selected that have the appropriate water resistance for the site conditions present to minimize the potential for hazardous effect of the product upon groundwater.

Ex. App. 5, Appx. 51, ¶ 22.

Furthermore, the Applicant is required to identify drinking water wells located within 2000 feet of the proposed blasting activities and to develop and implement a groundwater quality sampling program to monitor for nitrate and nitrite either in the drinking water supply wells or in other wells that are representative of the drinking water supply wells in the area. Ex. App. 5, Appx. 51, ¶ 21. The Intervenors, however, request that the Applicant test wells within 3000 feet of the blasting area. See, Final Brief of Intervenor Group Buttolph/Lewis/Spring Group of Intervenors dated April 1, 2011. Testing within 2000 feet of the blasting area is an industry standard and the Intervenors did not present persuasive evidence for extending the testing zone to 3000 feet. Finally, we note that DES has the authority to address the Intervenors concerns, if needed, and expand its requirement to test the wells within 3000 feet. See, Ex. App. 5, Appx 51, ¶21. Therefore, the Intervenors request to require the Applicant to test wells within 3000 feet of blasting is denied.

The Intervenors also express concerns about contamination of streams and groundwater by transformer oil. These concerns were addressed in Paragraph 14 of the Alteration of Terrain

Permit. DES specifically requires the Applicant to prepare, submit, and implement a Spill Prevention, Control, and Countermeasures Plan in accordance with federal regulations (40 CFR part 12). Ex. App. 5, Appx. 51, ¶ 14.

Counsel for the Public also raises concerns regarding water quality stemming from construction of the overhead power line that connects the project to the transmission lines on Route 25. Counsel for the Public asks the Committee to impose a condition requiring that construction of the power line should "avoid any natural features" identified in the VHB report concerning the alternate route for interconnection to Route 25. See, Closing Memorandum and Proposed Conditions, dated April 1, 2011, at p. 14. We assume that Counsel for the Public's reference to natural features concerns wetlands and vernal pools.

The Applicant acknowledges that the overhead power line connecting the project to Route 25 cannot completely avoid crossing wetlands and streams. Ex. App. 64 at 4. The power line will require a 35-foot wide corridor that may affect some vernal pools and wetlands. However, the Applicant asserts that there will be no unreasonable adverse effect on wetlands and water quality because the impact of the construction of the power line will be minimal, temporary, and may be able to be avoided altogether. Ex. App. 64 at 5. In addition, the Applicant points out that construction of the step up transformer facility will not have an unreasonable adverse impact on wetlands, vernal pools or streams, or water quality if constructed according to best management practices. Ex. App. 65 at 3. The Subcommittee finds that the Applicant has adequately investigated and properly determined that the construction of the power line to Route 25 and the construction of the step-up transformer facility in Holderness will not have an unreasonable adverse impact on water quality. The condition requested by Counsel for

the Public is ambiguous and fails to explain why it is necessary to avoid all natural features in order to preserve water quality.

Having considered the testimony of all witnesses, exhibits, and taking into account the comprehensive process employed by the Department of Environmental Services in its consideration and issuance of a Wetlands Permit and Alteration of Terrain Permit, the Subcommittee finds that the Project will not have an unreasonable adverse effect on air or water quality. Each of the aforementioned permits shall become a condition of Certificate in this docket. The Department of Environmental Services is hereby delegated the authority to monitor the project and its compliance with conditions of the Certificate and with all laws and regulations pertaining to the permits that it has issued. The Department of Environmental Services is hereby delegated the authority to specify the use of any technique, methodology, practice or procedure as may be necessary to effectuate the provisions of this Certificate, however, any action to enforce the provisions of the Certificate must be brought before the Site Evaluation Committee. See, RSA 162-H: III, III-a.

d. Natural Environment

The Subcommittee must consider whether the Facility will have unreasonable adverse impact on the natural environment. See, RSA 162-H:16, IV (c).

i. *Rare Plants and Exemplary Natural Communities*

The Applicant asserts that the construction and operation of the Facility will not have an adverse impact on rare plants or exemplary natural communities. Specifically, as to the impact on fauna, the Applicant asserts that the Site consists of 4,165 acres of upland and approximately 39 acres of wetlands with five different forest communities: Hemlock-Hardwood-Pine Forest, Northern Hardwood-Conifer Forest, Lowland Spruce-Fir Forest, Wet Meadow-Scrub Wetland,

Rocky Ridge-Talus Slopes, and other non-habitat community. The forest communities are heavily logged. Ex. App. 1, at 73-74; Tr. 11/01/2010, Afternoon Session, at 53-54. According to the Applicant, the Project will not have an unreasonable adverse effect on the identified communities. The New Hampshire Heritage Bureau (NHHB) agrees with the Applicant and asserts that “it is unlikely that the proposed wind facility will impact rare plants species or exemplary natural communities.” NHHB also notes that there are no known records of threatened, endangered or species of concern within one-mile radius of the interconnection line study corridor. Ex. App. 5, Appx. 45; App. 45.

ii. Wildlife

As to the impact of the Project on wildlife, not including avian species, the Applicant asserts that the presence of wood turtles, native brook trout, and a deer wintering yard was recorded at the Site. Ex. App. 1, at 78-80. However, according to the Applicant, the Project will not have an unreasonable adverse effect on these forms of wildlife. Ex. App. 1, at 78-80.

There was little dispute regarding the effect of the Project on plants, exemplary natural communities and wildlife (other than avian species) during the proceedings. The Subcommittee finds that construction and operation of the Facility will not have an unreasonable adverse effect on plants, exemplary natural communities or wildlife.

iii. Avian Species – Birds and Bats

The post-construction impact of the Project on birds and bats was an issue of contention amongst the parties. The Applicant, as part of the Application and the Supplement to the Application, submitted the following studies conducted in or related to the project area:

2006 Summer and Fall Initial Wildlife Surveys at Tenney Mountain prepared by Woodlot Alternatives, Inc. (This report includes four initial peregrine falcon surveys and an initial bat detector survey.) *See*, Ex. App. 4, Appx. 29

2008 Phase I Avian Risk Assessment prepared by Curry & Kerlinger, LLC.
See, Ex. App. 5, Appx. 46

2009 Spring, Summer, Fall Avian and Bat Survey prepared by Stantec. (This report includes a breeding bird survey conducted in June, 2009; a raptor migration survey conducted during the Spring of 2009; an acoustic bat survey conducted in the fall of 2009; and, a raptor migration survey conducted in the fall of 2009.)

See, Ex. App. 4, Appx. 32

2009 Summer / Early Fall Peregrine Falcon Use Surveys prepared by Stantec
See, Ex. App. 4, Appx. 33

2010 Spring and Summer Acoustic Bat Survey report prepared by Stantec
See, Ex. App. 5, Appx. 48

The Applicant also submitted a Proposed Work Plan for Avian and Bat Studies, *see, Ex. App. 3, Appx. 17*, and its corporate-wide Avian and Bat Protection Plan, *see, Ex. App. 3, Appx. 16*. In addition, the Applicant submitted copies of its early correspondence with the United States Fish and Wildlife Service (USFW) and the New Hampshire Fish and Game Department (NHF&G) pertaining to plans to study the avian species and bat populations in the project area. See, Ex. App. 3, Appx. 18.

On November 5, 2010, the Subcommittee received a letter from the New Hampshire Fish and Game Department. *See, Ex. App. 50*. NHF&G recommended that the Applicant continue to perform acoustic bat surveys during construction and after construction during the operational phase of the facility. NHF&G also recommended post-construction mortality surveys for birds and bats. NHF&G recommended that the bat mortality surveys be conducted over multiple years and during times when the turbines are operational and bats are actively foraging. NHF&G also recommended that the Applicant implement post-construction bird mortality studies over a period of three years with a full report produced at the end of each complete year. *See, App. Ex. 50.*

On March 21, 2011, the Subcommittee received a second letter from the New Hampshire Fish and the Game Department advising the Subcommittee that it had "agreed to the post-construction studies outlined in the (Applicant's) Avian and Bat Protection Plan (ABPP) protocols". NHF&G pointed to the highlights of its agreement with the Applicant, specifying that the Applicant would "commit to bat acoustic detection monitoring during the first year post-construction and will attempt to correlate the activity data with post-construction fatality numbers." The letter also reported that the Applicant had agreed to baseline and operational monitoring through the life of the project and to provide yearly mortality reports to NHF&G. The letter did not explain why the Department had changed its recommendations for post-construction studies.

In addition to the environmental studies set forth in the Application, the Applicant presented the testimony of Adam Gravel, a wildlife biologist employed by Stantec Consulting. He opined that the Project would not have an unreasonable adverse effect on the natural environment including avian species and bats. According to Mr. Gravel, the various studies and surveys, as well as experience with other wind turbine sites in the northeast, contribute to his ultimate opinion that there is a low risk for bats and birds to be significantly affected by the Project. Mr. Gravel and other parties agreed that preconstruction studies serve a valuable function as baseline studies but that, in and of themselves, they cannot predict the actual mortality rate that will occur at any given wind turbine project. Tr. 11/03/2010, Morning Session, at 20; Tr. 11/04/2010, Morning Session, at 12; Ex. Buttolph 3, at 34. The parties agree that some post-construction studies are necessary in order to measure the actual effect of the Project on wildlife in the area. If a wind turbine project unexpectedly causes excessive mortality to wildlife, operational and mitigation measures can be taken. For instance, certain turbines

might be shut down during certain times of the year or for parts of the day. Likewise, a developer can create environmental features away from the wind turbine that are designed to draw the wildlife away from the area in which the wind turbines operate. In this docket, the parties dispute the extent of necessary post-construction studies. Therefore, the Subcommittee must decide which post-construction studies of bird and bat mortality should be required for the Facility to operate without an unreasonable adverse effect on the populations of avian species and bats.

The Applicant proposes one year of formal post-construction monitoring covering the spring and fall migration seasons, which would be conducted by a qualified third party consultant with experience conducting transect based post-construction studies at wind facilities. The consultant will utilize standardized fatality searches at turbines, and include search efficiency trials, carcass removal trials, and a habitat analysis. Ex. App. 1, at 78; Tr. 11/03/2010, Afternoon Session, p. 23; Tr. 11/04/2010, Morning Session at 17. The results of the study will be submitted to the USFW and NHF&G. Ex. App. 1, p. 78; Tr. 11/03/2010, Afternoon Session, p. 23; Tr. 11/04/2010, Morning Session p. 19. According to the Applicant, "If the first year results show higher mortality than the range of observed rates at other operational projects on forested ridge lines in the northeast, then Groton Wind will conduct a second year of post-construction monitoring with specific focus on the factors that may have influenced such results." Ex. App. 1, at 78; Ex. App. 5, Supplemental Prefiled Testimony of Adam J. Gravel, at 9; Tr. 11/04/2010, Morning Session p. 18. The Applicant submits that it will be willing to take appropriate adaptive management mortality reduction or mitigation measures developed in consultation with NHF&G if "unexpectedly high mortality or unexpected impacts to protected species or their habitats is determined by the monitoring." Ex. PC 5, p. 4, ¶16. If, at the end of

the first year, the bird and bat mortality rates are within or less than known ranges of mortality at other projects in the Northeast "then Groton Wind will implement its yearly monitoring using on-site operations personnel for the life of the project, as described in the proposed corporate avian and bat protection plan." Ex. App. 5, Supplemental Prefiled Testimony of Adam J. Gravel, at 9; *see also*, Ex. App. 1, p. 78. Under the Applicant's Avian and Bat Protection Plan, such "informal monitoring" will be conducted in accordance with and implemented by the Applicant's on-site employees according to a site-specific Wildlife Reporting and Handling System ("WRHS"). Ex. App. 3, Appx. 17, §3.1.2. Specifically, employees at the Project who find a dead bird or bat will be required to leave it in place, photograph it, and record the finding on a WRHS reporting form. Ex. App. 3, Appx. 17, §3.1.2. According to the Applicant, although such monitoring will not be comparable to the formal studies of the first year, it will guarantee that the fatalities will be recorded. Tr. 11/03/2010, Afternoon Session, p. 44. The Applicant agrees to share its records with NHF&G. Tr. 11/04/2010, Morning Session, at 27, 72. If formal mortality surveys do not demonstrate excessive mortality, then the Applicant proposes to use the less formal survey methods contained within its Avian and Bat Protection Plan for the balance of the life of the project. According to the Applicant, its post-construction mortality study plan is reasonable "given that there are no state guidelines for mortality thresholds at wind projects and because the state has little information about bird and bat population numbers that either reside or migrate through New Hampshire, or on bird or bat mortality caused by sources other than wind projects." Ex. App. 5, Supplemental Prefiled Testimony of Adam J. Gravel, at 9-10.

Counsel for the Public presented the testimony of Trevor Lloyd-Evans, Senior Staff Biologist at the Manomet Center for Conservation Sciences. Mr. Lloyd-Evans asserts that at least three years of formal studies should be conducted by the Applicant. He recommends that

the results be reviewed on an annual basis by USFW or NHF&G with mitigation measures to be developed and applied based on the collected data. Tr. 11/04/2010, Afternoon Session, at 19-20, 73-74. According to Mr. Lloyd-Evans, three-years of formal mortality studies are more valuable because biological data varies from year to year depending on different circumstances; a one-year study may not adequately reflect shifts in biological composition. Tr. 11/04/2010, Afternoon Session, at 56-57. Mr. Lloyd-Evans agrees, however, that the informal studies offered by the Applicant are helpful in tracing the mortality on the Site and should be conducted through the life of the Project. Tr. 11/04/2010, Afternoon Session, at 21-22.

Counsel for the Public also introduced two newly published draft policy guidance manuals from USFWS. On February 18, 2011, USFW published Draft Land-Based Wind Energy Guidelines. Ex. PC 21, 22. Also, on February 18, 2011, USFW published a Draft Eagle Conservation Plan Guidance. Ex. PC 23, 24. Counsel for the Public argues that pursuant to the newly published USFW draft documents, the site qualifies as a high risk site with a low potential to avoid or mitigate impacts. Counsel for the Public also argues that the USFW draft guidance requires uniform and scientifically reliable data for making quantifiable and defensible risk assessments. Ex. PC 24, at 21-22; see Closing Memorandum and Proposed Conditions dated Apr. 1, 2011, p. 6. Counsel for the Public asserts that, as applied to at least one species detected on the site, the bald eagle, the Applicant's position is at odds with the USFW draft guidelines. Counsel for the Public requests that the Subcommittee impose the same post-construction bird and bat mortality study conditions that were imposed upon the Granite Reliable wind project located in Coos County. See, Counsel for the Public's Closing Memorandum and Proposed Conditions dated Apr. 1, 2011, p. 6. In the Granite Reliable docket, the applicant was required to:

implement a post-construction bird and bat mortality study designed by its consultants and reviewed and approved by NHF&G. The study should be conducted for three consecutive years and a full report and analysis should be produced after each complete year. In addition, the Applicant . . . [is] . . . required to conduct post-construction breeding bird surveys that replicate the pre-construction surveys for the project site. NHF&G shall review and approve the protocols for said studies. The post construction studies must occur one year, three years, and five years after construction has been completed. If the Applicant and NHF&G cannot achieve consensus on such studies then either party may petition the Committee for a determination.

See, Decision Granting Certificate of Site and Facility with Conditions, Application of Granite Reliable Power, LLC, 2008-04, p. 55 (July 15, 2009). It should be noted that the Applicant disagrees with large portions of the USFW draft guidance documents. The Applicant points out that the documents are in draft format and published for public comment. The Applicant and its consultants intend to file comments on the draft documents with the USFW.

One of the Subcommittee's core functions is to determine whether the Project will have an unreasonable adverse effect of the natural environment. See, RSA 162-H: 16, IV (c). It follows that the Subcommittee must determine two things: (1) whether the Project has an adverse effect on the natural environment of the region; and (2) the degree of such an adverse effect. In cases where the project may have an unreasonable adverse effect, the Subcommittee may place conditions on the project that would limit its adverse effects. Post-construction studies assist the Subcommittee in assuring that a facility will not create an unreasonable adverse effect on the environment. If an unreasonable adverse impact does occur the studies should inform the Applicant, state agencies, and the Subcommittee in determining what mitigation may be required to avoid such effects. Ultimately, any post-construction study is helpful to the Subcommittee only if it demonstrates the effect of the Project on natural environment of the region and helps to determine whether such effect is adverse and unreasonable.

The Subcommittee finds, in this case, that one or even two years of formal scientific post-construction study is insufficient to properly gauge the effect of the Project on avian species from one year to the next because bird and bat populations may vary from year to year due to the weather conditions, environmental conditions, and other factors. Studies conducted in a single year or even for two years will have difficulty in identifying the cause of such population shifts. Therefore, a minimum of three years of post-construction studies are required in order to accurately reflect the impact of the Project on the shifting composition of bat and bird populations in the region.

The approach contained in the Applicant's ABPP has merit but, we disagree with the Applicant that informal recording of casualties over the life of the Project may effectively substitute for several years of formal studies. A non-scientific recording of fatalities, although helpful, does not reach the level of credibility required for a proper assessment of the impact of the Project on the natural environment of the region. In addition, the issue is not merely how many birds or bats have been killed by the Facility, but what effect the Project has on the bat and bird populations in the region. As a result, even a scientific evaluation of fatalities will not assist with the determination of the degree of impact in the absence of data showing how the natural environment was impacted. Therefore, in order to establish both the effect and the magnitude of the effect of the Project on birds and bats in the region, we require studies that (i) determine the existing population of birds and bats (population studies); and, (ii) compare the mortality rates to the population (mortality studies).

The Applicant suggests that post construction population and mortality studies are unnecessary because the degree of the impact of the Facility may be established by comparisons with mortality rates from other wind projects in northeast. The Applicant's argument fails

because each site has its own unique geographic, biological and environmental features. We have no evidence to establish that there is environmental congruity between the Groton site and other wind turbine sites in the northeast.

As a result, we find that both post construction population and mortality studies are necessary to assure that the project does not cause an unreasonable adverse effect on bats and birds. Such studies are necessary to assess the impact of the Project after construction and to determine what mitigation measures should be undertaken in the event that the mortality rates are excessive. Having considered the testimony, the exhibits and the arguments of the parties, the Subcommittee finds that the Facility will not have an unreasonable adverse effect on avian species and bats so long as sufficient post construction population and mortality studies are conducted so that appropriate mitigation measures may, if necessary, be undertaken by the Applicant. We find the following post construction population and mortality studies to be necessary and will require the applicant to conduct such post construction studies as a condition of the certificate:

- 1.) The Applicant shall conduct post-construction breeding bird surveys that replicate or improve upon the Stantec preconstruction surveys for the project; and,
- 2.) The Applicant shall conduct spring and fall diurnal raptor surveys that replicate or improve upon the 2009 Stantec survey, except that the fall surveys will extend into November to ensure capturing eagle migration; and,
- 3.) The Applicant shall conduct summer and early fall peregrine falcon surveys that replicate or improve upon the Stantec preconstruction surveys for the project; and,
- 4.) The Applicant shall conduct spring and fall nocturnal migratory bird radar surveys that replicate or improve upon the Stantec preconstruction surveys; and,
- 5.) The Applicant shall conduct acoustic surveys of bat activity that replicate or improve upon the Stantec preconstruction surveys; and,
- 6.) The Applicant shall conduct bird and bat mortality surveys that replicate or improve upon the West Incorporated 2010 post construction fatality survey conducted at

the Lempster wind project. Bird and bat mortality surveys shall temporally coincide with breeding bird surveys, diurnal raptor surveys, and nocturnal migrating bird surveys and bat surveys; and,

7.) Breeding bird surveys, diurnal raptor surveys, nocturnal migrating bird surveys, bat surveys, and bird and bat mortality surveys shall have a duration of three years, commencing during the first year of operation; and,

8.) The New Hampshire Fish and Game Department in consultation with the US Fish and Wildlife Service shall review and approve all study protocols; and,

9.) The Applicant shall commence informal monitoring as described in its Avian and Bat Protection Plan after completion of the aforementioned formal surveys. Said informal survey shall continue for the life of the project; and,

10.) Annual reports shall be submitted to and discussed with the New Hampshire Fish and Game Department and the United States Fish and Wildlife Service and shall serve as the basis for mitigation measures if effects are deemed unreasonably adverse.

iv. Interconnection Lines and Voltage Step-up Facility

The Applicant asserts that the interconnection line connecting the Facility with the line running along the Route 25 will not have an unreasonable adverse effect on the natural environment. The foot print of the interconnection line is relatively small and the Natural Heritage Bureau's online data check indicates that there are no known records of threatened, endangered or species of concern within a one-mile radius. Ex. App. 64, at 5; Ex. App. 66, at 4. Similarly, the Applicant asserts that the step-up voltage facility will not have significant unreasonable adverse effects on the natural environment inasmuch as the NHHB advised the Applicant that it does not have any records of the listed species on that site. Ex. App. 65, at 4. The record demonstrates that these features of the project will not adversely affect natural or exemplary communities or wildlife in the area.

The Applicant acknowledges that clearing for the interconnection line may have an impact on breeding birds that utilize this habitat type. Ex. App. 66, at 3. However, the Applicant asserts that the impact will not be significant because the interconnection route will utilize

existing skidder roads and ATV trails, and the local habitat has already experienced changes in the past resulting from the timber harvesting in the area. Ex. App. 66, at 4. As to the step-up voltage facility, the Applicant asserts that it will not have an unreasonable adverse effect on avian and bat species since the cleared area around the existing sand pit, and 115 kV transmittal line, already affect the avian habitat and bats will continue to use it for foraging. App. Ex. 67, at 4-5.

Based on the record, we find that neither the interconnection line nor the step-up transformer will cause an unreasonable adverse effect on the natural environment. Having considered the testimony, the exhibits and the arguments of the parties the Subcommittee finds that the Project, as set forth in the Application, as amended and subject to the conditions outlined in this decision will not have an unreasonable adverse effect on the natural environment.

e. Public Health and Safety

The Applicant asserts that the Project will not have an unreasonable adverse effect on public health and safety. The Applicant points out that the Project's access roads will have visible signs warning of the danger of potential falling ice; the wind turbines will be equipped with lightning protection systems protecting against blade damage; and each turbine will comply with design specifications, construction standards and will be certified in accordance with international engineering standards. Ex. App. 1, at 82. In addition, to prevent any potential danger to public health and safety, the Applicant will monitor and check the conditions of the turbines by making visual inspections of the blades and, if needed, ultrasonic inspections. Tr. 11/02/2010, Morning Session, at 79-80. The Applicant submits that the Project will comply with all applicable FAA requirements to assure aviation safety. Ex. App. 1, at 84. Finally, under Title 40 of Code of Federal Regulation §112.1, the Applicant will be required to develop and

maintain a Spill Prevention Control and Countermeasures Plan to comply with the U.S. Environmental Protection Agency's oil spill prevention, control, and countermeasures standards and to comply with inspection, reporting, training, and record keeping requirements. See, 40 C.F.R. §112.1.

i. Fire Safety and Ice Throws

a) Fire Safety

The Applicant asserts that a fire is unlikely to occur on the Site because the turbines will be routinely inspected by qualified personnel in accordance with preventive maintenance schedules and built-in safety design systems will minimize the chance of fire occurring in the turbines or electrical equipment. Ex. App. 1, at 83-84. In addition, the Applicant reports that, if fire were to occur, the turbine would automatically shutdown and the fire would be reported to the operation and maintenance building and to the operations center in Portland, Oregon. Ex. App. 1, at 84. In the unlikely event of lost satellite connection between the Center in Portland and the Site, site staff will operate the facilities manually. Tr. 11/02/2010, Morning Session, at 65. If determined that the operation of the turbines may pose danger to the health and safety, the Plant Manager of the Site will have the authority to shut down the turbines without prior agreement or directive from Portland. Tr. 11/02/2010, Morning Session, at 66. In addition, the Applicant asserts that it will comply with all industry standards and fire codes relating to fire safety. Ex. App. 1, at 84.

The Subcommittee received a letter from the State Fire Marshall, recommending that the following conditions be attached to the certificate. Ex. Buttolph 8.

1. All Structures, including but not limited to towers, nacelle, operation and maintenance buildings be constructed in accordance with the following codes and standards:

International Building Code, 2009 edition,

NFPA 1, Fire Code, 2009 edition,

NFPA 101, Life Safety Code, 2009 edition

NFPA 850, Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations, 2010 Edition.

2. In addition to any code required fire protection systems, monitored fire suppression systems shall be installed in each nacelle and generator housing.

The Applicant does not object to conditions requiring that the facility be constructed in accordance with all applicable building, electrical, life safety and fire codes. However, the Applicant asserts that monitored fire suppression systems, although available, are not standard in the industry, provide little protection and increase the risks to employees associated with accidental discharges of the suppression system. Tr. 11/02/2010, Morning Session, p. 84-85. The Applicant also claims that it hosted representatives from the Fire Marshal's office at its wind turbine facility in Lempster and also at its Hardscrabble, New York facility. As a result of those meetings, Edward Cherian, Project manager, testified that the Fire Marshal's office has refined its position and now requires only compliance with the "intent of the codes not the actual specifications." Tr. 03/22/2011, Morning Session, p. 104. However, the subcommittee has not received any confirmation of a change in the Fire Marshal's position.

After considering the testimony and evidence presented and giving due consideration to the request to the Fire Marshall, we find that the Applicant shall comply with all applicable federal and state fire, safety, and building codes and we condition the Certificate upon this requirement.

The Town of Plymouth presented one witness, Fire Chief Casino Clogston. Chief Clogston testified that the Town's Fire Department does not have sufficient equipment and training to address fires that may occur on the Site. Ex. Plymouth 1, at 4. As a preliminary matter, we note that the Town of Groton does not have its own Fire Department and will rely on other fire departments to respond to a fire occurring on the Site. Under the agreement between the Town of Groton and the Town of Rumney, the Fire Department of the Town of Rumney will respond in event of fire on the Site. Tr. 11/04/2010, Morning Session, at 106, 117, 125. The Fire Department of the Town of Plymouth is required to respond to a fire on the Site in accordance with a mutual aid agreement if the Fire Department of the Town of Rumney requests assistance. Tr. 11/04/2010, Morning Session, p. 106.

Chief Clogston, testified that, although it will not be the first responder in the event of fire on the Site, the Plymouth Fire Department needs additional training and equipment in order to guarantee that any fire danger caused by the turbines will be addressed in a satisfactory manner. Ex. Plymouth 1, p. 4. Specifically, Chief Clogston asserts that, under the worst-case scenario, if the Groton Hollow Road in Rumney were blocked and the Site was not accessible, firefighters would have to access the Site through the Tenney Mountain Ski Area by foot or ATV. Tr. 11/04/2010, Morning Session, at 118, 148. Accordingly, there is a certain level of risk that the fire fighters would not be able to promptly deliver all necessary equipment to the Site. Tr. 11/04/2010, Morning Session, at 107, 154. Therefore, the Town of Plymouth, Intervenors and Counsel for the Public request the Subcommittee to order the Applicant to provide the Town of Plymouth with additional training and the following equipment to ensure fire safety in the region: two Type 6 brush trucks, two six-person ATVs, three forestry high pressure portable pumps, and other associated equipment. Ex. Plymouth 1, p. 4. See, Brief of Town of Plymouth,

April 1, 2011. In the alternative, the Town of Plymouth requests the Subcommittee to order the Applicant to negotiate with the Town on emergency preparedness issues and enter into an appropriate agreement. See, Brief of Town of Plymouth, April 1, 2011.

We find that the Town of Plymouth has not demonstrated that such equipment is needed in order to address potential fire caused by the turbines. The Town will not be the first responder in the case of fire. Plymouth will respond as a member of a mutual aid agreement. The mutual aid agreement includes 37 towns. Tr. 11/04/2011, Morning Session, at 138.

In addition, the Agreement between the Applicant and the Town of Groton provides the following:

The Owner shall cooperate with the Town's emergency services to determine the need for the purchase of any equipment required to provide an adequate response to an emergency at the Wind Farm that would not otherwise need to be purchased by the Town. If agreed between the Town and Owner, Owner shall purchase any specialized equipment for storage at the Project Site. The Town and Owner shall review together on an annual basis the equipment requirements for emergency response at the Wind Farm.

Ex. App. 32, §7.2. If the equipment requested by Chief Clogston is needed, it can be obtained by the Town of Groton and stored on-site in accordance with the Agreement.

Furthermore, as to the Town's request for additional training, we note the Agreement between the Town of Rumney and the Applicant already provides the avenue for the Town of Plymouth to address any need for additional training by stating the following:

. . . Owner will provide annual training of a total of 8 hours of training at the Wind Farm. Groton Wind shall work to accommodate reasonable requests by the Rumney Fire, EMS, or Police Department for responders from other mutual aid towns to also attend the annual training at the same time with the Rumney responders. ”

Ex. App. 7, §6.2. The Plymouth Fire Department can participate in the additional training upon request.

Therefore, the Subcommittee denies the Town of Plymouth's request for additional equipment and conditions. However, the Subcommittee finds that the Agreements with the Towns of Rumney and Groton should become conditions to the Certificate.

Finally, the Intervenors request the Subcommittee to condition the Certificate and require the Applicant to develop and submit to the Committee a detailed emergency plan. The Town of Rumney has already addressed the procedure for emergency responses in its agreement with the Applicant and such agreement is adopted by the Subcommittee as a condition to the Certificate and incorporated in this docket. See, Ex. Rumney 1, §6.

b) Ice Throws

The Subcommittee notes that wind projects may pose a potential danger of ice throws. Specifically, in cold weather conditions, the ice may accumulate on the blades of the turbines. Tr. 11/02/2010, Morning Session, at 75. The Applicant asserts that ice throws are unlikely to occur because ice generally melts gradually, allowing the turbine to spin slowly and causing the ice to slip off the blades and to fall on the ground. Tr. 11/02/2010, Morning Session, at 97-98. The Subcommittee received no credible evidence demonstrating that ice throws will cause an unreasonable adverse effect on public safety. The Subcommittee finds that the Project does not pose a danger to the human health and safety due to ice throws and finds it unnecessary to impose any conditions in this regard.

ii. Groton Hollow Road

The Application specifies the use of Groton Hollow Road and the upgraded existing logging road at the end of Groton Hollow Road for access to the Facility. Ex. App.1, at 40. The

use of Groton Hollow Road may pose dangers to the safety of its residents. Specifically, Mr. Whittemore testified that Groton Hollow Road is ultimately a one and one-half lane road and it is not capable of accommodating two motor vehicles at the same location. Tr. 11/05/2010, Morning Session, p. 112. Nevertheless, the Applicant intends to use this road for delivering the large pieces of machinery to the Project without creating any additional turnouts. Tr. 11/03/2010, Morning Session, p. 100. The Applicant submits that if, for any reason the vehicle will not be able to move up or down the road, it will be towed up into the Site or back out onto Route 25. Tr. 11/03/2010, Morning Session, p. 100. However, the Subcommittee noted that such situations may potentially cause danger to public safety, as the Applicant's vehicles will block the residents' access to Route 25 and the access of any other vehicle, including emergency vehicles, from Route 25 to the residents of Groton Hollow Road and to the Site. Tr. 11/03/2010, Morning Session, pp. 101-102. The Intervenors also raised concerns regarding the movement of heavy equipment along Groton Hollow Road and the prospect that such movement might "trap" residents, making access to Route 25 impossible. In response, the Applicant agreed to adhere to the policy guidance governing the Department of Transportation's over-sized vehicle permits, if any. Ex. App. 46. Unfortunately, neither the Applicant's response, nor the Department of Transportation's policy guidance, resolves this issue.

The Intervenors suggest that the Subcommittee may assure the safety of the residents of Groton Hollow Road by requiring the Applicant to build a primary access road to the Project from Halls Brook Road instead of accessing the Project via Groton Hollow Road. See, Final Brief of Buttolph/Lewis/Spring Group of Intervenors, April 1, 2011, p. 36. However, that request is without merit as well. The Applicant already determined that access from Halls Brook

Road would not meet the environmental engineering specifications that were developed in consultation with DES.

The Subcommittee finds that the safety of residents on Groton Hollow Road can be assured by less intrusive means than constructing an additional access road. Alternative means of transportation and adequate advance notice of the movement of large construction equipment will assist the residents of Groton Hollow Road in planning the ability to ingress and egress. Additionally, the strategic pre-location of emergency vehicles could assist with emergency medical situations. However, the details of such a plan are best left to the discretion of the Applicant and the Town of Rumney, in consultation with the residents of Groton Hollow Road. We will, therefore, require the following condition:

The Applicant shall develop a plan with the Town of Rumney in consultation with the residents of Groton Hollow Road, addressing the following: (1) adequate advance notification to the residents of Groton Hollow Road of the movement of oversized loads on Groton Hollow Road, including the date and time when the vehicle traffic will be blocked on Groton Hollow Road; (2) alternative transportation for residents of Groton Hollow Road during times when Groton Hollow Road is blocked to normal vehicular traffic; and (3) a plan to deal with emergencies that may occur on Groton Hollow Road during the times when Groton Hollow Road is blocked to emergency vehicle traffic.

Alternatively, the Intervenors request the Subcommittee to impose a number of additional conditions, allegedly insuring that the Project will not have an unreasonable adverse effect on health and safety of the residents of Groton Hollow Road, including, but not limited to monetary compensation, pre-construction surveys of residences, joint liability for any damages to properties, a restriction to work on Sundays, and a requirement not to widen Groton Hollow Road “under any circumstances.” See, Final Brief of Buttolph/Lewis/Spring Group of Intervenors dated April 1, 2011, at 36-37. The Subcommittee reviewed the request submitted by the Intervenors and finds it overly broad and unwarranted. The purpose of our review is to ensure that the Project will not have an unreasonable adverse effect on the health and safety of

residents of Groton Hollow Road. The Subcommittee finds that this purpose is achieved by the aforementioned conditions.

iii. Noise

a) Effect on Human Health

The Applicant asserts that noise from the Project will not have an unreasonable adverse impact on the health and safety of the residents of the region. The Applicant presented a sound level assessment demonstrating that sound levels due to wind turbine operation will be less than 45dBA, and implies that such sound should be considered safe by the Subcommittee. The Applicant points out that the Committee approved similar sound levels at the Lempster Wind project. Ex. App. 1, at 85-86; Tr. 11/02/2010, Afternoon Session, at 71-72, 87. In addition, the Applicant asserts that noise from the interconnection line and the step-up voltage facility, will not have an unreasonable adverse effect on the region. The Applicant claims that the “worst-case” sound level from the transformer will be 29 dBA. A sound level of 29 dBA is as low as, or lower than existing sound levels in the area from traffic and other natural and man-made sources. Ex. App. 68, at 2.

The Mazur Intervenors expressed concern that the sound generated by the turbines may cause “Wind Turbine Syndrome” and a related illness known as Vibro-Acoustic Disease. Ex. Mazur 13. Mr. Wetterer introduced a number of articles addressing the issue of impact of noise on human health in support of his position that the noise generated by the turbines may have an adverse effect on public health. Ex. Mazur 13. Dr. Mazur and Mr. Wetterer acknowledge that Wind Turbine Syndrome is not widely recognized by the scientific community and may need further laboratory research and analysis. Ex. Mazur 13., Tr. 11/04/2010, Afternoon Session, pp. 99-100, 104. Dr. Mazur and Mr. Wetterer, however, urge the Subcommittee to suspend the

certification of Project until a more comprehensive scientific or medical assessment of the impact of noise generated by the wind turbines on the human health is made. Tr. 11/04/2010, Afternoon Session, pp. 117, 123.

Counsel for the Public, through its expert witness Gregory Tocci, confirms that infrasound¹² produced by wind farms has been discussed in the literature. Tr. 11/03/2010, Afternoon Session, p. 49. However, according to Mr. Tocci, none of the literature demonstrates a correlation between incidences of Wind Turbine Syndrome with sound levels at receptor locations in proximity to wind turbines. Tr. 11/03/2010, Afternoon Session, p. 49-50. As to vibroacoustic disease, Mr. Tocci agreed that it is plausible that certain sound waves could affect the connective tissue of the heart and lungs. Tr. 11/03/2010, Afternoon Session, at 50. However, according to Mr. Tocci, the sound level produced by the wind turbines simply does not rise to the level where it could have adverse effect on the connective tissue. Tr. 11/03/2010, Afternoon Session, at 50.

The evidence and testimony presented suggest that sound levels may be categorized into four different groups, identifying its effect on human health: (1) very low sound levels inaudible to human beings (infrasound); (2) higher sound levels, which may cause nuisance or annoyance (modulated broadband sound); (3) higher sound levels, which may cause symptoms that are sometimes associated with Wind Turbine Syndrome; (4) the highest levels, which may cause physical damage, including vibroacoustic disease. The record reveals that infrasound or modulated broadband sound do not generally pose a significant danger to human health. It is undisputed that some sound levels may cause annoyance. However, there is a distinction to be drawn between annoyance or nuisance and serious illness.

¹² “Infrasound” is defined as sound below 20 Hertz. Tr. 11/03/2010, Afternoon Session, at 71.

We are not persuaded by the Intervenors' evidence that "Wind Turbine Syndrome" will be a public health result from the construction of the Facility. The existence of Wind Turbine Syndrome has not been scientifically established and the Intervenors have not pointed us to any specific characteristics of this Project that are likely to cause the constellation of symptoms which the Intervenors allege establish this "syndrome".

We also find the assertion that the Project may affect human health by causing vibroacoustic disease to be unpersuasive. It is undisputed that only significant high sound wave levels can affect the connective tissue. In fact, vibroacoustic disease is generally connected to sound levels caused by close proximity to jet engines. The Project will not generate such sound levels. Therefore, we find that the Project will not have adverse effect on human health by causing vibroacoustic disease.

b) Annoyance

The issue of wind turbine sound as a nuisance or annoyance presents a contested issue in this docket. The issue is particularly relevant when we consider the effect of turbine sound on the nearby campground owned by Ms. Lewis.

According to Mr. Tocci, the "modulated broadband sound"¹³ or, as often described, "swooshing" sound, may cause annoyance and disruption of regular indoor and outdoor activities. Ex. PC 1. Mr. Tocci asserts that in order to avoid such impacts, the Project's sound level should not exceed 40 dBA at residential uses, *i.e.* outside the residential home. Ex. PC. 2, at 12; Tr. 11/03/2010, Afternoon Session, at 112-113. This level is recommended in the World Health Organization Night Noise Guidelines and cited by the Acoustic Ecology Institute as the level at which a dramatic increase in the proportion of the population will become annoyed by

¹³ "Modulated Broadband Sound" was defined as the sound generated by the turbine blade passing through the air, that is bounded by an envelope that allows it to rise and fall with the sound. Tr. 11/03/2010, Afternoon Session, at 71.

turbine noise. Ex. PC. 2, at 12-13. In addition, Mr. Tocci recommends that we apply a baseline sound level requirement to ensure that the noise generated by the wind turbines will not adversely affect public health and safety. Ex. PC 2, at 12. Mr. Tocci categorized the sound impacts of the turbines based upon the extent to which the turbine sounds cause an increase over the baseline sound levels. Mr. Tocci describes an increase above the baseline sound level by 5 dBA or less as no impact. An increase over baseline between 5 dBA and 10 dBA is described as a minor impact. An increase in excess of 10 dBA or more, according to Mr. Tocci, constitutes a significant impact. Ex. PC 2, p. 12; Tr. 11/03/2010, Afternoon Session, p. 131. Mr. Tocci submits that we should require the Applicant to apply some noise control measures where the impact is significant or, under some circumstances, if the impact is minor. Tr. 11/03/2010, Afternoon Session, at 131-132.

According to Mr. Tocci, a two-tiered sound control condition will guard against excessive modulated broadband sound and will guarantee that the noise generated by the Facility will not have an unreasonable adverse effect on public health and safety. Ex. PC. 2, at 13. Counsel for the Public requests the Subcommittee to require the Applicant to ensure that the noise generated by the Project will not exceed 40dBA or 5dBA above Mr. Tocci's baseline. See, Closing Memorandum and Proposed Conditions, April 1, 2011, p. 12.

The Town of Groton has considered the issue of the Project's noise impact in its Agreement with the Applicant by including the following "residential noise restrictions":

[a]udible sound from the Wind Farm during Operations shall not exceed 55dB(A) as measured at 300 feet from any existing Occupied Building on a Non-participating Landowner's property, or at the property line if it is less than 300 feet from an existing Occupied Building. This sound pressure level shall not be exceeded for more than a total of three minutes during any sixty minute period of the day. If the Ambient Sound Pressure Level

exceeds 55 dB(A), the standard shall be ambient dB(A) level plus 5 dB(A).

Ex. App. 32, §11.1. The Town and the Applicant agree that this condition will be part of the Certificate.

In addition, Counsel for the Public recommends that the Subcommittee also require a mitigation response to complaints similar to that included in the Certificate governing the Lempster Wind facility. The Lempster Wind Certificate, in pertinent part, states:

. . . if sound levels at the outside facades of homes exceed 45 dBA or 5 dBA greater than ambient, whichever is greater, to ensure that interior bedroom sound levels do not exceed 30 dBA or 5dBA greater than ambient, whichever is greater, with windows closed. In addition, during summer nights when some people sleep with their bedroom windows open, we will require the applicant to undertake operational or other measures to reduce the sound level at the outside facades of homes to not more than 45 dBA or 5 dBA above ambient, whichever is greater, if installation of a home mitigation package is not otherwise sufficient to reduce project noise inside bedrooms to 30 dBA or 5 dBA above ambient sound levels, whichever is greater, with windows open.

See, Decision Issuing Certificate of Site and Facility with Condition, Docket No. 2006-01, 46 (issued June 28, 2007).

In Lempster, the Subcommittee gave special consideration to the Goshen-Lempster School and conditioned the Certificate upon the following:

[a]udible sound from the Wind Park at the Goshen-Lempster School shall not exceed 45 dB(A). If the Ambient Sound Pressure Level at the Goshen-Lempster School exceeds 45 dB(A), at the school, the standard shall be ambient dB(A) plus 5 dB(A).

See, Decision Issuing Certificate of Site and Facility with Condition, Docket No. 2006-01 (issued June 28, 2007).

Ms. Lewis urges the Subcommittee to grant similar consideration to her campground. She states that such consideration is warranted because the visitors of the campground stay

outside in the tents and would be susceptible to sound generated by the Project. Mr. Tocci supports Ms. Lewis' concerns and acknowledges that at the quietest time, for one to three hours beginning at midnight, the wind farm will be frequently audible at the Campground when it will generate sound exceeding the baseline sound level by 8 to 9 dBA and, at all other times, it may be intermittent. Tr. 11/03/2010, Afternoon Session, at 53, 93-95, 117-118. Therefore, Ms. Lewis requests the Subcommittee to adopt the standard established in the so-called "Deerfield Project" by requiring the Applicant to ensure that the noise level outside of interior bedroom and tents of the Campground will not exceed 30 decibels between the hours of 10 p.m. and 8:00 a.m., or a maximum 5 dBA above the existing ambient sound levels. Tr. 11/05/2010, Afternoon Session, p. 27; Final Brief, Intervenor Group Buttolph/Lewis/Spring, April 1, 2011, at 36.

The Applicant asserts that the turbines will not be have an unreasonable adverse affect on the campground because the "worst-case scenario" sound level recorded by Mr. Tocci, would cause the noise level at the campground to increase to approximately 32 decibels and the average sound level on the camp ground is already approximately 30 decibels. Ex. App. 4, Appx. 35, Figure 7-1; Tr. 11/02/2010, Afternoon Session, at 48-50, 58.

The decision in Lempster was partially based on the "Guideline for Community Noise" (World Health Organization, Geneva, 1999) stating that "the daytime and evening outdoor living area sound levels at a residence should not exceed 55 dBA Leq to prevent 'serious annoyance', and 50 dBA Leq to prevent 'moderate annoyance' from a steady, continuous noise. At night, sound levels at the outside facades of the living spaces should not exceed 45 dBA Leq so that people may sleep with bedroom windows open." See, Decision Issuing Certificate of Site and Facility with Condition, Application of Lempster Wind, LLC, Docket No. 2006-01, 46 (issued June 28, 2007). We also note that it is unclear, based on Mr. Tocci's testimony, as to whether

the absolute limit, or the “above baseline” sound level, should apply. It stands to reason that, at some sound levels, a standard based upon a baseline will be inapplicable, *i.e.*, the situations where the baseline sound level is so low that even an increase by 10 dBA would not generate sound levels annoying to human beings. We will condition the Certificate on a requirement that focuses on the greater of the absolute limit or the “above baseline” limit. Therefore, we will require the Applicant to comply with the same standard regarding noise that was imposed on the Lempster facility; thus, the sound levels generated by the Facility shall not exceed 55 dBA or 5 dBA greater than ambient, whichever is greater, at the outside façade of any residence during the daytime. At night (10:00 p.m. until 6:00 a.m.), the sound levels generated by the Facility shall not exceed 45 dBA or 5 dBA greater than ambient, whichever is greater, at the façade of any residence.

In addition, we agree with Ms. Lewis’s assertion that her Campground presents a unique situation. It is not reasonably disputed that people sleeping in tents and not protected by solid walls of residences are more vulnerable to the sound levels. Taking into consideration that the World Health Organization suggests that people may sleep comfortably with their windows opened when the sound level in the living spaces does not exceed 45 dBA, along with the absolute exposure of the visitors of the campground to the sound generated by the Project , we condition the Certificate upon a requirement that the sound level from the Project shall not exceed 40 dBA or 5 dBA greater than ambient, whichever is greater as measured within current boundaries of the campground owned by Ms. Lewis.

We find that an additional measure of protection will result from the post-construction noise control measurements required of the Applicant in the Agreement with the Town of Groton which, in relevant part, states:

Post-Construction Noise measurements. After commercial operations of the Wind Farm commence, the Owner shall retain an independent qualified acoustics engineer to take sound pressure level measurements in accordance with the most current version of ANSI S12.18. The measurements shall be taken at sensitive receptor locations as identified by the Owner and Town. The periods of the noise measurements shall include, as a minimum, daytime, winter and summer seasons, and nighttime after 10 pm. All sound pressure levels shall be measured with sound meter that meets or exceeds the most current version of ANSI S1.4 specifications for a Type II sound meter. The Owner shall provide the final report of the acoustics engineer to the Town within 30 days of its receipt by the Owner.

Ex. App. 32, ¶11.2.

The same level of protection should also be granted to the residents of the Town of Rumney in order to guarantee that the Project will not have an unreasonable adverse noise effect on residents of Rumney. Furthermore, we hold that the Applicant shall provide the final report of the acoustic engineer to the Subcommittee, as well as to the Towns of Groton and Rumney within, 30 days of its receipt by the Applicant.

To the extent that Counsel for the Public and Intervenors have suggested additional mitigation measures or measurements, we find them unnecessary and duplicative. However, we agree with the Intervenor's position that the residents of affected towns should have the opportunity to raise their concerns and request the Applicant to address and remedy any potential violations of this Certificate. We note that Section 5.1 of the Agreement with the Town of Groton, Public Inquiries and Complaints, provides avenues for public inquires and complaints to the Residents of the Town of Groton by stating:

Public Inquiries and Complaints. During construction and operation of the Wind Farm, and continuing through completion of decommissioning of the Wind Farm, the Owner shall identify an individual(s), Including phone number, email address, and mailing

address, posted at the Town House Office, who will be available for the public to contact with inquiries and complaints. The Owner shall make reasonable efforts to respond to and address the public's inquiries and complaints. This process shall not preclude the local government from acting on a complaint.

Ex. App. 32, ¶5.1.

The opportunity to make inquiries or complaints should be available to all residents of potentially affected towns. Therefore, the conditions identified in Section 5.1 of the Agreement with the Town of Groton shall apply to the Towns of Rumney, Holderness, Plymouth and Hebron as well as to the Town of Groton. The Applicant shall post information identifying individuals available for public inquiries and complaints and their contact information in the town offices of Rumney, Holderness, Plymouth, Hebron, and Groton.

We note that §13.1 of the Agreement between the Town of Groton and the Applicant contains a provision allowing a “participating” or “non-participating” landowner in Groton to waive the noise restriction requirements. We see no reason why we should not allow residents of Rumney or any other affected community to similarly waive the noise requirements.

Ex. App. 32, ¶13.1.

Therefore, we hold that the Certificate, conditioned upon the Applicant's compliance with the Agreement with the Town of Groton, as amended herein, and the terms and conditions of said agreement are incorporated in this docket. Also, we note that the Applicant agreed to abide by the construction hours limitations set forth in the Agreement with the Town of Groton in the construction of the voltage step-up facility in order to ensure that the Project will not have unreasonable adverse effect on public health and safety. See, Applicant's Response to Conditions Proposed by Counsel for the Public and Intervenors dated April 5, 2011, at 15. Therefore, we condition the Certificate upon requirement that the Applicant shall comply with

the Town of Groton in the construction of the voltage step-up facility. After reviewing the testimony, exhibits and arguments of the parties, the Subcommittee concludes that the Facility will not have an unreasonable adverse effect on public health and safety, subject to the conditions identified herein.

VI. CONCLUSION

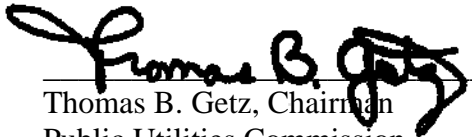
Throughout the pendency of this Application, the Subcommittee has endeavored to be as transparent and inclusive as possible. We held a public meeting and accepted comments from the public both orally and in writing. The parties have had a full and fair opportunity to raise all issues and present their arguments. As a consequence, we are confident that we heard and understand the positions of all the parties, the potential impacts of the proposed Project and the effects that it will have on the region and the entire state.

We have considered the Application, the exhibits, the testimony, the briefs, public comments, letters, and oral arguments. We have fully reviewed the environmental impacts of the proposed facility. We have also considered all other relevant factors bearing on the objectives of R.S.A. 162-H. Having done so, we find, subject to the conditions discussed herein and made a part of the Order and Certificate, that:

The Applicant has adequate technical, managerial and financial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of the Certificate;

The construction and operation of the facility will not unduly interfere with the orderly development of the region with due consideration having been given to the views of municipal and regional planning committees and governing bodies; and,

The construction and operation of the facility will not have an unreasonable adverse effect on aesthetics, historic sites, air quality, water quality, the natural environment or public health or safety.



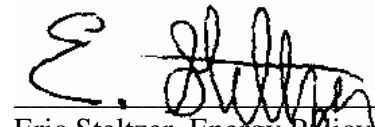
Thomas B. Getz, Chairman
Public Utilities Commission



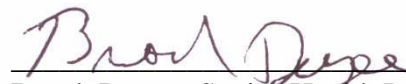
Stephen Perry, Inland Fisheries Division Chief
Fish and Game Department



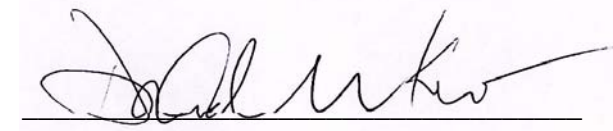
Robert Scott, Director
Department of Environmental Services




Eric Steltzer, Energy Policy Analyst
Office of Energy and Planning



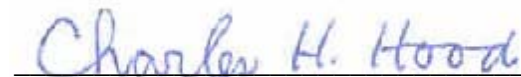
Brook Dupee, Senior Health Policy Analyst
Department of Health and Human Services



Donald Kent, Designee
Dept. of Resources & Econ. Development



Richard Boisvert, State Archeologist
NH Division of Historical Resources



Charles Hood, Administrator
Department of Transportation



Michael Harrington, State Engineer
Public Utilities Commission