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April 1, 2011

Via Hand Delivery and Electronic Mail

NH Site Evaluation Committee
c/o Jane Murray, Secretary
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

***Re: Docket 2010-01, Application of Groton Wind, LLC
for a Certificate of Site and Facility for a Renewable Energy Facility***

Dear Ms. Murray:

Enclosed for filing with the Site Evaluation Committee in the above-captioned docket, please find an original and eleven copies of the Applicant's Post Hearing Brief. Hard copies of this filing are also being hand delivered to Subcommittee Chairman Getz and Subcommittee Member Harrington.

Please contact me if there are any questions about this filing. Thank you for your assistance and cooperation.

Very truly yours,



Susan S. Geiger

Lawrence A. Kelly
(Of Counsel)

cc: Service List (electronic mail only)
Enclosure
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**THE STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE**

Docket No. 2010-01

Re: Application of Groton Wind, LLC

For A Certificate of Site and Facility

APPLICANT'S POST HEARING BRIEF

April 1, 2011

GROTON WIND, LLC

By Its Attorneys,

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I. INTRODUCTION

The Groton Wind Project has been the subject of nearly three years of public discussion, consultations, analysis, and examination, with more than one year of consideration before the New Hampshire Site Evaluation Committee. During that time, the Project has been discussed, debated, and considered in dozens of public meetings with town Select Boards and Planning Boards, and in countless meetings with state and town officials, local and regional organizations, local businesses, and residents. The agencies charged with protecting New Hampshire's environment and wildlife – the New Hampshire Department of Environmental Service and the New Hampshire Fish and Game Department – have expressed either their recommendation for approval or satisfaction with the many commitments made by the Project through the long consultation process.

“The Town of Groton is ready to embrace and support wind power.”¹ These words from the Groton Board of Selectmen convey a belief that the wind farm offers much to the community and the state. The Project that has been studied and is before the Subcommittee for consideration is not simply the various parts made up of voluminous engineering plans, environmental studies, field reports, and testimony. The whole of Groton Wind is a substantial investment in a small town, and the many benefits to the common good that may accrue from that investment. The Project is, of course, a business investment, with an expectation of a reasonable rate of return. But it also brings environmental and economic benefits to the region and the state. Our economy needs energy sources to grow and prosper, even in difficult economic times. The stated policy goal of the United States for many years has been to reduce our reliance on fossil fuels

¹ March 29, 2011 letter from Town of Groton Select Board to Thomas B. Getz, Vice-Chairman.

and on foreign energy sources. The State of New Hampshire has stated policy goals to encourage and grow renewable energy generation within our state. And every municipality seeks to diversify and grow its tax base, so that it can better serve its citizens, and improve the lives of its residents. Groton Wind cannot do all of these things, but it can contribute in a meaningful way to accomplishing them. The following provides a summary of the evidence in this docket, and is in turn followed by a detailed discussion of record evidence that supports all of the necessary findings for the issuance of Certificate of Site and Facility to Groton Wind, LLC.

**A. SUMMARY OF THE EVIDENCE SUPPORTING A
CERTIFICATE OF SITE AND FACILITY**

Groton Wind, LLC (“Groton Wind” or “the Applicant”) has provided the New Hampshire Site Evaluation Subcommittee (“Subcommittee”) with a complete and thorough record that supports all of the findings required by RSA 162-H:16 for a Certificate of Site and Facility for the Groton Wind Project (“the Project”). The Project meets the objectives of RSA 162-H:1 by balancing the need for renewable energy with environmental consequences. The Project will assist in meeting the goals of the state’s renewable portfolio standards, regional greenhouse gas initiative, and will positively impact regional air quality, by producing electricity without combusting fuels or emitting air pollutants. The Applicant has thoroughly examined the Project’s environmental effects and studied several available alternatives to select the most appropriate sites for all of the facilities that comprise this Project. It will be constructed in an area that has been extensively logged for over a half-century, and that has excellent wind resources.

The Applicant has demonstrated through its exhaustive outreach effort, along with the expert witness testimony and numerous studies, that the Project “will not unduly

interfere with the orderly development of the region with due consideration having been given to municipal and regional planning commissions and municipal governing bodies.” Record evidence establishes that the Project is consistent with the orderly physical and economic development of the region, and will not adversely impact property values.

The Applicant’s parent company is experienced, well-financed and has a proven track record based on its successful construction and operation of New Hampshire’s first commercial-scale wind energy facility in Lempster. It is therefore clear that the Applicant possesses the requisite financial, technical and managerial capabilities to assure construction and operation of the Project.

The Applicant submitted authoritative and persuasive expert testimony, numerous studies and reports, all of which establish that the Project will not have an unreasonable adverse effect on aesthetics, historic sites, air quality, water quality, the natural environment, or public health and safety in satisfaction of the criteria listed in RSA 162-H:16, IV(c). The Applicant has received approval from the New Hampshire Division of Historical Resources (“DHR”) of its archaeological studies and Project Area Form. The record supports a finding that the Project’s ongoing consultation with the U. S. Army Corps of Engineers (“USACE”) and DHR will reach a successful conclusion in that any “adverse effects determinations” made by the USACE will be mitigated by the Applicant.

Unrebutted expert testimony established that the Project’s potential effects on aesthetics will be minimal. The Project’s effects on water quality have been evaluated by the New Hampshire Department of Environmental Services (“DES”) which has recommended that the Committee approve the Project’s Alteration of Terrain and Wetlands Permit Application.

The Project will positively impact regional air quality because, unlike dirtier fossil fuel facilities, it combusts no fuels and creates no air emissions to produce electricity. Unrefuted expert testimony establishes that the Project will have no unreasonable adverse effect on wildlife, wildlife habitat or natural communities. The Applicant's commitments for post-construction avian and bat surveys and monitoring at the Groton site have been reviewed and approved by the New Hampshire Fish and Game Department and therefore assure that the Project will have no unreasonable adverse effect upon avian or bat species.

Evidence concerning the Project's potential effects on public health and safety, i.e., regarding construction issues, shadow flicker, ice-shedding, tower collapse, blade throw, fire safety, lightning and stray voltage, hazardous materials, aviation safety and decommissioning was un rebutted by any other expert testimony. Importantly, the Applicant has executed agreements with the Town of Groton and the Town of Rumney that address several important issues, including public safety and decommissioning. In addition, in response to the only issue raised by the Town of Holderness, the Applicant committed to meeting the Town's dark sky ordinance at the Project's voltage step-up facilities, to the extent doing so would not conflict with ISO-New England or industry standards.

The Applicant's expert, Robert O'Neal, provided persuasive evidence that the Project will have no unreasonable adverse sound effects. Concerns raised about predicted sound levels at the Baker River Campground were thoroughly addressed, resulting in the clear weight of the evidence supporting the Applicant's position that this Project, which will be located more than a half mile from the nearest existing structure, will not have an unreasonable adverse effect on sound.

In the final analysis, and for all of the foregoing reasons, which are discussed in greater detail below, the Subcommittee should determine that the Applicant meets all of the requirements for a Certificate of Site and Facility and should issue an order granting the Certificate.

B. PROCEDURAL HISTORY

On March 26, 2010, Groton Wind, LLC (“Applicant”) filed with the New Hampshire Site Evaluation Committee (“Committee” or “SEC”) an Application for a Certificate of Site and Facility seeking authority to site, construct and operate a renewable energy facility (“the Project”) in the Town of Groton, New Hampshire. The Project consists of, among other things, 24 wind turbines each having a nameplate capacity of two (2) megawatts (“MW”). By Order dated April 26, 2010, the Vice-Chairman of the Committee determined, pursuant to RSA 162-H:6-a, II, that the Application contained sufficient information to carry out the purposes of RSA 162-H pertaining to renewable energy facilities, and accepted the Application. By Order dated May 7, 2010, the Chairman of the Committee designated a subcommittee (“Subcommittee”) to consider the Application in accordance with RSAs 162-H: 6-a, III, and 162-H:4, V. The Order also designated Committee Vice-Chairman Getz as the Chairman of the Subcommittee and Presiding Officer.

The Subcommittee Chairman/Presiding Officer issued an Order and Notice on May 21, 2010 establishing a deadline for intervention petitions and directing the Attorney General to appoint an Assistant Attorney General as Counsel for the Public under RSA 162-H:9. The Order and Notice also scheduled: a prehearing conference to be held in Concord on June 7, 2010; a site visit to be held the afternoon of June 28, 2010 at various

locations within and outside of the Project site; and a public information meeting to be held the evening of June 28, 2010 in Plymouth as required by RSA 162-H:6-a, IV. These events occurred as scheduled.

Intervention petitions were filed by the Town of Groton, Town of Rumney, Town of Plymouth, and by Rumney residents Annie Valdmanis, Dr. Lawrence A. Mazur, Christine G. DeClercq-Mazur, Sarah Mazur, Richard Wetterer, Kathleen Park, James Buttolph, Cheryl Lewis and Carl Spring. By Order issued June 25, 2010, the Presiding Officer granted the intervention petitions and ordered that the Rumney residents be consolidated into two intervenor groups: one comprised of Mr. Buttolph, Ms. Lewis and Mr. Spring, and the other comprised of the Mazurs, Mr. Wetterer, Ms. Park and Ms. Valdmanis. Mr. Theodore Mazur was added as an intervenor to the second group by Order issued July 7, 2010. Thereafter, the Applicant and the parties actively engaged in discovery by exchanging and answering data requests, and by meeting in person for several technical sessions.

On October 12, 2010, the Applicant submitted a Supplement to its Application, as well as Supplemental prefiled testimony, to provide the Subcommittee with additional information compiled after the initial filings. Adjudicative hearings were held as scheduled on November 1, 2010 through November 5, 2010. At the conclusion of the November 5th hearing, the Chairman recessed the proceedings and requested that the parties submit memoranda addressing the procedural schedule to augment the record on several issues.

On November 19, 2010, the Applicant filed the Second Supplemental Prefiled Testimonies of Edward Cherian, Nancy Rendell and Peter Walker, Adam Gravel and

Hope Luhman, and the Supplemental Prefiled Testimony of John Hecklau, all of which related to the issue of an alternative line route that will deliver electricity from the Project site to the New Hampshire Electric Co-Operative's distribution lines on Route 25.

Pursuant to a Scheduling Order issued November 29, 2010, the Subcommittee met on December 3, 2010 to deliberate on the procedural schedule for the duration of the proceeding. At that meeting, the Subcommittee noted two revisions to the Application: an alternative, less impactful, route for the power line that would deliver electricity from the Project site to the New Hampshire Electric Co-Operative ("NHEC") system, and interconnection facilities that would deliver power to the NU/PSNH system at the 115 kV level, including voltage step-up voltage facilities. In addition, the Subcommittee noted that it had received notification from the Division of Historical Resources ("DHR") that the Applicant's archaeological studies for the Project had been submitted and accepted by DHR, and that Project Area Form had been considered to be insufficient to meet DHR's guidelines. The Subcommittee voted pursuant to RSA 162-H:6-a , IX to extend its proceedings and deliberations in this docket until April 26, 2011 to consider information about the revised interconnection route and Project Area Form. The Subcommittee issued an Order on December 14, 2010 reflecting these deliberations and scheduling a prehearing conference on December 17, 2010 for the purpose of discussing a discovery schedule, additional technical sessions and potential dates for concluding the adjudicative phase of the proceedings.

The referenced prehearing conference was held as scheduled on December 17, 2010. Subcommittee counsel, Michael Iacopino presided at this conference and issued a report adopted by the Subcommittee Chairman by Order dated December 22, 2010. The

prehearing conference report contained a schedule for further filings by the Applicant, discovery by the parties, additional prefiled testimony from Counsel for the Public and Intervenor, and two technical sessions.

On December 30, 2010, the Applicant filed Third Supplemental Prefiled Testimonies of Edward Cherian, Nancy Rendell and Peter Walker, Adam Gravel and Hope Luhman, and Second Supplemental Prefiled Testimonies of John Hecklau and Robert O'Neal. These prefiled testimonies primarily focused on information relating to plans for voltage step-up facilities proposed to be constructed in the Town of Holderness.

By Order and Notice dated January 18, 2011, the Presiding Officer ordered the Applicant to serve notice of this proceeding on the Town of Holderness and to cause a true and correct copy of the Application, all testimony, pleadings and orders in this docket to be delivered to the Holderness Selectmen on or before January 24, 2011. The Applicant filed an Affidavit on January 24, 2011 indicating its compliance with the January 18th Order. On January 21, 2011, the Town of Holderness filed a Partially-Assented to Petition to Intervene. On February 9, 2011, the Applicant and Town of Holderness filed a Joint Motion for Modified Procedural Schedule to afford Holderness an opportunity to participate in this docket without unduly delaying the existing procedural schedule. By Order dated February 28, 2011, the Presiding Officer granted the Town of Holderness's request for full intervention and adopted the Joint Motion's procedural schedule, which allowed the Town of Holderness to submit data requests to the Applicant and to submit prefiled testimony².

² The Town of Holderness submitted the prefiled testimony of Walter Johnson on March 2, 2011 but did not appear or otherwise participate in the adjudicative hearing held on March 22, 2011.

Pursuant to the procedural schedule developed on December 17, 2010, and as modified by the above-referenced order dated February 28, 2011, the Applicant responded to data requests propounded by Counsel for the Public, the Buttolph/Lewis/Spring Intervenor Group and the Town of Holderness, and participated in technical sessions. In addition, and as scheduled, the Applicant also participated in a technical session held in Groton on March 7, 2011, on the issue of historical resources. The Applicant also provided written responses to data requests made at the technical sessions.

On February 28, 2011, the Subcommittee issued a Notice indicating the recommencement of adjudicative proceedings in this docket on March 22, 2011 and March 25, 2011. An adjudicative hearing was held on March 22, 2011, and a hearing at which members of the public were provided an opportunity to provide oral comments to the Subcommittee was held on March 25, 2011. The parties agreed to file post-hearing briefs in lieu of closing statements.

II. BURDEN OF PROOF

The Applicant bears the burden of proving facts sufficient for the Subcommittee to make the findings required under RSA 162-H:16 by a preponderance of the evidence. *See* N.H. Admin. Rule Site 202.19 (a) and (b). As discussed more fully below, the record demonstrates that the Applicant has met its burden with respect to each of the findings required by RSA 162-H:16, IV.

III. SUBCOMMITTEE CONSIDERATIONS

A. Evidence and Public Comment

The Subcommittee is required to consider and weigh all evidence presented at public hearings and to consider and weigh written information presented to it by members of the public before, during and after public hearings. RSA 162-H:10, III. Many members of the public have provided their comments – both supporting and opposing the Project - orally at public comment meetings and hearings held by the Subcommittee, and in writing. In addition, the Applicant has engaged in exhaustive outreach efforts outside of the SEC process (i.e. over 30 publicly noticed meetings in 5 different towns) to provide members of the public an opportunity to learn about and present their views on the Project. A list of the meetings attended by the Applicant as of October 12, 2010 is included with the Supplemental Application, Exh. App. 5, Appendix 38. In addition to the five volumes of documents comprising the Application and Supplemental Application, the bulk of the evidentiary record in this docket was developed during the adjudicative proceedings in which the Applicant presented the prefiled and live testimony of several experts who were subject to cross-examination by the parties and questioning from the Subcommittee. Counsel for the Public also presented prefiled and live expert testimony on avian, bat and sound issues only.

Other than Chief Clogston (who testified for the Town of Plymouth on fire and safety issues), and Mr. McCann (who testified via Skype for the Buttolph/Lewis/Spring Intervenor Group regarding the Project's potential effects on property values), the Intervenors presented no expert witness testimony. It is important to note that although the Subcommittee recognized Mr. McCann "generally" as an expert in the matter of real estate appraisal, the Subcommittee also referenced filings indicating that Mr. McCann "has not been to New Hampshire, has not seen this site, and is not admitted to

practice...in the State of New Hampshire.” *Tr. Day 5, Morning Session*, p. 11:20-24. The Subcommittee determined that because Mr. McCann “has no particular expertise-experience with this site or with New Hampshire law,” Mr. McCann’s testimony would be given the weight it is due, recognizing his general expertise, but also recognizing the above-referenced shortcomings in his background and qualifications. *Tr. Day 5, Morning Session*, p. 12:1-7. In addition, the Subcommittee requested that Mr. McCann produce a 2005 study he said he conducted in Illinois that examined home sales prices within 2 miles of the site of proposed wind farm, and those beyond the 2 mile radius before the wind project was announced. *See Tr. Day 5, Morning Session*, p. 54-56. Ms. Lewis indicated at the March 25, 2011 hearing that Mr. McCann could not locate that study; consequently it is not part of the evidentiary record in this proceeding. Given Mr. McCann’s inability to substantiate his oral testimony regarding a report that he allegedly conducted in 2005 which supports his opinion about an Illinois wind farm’s affects on property values, his opinion in this docket should be accorded little, if any, weight.

Although the rules of evidence do not apply to administrative proceedings, *see* RSA 541-A:33, II, principles of fundamental fairness and common sense dictate that much more weight should be given to sworn testimony presented by experts or other witnesses whose qualifications are provided and vetted, and are therefore qualified to render opinions, than to evidence provided by lay witnesses who do not possess the background, education, experience or expertise to offer opinions on technical or scientific subject matters or who have not conducted Project-specific studies.

B. State Permits

The Subcommittee cannot issue a Certificate of Site and Facility if any other state agency denies authorization for the proposed activity over which it has jurisdiction. RSA 162-H:16, I. No such denials have occurred or been recommended by any state agency. By letter dated October 8, 2010, the Water Division of the New Hampshire Department of Environmental Services (“DES”) recommended approval of the Applicant’s Alteration of Terrain permit application with conditions. The conditions include those from the Watershed Management Bureau (“WMB”) to satisfy 401 Water Quality Certification concerns, and from the Drinking Water and Groundwater Bureau (“DWGWB”) to satisfy concerns regarding ledge blasting and monitoring Best Management Practices. *See Supplement to Application, Volume 1-A, Exh. App. 5, Appendix 51.* DES’s October 8, 2010 letter also recommended approval of the Applicant’s Wetlands Permit application with conditions. *Id.*

C. Available Alternatives

As part of its review of this Application, the Subcommittee must consider “available alternatives.” *See* RSA 162-H:16, IV. “The function of the Committee regarding alternative sites is to confirm that the Applicant has reviewed alternative sites.” *Application of AES Londonderry L.L.C., SEC Docket No. 98-02, Decision (May 25, 1999), p.11.* In so doing, the Subcommittee considers the evidence of alternatives presented by an Applicant, and any other evidence in the record pertaining to alternative sites. *Application of Granite Reliable Power, LLC, SEC Docket No. 2008-04, Decision Granting Certificate of Site and Facility With Conditions (July 15, 2009), p.27.*

The Applicant’s parent company, Iberdrola Renewables, Inc., has developed a comprehensive and practical methodology for selecting wind project sites that is based on

its extensive wind project development experience, and guidelines established by the National Wind Coordinating Committee, the American Wind Energy Association and the European Wind Energy Association. *See Application, Volume I, Exh. App.1, p. 42.* Section H.2. of the Application identifies and discusses thirteen (13) major site selection criteria that influenced Iberdrola's decision to pursue a wind energy project at the Groton location. Section H.2 (a) of the Application discusses several different alternatives that were considered, including a larger project, alternative interconnection points, alternative turbine models and locations, and alternative road configurations, alignments and locations. *See Application, Volume I, Exh. App.1, pp. 45-53.* These criteria, specific alternatives and alternative configurations were explored in some detail during cross-examination of Mr. Cherian during the November, 2010 hearings. *See, e.g., Tr. Day 1, Morning Session, pp. 72-74.*

Subsequent to filing the Application, the Applicant considered additional alternatives and presented to the Subcommittee revisions to the "as-filed" Project plans. First, in response to concerns of Groton Hollow Road residents about the utility poles proposed to be installed there, as well as concerns of the New Hampshire Electric Co-Operative ("NHEC") regarding its lack of complete documentation for easements and licenses for existing poles, the Applicant developed an alternative route for the line that will bring power from the wind turbines to NHEC's distribution system on Route 25. *See Second Supplemental Prefiled Testimony of Edward J. Cherian, Exh. App. 61, p. 3.* This alternative link to Route 25 is preferable to the Applicant's originally-proposed line because it is responsive to concerns expressed by a number of residents of Groton Hollow

Road by avoiding Groton Hollow Road, and is about 1.5 miles shorter than the originally-proposed line from the turbine site to Route 25. *Id.*

Second, the Applicant adjusted the location of the interconnection line within NHEC's distribution system route to avoid Quincy Road. Given concerns expressed by some residents of Quincy Road, this adjustment in the interconnection route is more preferable to them than the originally-proposed route, as well as responsive to public comment and the Rumney Board of Selectmen. *See* Exh. App. 7, Section 2.10 (Applicant shall use every effort to ensure power line is installed along Route 25 east to the Plymouth town line...) In addition, when the originally-proposed route shown on Figure 6 of the Application is compared with the revised route shown on Figure 6a of the Supplemental Application, it is apparent that revised route creates fewer impacts because it is primarily located within the existing NHEC utility corridor along Route 25 and is shorter than the original proposed route. *See Supplement to Application, Volume I-A, Exh. App. 5, Appendix 42, and Application, Volume 1, Exh. App.1, p. 39.*

Lastly, the Applicant identified the exact location (in the Town of Holderness) of the point of interconnection with the New England regional power grid, as well as its plans for voltage step-up and interconnection facilities in that location. *See Third Supplemental Prefiled Testimony of Edward J. Cherian, Exh. App. 62, pp. 2-3, and Exh. App. 35.* The Project originally planned to interconnect with the regional power grid at the 34.5 kV level at the Beebe River Substation. *See Application, Volume 1, Exh. App. 1, p. 37.* The Project revised its interconnection plans as the result of PSNH studies conducted after the submission of the Application and consultation with NHEC, which necessitated the re-filing of an interconnection application with ISO-NE requesting

interconnection at the 115 kV level. *See Supplemental Prefiled Testimony of Edward J. Cherian*, Exh. App. 5, p. 3. At that time, the revised interconnection plan still anticipated interconnection with the grid at or in close proximity to the Beebe River Substation, but included a short 115 kV line from the Project's voltage step-up substation to the PSNH Substation. *Id.*

On December 30, 2010, the Applicant submitted revised interconnection plans which included more details about the precise location³ of voltage step-up facilities to be located on a parcel of land in Holderness directly next to Northeast Utilities' ("NU's") 115 kV transmission line. *See Third Supplemental Prefiled Testimony of Edward J. Cherian*, Exh. App. 62, p. 2. This land is already in use, and has been for many years, as a right of way ("ROW") for NU's 115 kV transmission line. *Id.*, p. 3. The Holderness site is preferable to the originally-proposed Beebe River location because, among other things: it is situated in an area zoned for commercial use; it is near other commercial and industrial facilities; it reduces the total length of the originally-proposed interconnection line by approximately 3.7 miles; and is set back from Route 175 and residential areas. *Id.*

As the foregoing demonstrates, there is ample record evidence for the Subcommittee to find that the Applicant engaged in a reasonable and thorough alternatives analysis and made reasonable and appropriate decisions in selecting the proposed size of the Project, the proposed locations of the turbines, the interconnection line and the voltage step-up facilities, and to find that these sites are preferable to available alternatives.

D. Environmental Effects Of The Site and Facility

³ The Supplemental Application identified the location as near the Beebe River Substation or in immediate proximity to the PSNH 115 kV line that feeds into the Beebe River Substation from the Ashland Substation.

RSA 162-H:16, IV provides that the Subcommittee must fully review the Project's environmental effects. As discussed more fully below in Section IV. C. 3-5, the environmental effects of the components of this Project (i.e. the Groton turbine site, the interconnection line, and the Holderness substation) have been studied by experts, all of whom have concluded that the Project will have no unreasonable adverse effects.

E. Other Relevant Factors Bearing on Whether the Objectives of RSA 162-H Would Be Best Served by Issuing the Certificate

The Subcommittee must review "other relevant factors" bearing on whether the objectives of RSA 162-H would be best served by issuing a certificate of site and facility. RSA 162-H:16, IV. The objectives of RSA 162-H, as stated in purpose section of that statute, include: 1) maintaining a balance between the environment and the need for new energy facilities in New Hampshire; 2) avoiding undue delay in the construction of needed facilities; 3) providing full and timely consideration of a facility's environmental consequences; 4) providing full and complete disclosure to the public regarding energy project plans; and 5) ensuring that construction and operation of energy facilities are treated as a significant aspect of land-use planning in which all environmental, economic, and technical issues are resolved in an integrated fashion. RSA 162-H:1. All of these objectives are for the purpose of assuring "that the state has an adequate and reliable supply of energy in conformance with sound environmental principles." *Id.*

The Project meets the first two objectives stated in RSA 162-H:1. The Project is consistent with the goal of maintaining a balance between the environment and the need for new energy facilities in New Hampshire because it will assist with meeting the state's demand for renewable energy resources required by RSA 362-F with no unreasonable adverse environmental effects. Because it will add a new source of electricity without

emitting air pollutants, the Project will help to reduce the amount of greenhouse gases, nitrogen oxides and particulate matter emissions generated in the state, thereby positively affecting air quality and mitigating against the risks of climate change. *See Application, Volume I, Exh. App. 1, Prefiled Direct Testimony of Edward Cherian*, p. 15:19-22. For those same reasons, the Project is consistent with the Regional Greenhouse Gas Initiative (“RGGI”) set forth in RSA 125-O:19 *et seq.* which is aimed at reducing greenhouse gas emissions from energy use in New Hampshire. *Id.* at p. 16:1-4.

In addition to maintaining the balance between the environment and the need for new energy facilities and resources, the Project will meet the second objective stated in RSA 162-H:1 relative to construction of needed facilities on a timely basis. The Project can be constructed relatively quickly, without undue delay. *See Application, Volume I, Exh. App. 1, Prefiled Direct Testimony of Edward Cherian*, p. 15:3-4.

The process conducted by the Subcommittee in accordance with RSA 162-H and RSA 541-A in this docket has ensured that the last three of the above-stated goals contained in RSA 162-H:1 have been met. Through its comprehensive studies, written submissions, and its participation in discovery and adjudicative hearings, the Applicant has provided full and timely consideration of the Project’s environmental effects as well as full and complete public disclosure about the Project. The SEC’s process has ensured that construction and operation of the Project has been and will be treated as significant aspect of land-use planning in which all environmental, economic, and technical issues are evaluated in an integrated fashion.

As the foregoing information demonstrates, the Project will assist with providing the state with an adequate and reliable supply of in-state generated renewable electric

power in conformance with sound environmental principles. Thus, all of the objectives of RSA 162-H:1 will be met if the Subcommittee issues a Certificate of Site and Facility for this Project.

IV. STATUTORY CRITERIA

A. The Applicant Possesses Adequate Financial, Technical and Managerial Capability

RSA 162-H:16, IV(a) requires that the Subcommittee find that the Applicant has adequate financial, technical and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of the certificate. Ample record evidence exists to support these findings. The Application at pp. 55-56 and Prefiled Direct Testimony of Pablo Canales (which was adopted under oath at the adjudicative hearings by Trevor Mihalik), as well as Mr. Mihalik's hearing testimony at *Tr. Day 2, Morning Session*, pp. 7-56, all clearly demonstrate that Groton Wind, LLC, through its relationship with its parent entities, possesses the requisite financial capability to build and operate the proposed Project. The Application at pp.56-57 and Prefiled Direct Testimony of Kevin Devlin, as well as Mr. Devlin's hearing testimony at *Tr. Day 2, Morning Session*, pp. 57-103, demonstrate that the Applicant possesses the requisite managerial and technical capabilities to construct and operate the Project. Precedent exists to permit a limited liability company such as Groton Wind, LLC to rely on the financial, managerial and technical experience of its corporate affiliates and parents to satisfy the above-stated statutory criteria. *See, e.g. Application of Newington Energy, L.L.C.*, SEC Docket No. 98-01, Decision (May 25, 1999), pp. 11-12; *Application of AES Londonderry L.L.C.*, SEC Docket No. 98-02, Decision (May 25, 1999), pp.11-13; and *Application of Lempster Wind, LLC*, SEC Docket No. 2006-01,

Decision (June 28, 2007), pp. 21-23. Therefore, it is clearly evident that Groton Wind satisfies the above-referenced statutory criteria by relying on the substantial financial, technical and managerial resources of its parent entities as described in greater detail below.

1. Financial Capability

The Applicant has clearly demonstrated adequate financial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of a Certificate of Site and Facility. Groton Wind, LLC is a limited liability company organized for the development and ownership of the Groton Wind Project. It is owned by Iberdrola Renewables, Inc. (“IBR”), which, in turn, is owned by Iberdrola Renovables, a Spanish company that is the largest owner and operator of renewable energy projects in the world. *Application, Volume 1, Exh. App. 1, Prefiled Direct Testimony of Pablo Canales*, pp. 2-3. As of the third quarter of 2010, Iberdrola Renovables held total assets of 23.8 billion euros. *See Exh. App. 40*. As of the third quarter 2009, Iberdrola Renovables had over 10,000 MW of installed wind capacity world -wide, with 3,459 MW of that capacity located in the United States. *Canales Prefiled Testimony*, pp. 3-4. Renovables is 80% owned by Iberdrola, SA which is based in Madrid, Spain. *Id.*, p. 3. Iberdrola, SA operates in more than 40 countries and has over 45,000 megawatts (“MW”) of installed capacity, including the wind generation of Iberdrola Renovables. *Id.*

IBR finances the construction costs of its wind energy projects through equity investments provided by Iberdrola, SA. *Id.* IBR has successfully financed, constructed

and now operates over 40⁴ wind energy facilities in the United States, including the Lempster, New Hampshire Project. *Id.*, p. 6. IBR has the capability to provide adequate assurances/guarantees⁵, financing and insurance⁶ for the Project's development, construction and operation. *Id.*, p. 3. IBR will arrange for the capital needed for construction finance, equipment orders and long-term investment in the Project. *Id.*, p. 4. The Project's costs are currently estimated at \$117 million and will be financed by IBR through equity investments by Iberdrola, SA. *Id.*, p. 5.

Investment in the Project by Iberdrola and others will be supported by long-term power purchase and renewable energy credit contracts, as well as a cash grant in lieu of investment tax credit from the federal government pursuant to the American Recovery and Reinvestment Act of 2009. *Id.* See The American Recovery and Reinvestment Act of 2009 ("ARRA"), Pub. L. No.111-5 § 1603. ARRA allows entities that are eligible for the federal investment tax credit to instead receive an equivalent financial grant, which will cover approximately 30% of the qualifying construction costs of renewable energy projects. *See Tr. Day 2, Morning Session*, p. 27. In order to qualify for ARRA funding, the Project must commence construction during 2011. *See Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010* (HR 4853, 111th Cong.) §707. This type of investment is consistent with the explicit goal of NH's RPS law, RSA 362-

⁴ Although Mr. Devlin's prefiled testimony states that IBR successfully financed, constructed and was operating 36 wind energy facilities in the United States, as of the time of the filing of the Application in this docket, IBR had successfully financed, constructed and was operating 40 wind energy facilities in the United States. *See Application, Vol.1, Exh. App. 1, p. 56.*

⁵ The Applicant's Agreement with the Town of Groton requires that prior to construction, the Applicant is to provide Decommissioning Funding Assurance in the amount of \$600,000 or the amount of the site-specific decommissioning estimate, whichever is greater. *See Exh. App. 32, p. 11.* Such assurance shall be provided by a guarantee from the Applicant's parent or affiliates in a form reasonably acceptable to the Town. *Id.*

⁶ The Applicant's Agreement with the Town of Groton requires that the Applicant maintain a general liability policy covering bodily injury and property damage with limits of at least \$10 million in the aggregate. *See Exh. App. 32, p. 3.*

F:1 which states that it is “in the public interest to stimulate investment in low emission renewable energy generation technologies in New England and, in particular, New Hampshire, whether at new or existing facilities.”

The foregoing uncontested record evidence supports a determination that the Applicant has the adequate financial capability to assure that this Project will be constructed and operated in continuing compliance with a Certificate of Site and Facility issued by this Subcommittee.

2. Technical And Managerial Capability

Substantial evidence of the Applicant’s technical and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of the certificate can be found in the Application (Exh. App. 1, pp. 56-57), the prefiled testimony of Kevin Devlin at pages 3-9, and Mr. Devlin’s testimony during the hearing. *See Tr. Day 2, Morning Session*, pp. 57-103. As indicated above, Groton Wind’s parent, IBR, has successfully constructed and now operates 40 wind energy facilities in the United States, including the Lempster, New Hampshire Wind Project. *Application, Vol. 1*, Exh. App. 1, p. 56. As an Iberdrola company, the Applicant has full access to the managerial and technical capabilities of IBR to construct and operate the Groton Wind Project. *Application, Vol. 1*, Exh. App. 1, *Prefiled Direct Testimony of Kevin E. Devlin*, p.3:15-17. IBR has a full in-house construction management staff, including Project Managers, Superintendents and Quality Assurance inspectors, and Safety Managers, all of whom have extensive experience in the wind energy industry. *Id.*, p. 3:20-22. IBR follows a rigorous process for qualifying its contractors and directly manages contractors through its Project Management, Construction and Operations

groups. *Id.*, p. 4:4-8. Groton Wind will construct and operate the Project consistent with Iberdrola's corporate commitment to meeting all applicable state and federal requirements. *Id.*, p. 4:9-10.

Once constructed, the Project site will be staffed with an experienced plant manager and several technicians who will oversee the maintenance performed by turbine vendor staff or will perform these duties themselves with support from experienced operational, technical and commercial experts. *Id.*, p. 5:11-15. Full time staff will be provided by the turbine vendor (Gamesa) during the two-year turbine warranty period. *Id.*, p. 5:18-19; *Tr. Day 2, Morning Session*, p. 63:2-4 and :21-22. Thereafter, the site will be staffed with approximately six (6) full time IBR employees who are trained in operational standards, and safety regulations and procedures. *Application, Vol.1, Exh. App. 1, Prefiled Direct Testimony of Kevin E. Devlin*, p. 5:19-20, p. 6:1-2. In addition to on-site staff, the IBR control center in Portland, Oregon will continuously monitor and control the Groton Wind facility 24 hours a day, 7 days a week via a central supervisory, control and data acquisition ("SCADA") system. *Id.*, p. 6:5-10.

The foregoing uncontested record evidence supports a determination that the Applicant has the adequate technical and managerial capability to assure that the Groton Wind Project will be constructed and operated in continuing compliance with a Certificate of Site and Facility issued by this Subcommittee.

B. The Site and Facility Will Not Unduly Interfere With the Orderly Development of the Region

RSA 162-H:16, IV (b) requires that the Subcommittee find that the site and 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

commissions and municipal governing bodies. The record evidence presented below supports such a finding.

**Views of Municipal and Regional Planning Commissions
and Municipal Governing Bodies**

The Applicant has engaged in thorough outreach efforts to elicit and consider the views of officials and citizens in the Towns of Groton, Rumney, Hebron, Plymouth and Holderness. *See Supplemental Application, Vol. 1-A, Exh. App. 5, Appendix 38 (list of meetings); see also Application, Vol. 1, Exh. App. 1, Prefiled Direct Testimony of Edward Cherian, p. 11-12, Third Supplemental Prefiled Direct Testimony of Edward Cherian, Exh. App. 62, p. 3:5-7 and p. 5:6-8, and Tr. Day 6, Morning Session, p. 100:13-21.*

The Town of Groton Board of Selectmen and the Town of Groton Planning Board have both issued letters indicating their support for the Project and have urged the SEC to approve it. *See Supplemental Application, Vol. 1-A, Exh. App. 5, Appendices 39 and 40.* In so doing, the Groton municipal governing and planning bodies have stated that “[t]his proposed project has been well received and supported⁷ by the vast majority of townspeople expressing an opinion...” *Id.* The Town of Groton has entered into an agreement with Groton Wind, LLC addressing several issues relating to the construction and operation of the Project. *See Exh. App. 32.*

The Town of Rumney has also entered into an agreement with Groton Wind, LLC, primarily relating to road access and emergency response, as Rumney is the primary first responder for Groton fire and safety emergencies. *See Exh. App. 7.* The

⁷ Executive Councilor and Grafton County Commissioner Raymond S. Burton and Grafton County Commissioner Martha B. Richards have expressed their support for the Project. *See Exh. App. 6.*

Town of Rumney's position is that the agreement satisfies the Town's concerns about the Project. *Tr. Day 1, Morning Session*, p. 26:1-5.

While the Town of Plymouth submitted prefiled and oral testimony of its Fire Chief, Casino Clogston, on the issues of fire and emergency response, it offered no opinion regarding whether the Project is consistent with the orderly development of the region. Similarly, the Town of Holderness offered no opinion about whether the Project is consistent with the orderly development of the region; the Town's concerns were confined to the issue of whether the Project's proposed substation would comply with the Town's "dark sky" ordinance. *See Prefiled Testimony of Walter Johnson*. The Applicant has addressed this issue by indicating to the Town of Holderness that the substation will be compliant with the Town's dark sky ordinance unless and except if there are specific industry lighting requirements, or ISO-NE requirements that require deviations from that ordinance. *Tr., Day 6, Morning Session*, p. 101:5-11.

Regional planning documents submitted with the Application, demonstrate that the Project is consistent with the goal of developing appropriate local energy utilizing renewable resources as expressed by the North Country Council, the regional planning body for Grafton County. *See Application, Vol. III, Exh. App. 3, Appendix 6, North Country Comprehensive Economic Development Strategy*, p. 147; *see also Application, Vol. III, Exh. App. 3, Appendix 7, Economic Resurgence in the Northern Forest*, p. 28 ("[i]ncreasing both local production of renewable energy and efficiency will provide a much greater degree of economic return and energy security for the Northern Forest...") The Application also demonstrated the Applicant's coordination with

Grafton County officials and the Grafton County Economic Development Council. *See Application, Volume III, Exh. App. 3, Appendix 4.*

The Project is Consistent with the Orderly Physical Development of the Region

None of the Project's components, i.e. the Groton wind turbine site, the interconnection line and the Holderness substation, will unduly interfere with the orderly development of the region. The land within the Groton site is primarily used for commercial timber harvesting and has been logged since the 1800s. *Application, Vol. 1, Exh. App. 1, Prefiled Direct Testimony of Edward Cherian, p. 9:19-20.* Activities within the surrounding region include skiing, hiking, sand and gravel excavation, seasonal camping, tourism, wood product production, commercial enterprises along Route 25 and some scattered agricultural activity. *Id., p.9:22 and p. 10:1-3.* The general area also includes residences and undeveloped forest. *Id., p.10:3-4.* All of these activities can easily and successfully co-exist with the Project. *Id., p. 10:5.* In addition, based on experiences in Lempster after the construction of the Lempster Wind Project, it is expected that the Groton Project will attract additional tourists who are interested in viewing the wind turbines. *Id., p.10:6-8.*

The SEC has previously determined that increasing the height of utility poles or adding cable wire to them as the result of service to a wind project, does not *per se* create an unreasonable impact on the orderly development of a region. *See Application of Lempster Wind, LLC, Decision Issuing Certificate of Site and Facility with Conditions (June 28, 2007), pp. 57-58.* The interconnection line running from the Groton site to the voltage step-up facilities in Holderness will also be consistent with the orderly development of the region for several reasons. The line will be attached to

utility poles located within existing rights-of-way owned by NHEC and therefore will be consistent with the manner in which the current NHEC electric distribution system has been developed over many years. *Third Supplemental Prefiled Testimony of Edward J. Cherian*, Exh. App. 62, p. 5:12-14. NHEC will design and construct the line according to applicable standards and codes to ensure safety and compatibility with existing features and to improve the distribution system infrastructure by replacing older poles and wires that do not meet current NHEC standards, thus contributing to the enhanced stability and reliability of the local utility infrastructure. *Id.*, p. 5:16-21. In addition, the poles will be licensed by the New Hampshire Department of Transportation (“DOT”) in accordance with its standard pole licensing procedures. *Id.*, p. 5:21 and p. 6:1-2. In view of the foregoing, the interconnection line will be consistent with the orderly development of the region.

The facilities proposed to be located in Holderness will be consistent with the orderly development of the region for several reasons. Chief among them is that the site: 1) is zoned for commercial use; 2) has been used for many years as a right-of-way for a 115 kV transmission line ; 3) is located near other commercial and industrial facilities, including a metal plating operation, an extensive commercial sand mining operation, a timber processing operation, and heavy equipment storage area; 4) is 3.7 miles closer to the Groton site, thus reducing the total length of the originally-proposed interconnection line and avoiding the need to transmit power from the Project all the way to the Beebe River Substation; 5) is set back from Route 175 and residential areas; and 6) is located in a region that includes a number of other similar facilities along the 115 kV transmission line such as the Beebe River Substation, the Ashland Substation

and a former 69 kV facility. *Third Supplemental Prefiled Testimony of Edward J. Cherian*, Exh. App. 62, p. 3:9-19.

The Project Will Promote Regional Economic Development

In addition to the foregoing demonstration that the Project is consistent with the orderly physical development of the region, the Applicant has also submitted evidence to show that the Project will have a positive impact on the economic development of the region. *See Application, Vol. IV*, Exh. App. 4, Appendix 36, “*Economic Impact of Proposed Groton Wind 50 MW⁸ Wind Power Project in Groton, New Hampshire*,” Gittell and Magnusson (January 2010), (“Gittell Study”). The stated purpose of the Gittell Study “is to help inform the members of the [New Hampshire Site Evaluation] Committee as to the expected local area economic effects of the project.” *Id.*, p. 5. The Gittell Study drew on the research team’s previous work that focused on economic effects of wind power in New Hampshire, and considered current studies related to the economic costs and benefits of wind project development. *Id.* The researchers considered direct, indirect and induced economic effects of the Project on Grafton County and the surrounding local area (Belknap, Carroll, Coos, Merrimack and Sullivan Counties) economies. *Id.* The Gittell Study concluded that the Groton Project is expected to have a positive economic effect on Grafton County and the surrounding local area with the highest impact of \$24.5 million on the local area economy to be experienced during the 11 month construction phase. *Id.*, p. 19. Long-term, ongoing economic benefits from the Project’s jobs, local purchases of goods and services, land

⁸ At the time of the Gittell report, the proposed size of the Project was 50 MW. Professor Gittell has indicated that the decrease in size of the Project from 50 MW to 48 MW does not significantly change his economic impact analysis or findings, and that his estimation is that the overall local economic impact would be decreased by 5 percent or less. *See Memorandum from Ross Gittell to Ed Cherian* (March 5, 2010), *Application, Vol. IV*, Exh. App. 4, Tab 36, p.1.

owner lease payments and tax payments are expected to be valued at \$2.9 million annually. *Id.*

The Project Will Not Adversely Affect Property Values

The 2009 Lawrence Berkeley National Laboratory Analysis (“the Berkeley Analysis”) is “the most significant analysis to-date using real estate market data.” *Id.*, p. 18. The Berkeley Analysis (which was funded by the United States Department of Energy) examined 7,459 real estate transactions from ten communities surrounding 24 existing wind power projects across the United States. *See Application, Vol. IV, Exh. App. 4, Appendix 37, “The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis,”* Hoen et al. (December 2009), p.x. The homes studied are located from 800 feet to over five miles from the nearest wind energy facility, and both pre- and post-construction sales were examined to evaluate the impact of wind power projects on residential property values. *Id.* “Each of the homes that sold was visited to determine the degree to which the wind facility was likely to have been visible at the time of sale and to collect other essential data.” *Id.* The Berkeley Analysis concluded that “no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to these facilities.” *Id.*, p. 75.

On the issue of the Project’s potential effects upon property values, the Buttolph Intervenor Group presented the testimony of Michael McCann, who appeared at the adjudicative hearing on November 5, 2010 via Skype. At that hearing, Mr. Buttolph

represented⁹ that Mr. McCann's prefiled testimony consists of three documents: a letter to the New Hampshire Site Evaluation Committee, along with two attachments (neither of which refer to the Groton Project), *see* Exh. Buttolph 1-K; a letter to Mr. Ben Hoen (criticizing certain aspects of the Berkeley Analysis), *see* Exh. Buttolph 1-N; and a report to the Adams County Board¹⁰. In his August 31, 2010 letter to the SEC, Mr. McCann opines that the Groton Application "does not comply with the applicable aesthetic standard for a Siting Certificate, from a real estate valuation and land use perspective." Exh. Buttolph 1-K, p. 2. In addition, he recommends that if the Subcommittee approves the Application, that it require a "Property Valuation Guarantee" "to insure that the neighbors are not unduly forced to live with diminished use, enjoyment or value of their properties." *Id.*

For the reasons presented below, Mr. McCann's opinions in this docket should be accorded very little, if any, weight by the Subcommittee. While Mr. McCann was deemed qualified "generally" as an expert in real estate appraisal, he is not qualified to render an opinion regarding the Project's effects on aesthetics or property values in New Hampshire. The only expert testimony in the record regarding the Project's potential effects on aesthetics was provided by Mr. Hecklau. During cross-examination, Mr. McCann admitted that he did not do a formal review of Mr. Hecklau's aesthetic impact study. *Tr. Day 5*, p. 32:18-19.

⁹ Mr. Buttolph stated at the November 5, 2010 adjudicative hearing that Mr. McCann's prefiled testimony consisted of three items: a letter to the SEC dated August 31, 2010; a copy of a letter to Mr. Ben Hoen dated December 14, 2009; and a copy of a report dated June 8, 2010 to the Adams County Board. *Tr. Day 5, Morning Session*, p. 12:12-19. Mr. McCann stated that he would add nothing to his direct testimony other than his responses to the Applicant's and Public Counsel's data requests. *Id.*, p. 12:20-24.

¹⁰ This document does not appear on the official Exhibit List.

In addition to Mr. McCann's lack of expert aesthetic qualifications, he is not admitted to practice as a real estate appraiser in New Hampshire, has not been to New Hampshire and most importantly, he has not even visited the Groton site. *See Tr. Day 5, Morning Session*, pp. 11-12. The information upon which he relies for his opinions is based on Illinois data, and is therefore of questionable relevance to the instant docket. Further, in response to a request from the Subcommittee for a copy of a 2005 Illinois property sales study Mr. McCann said he conducted and which he also said supports his position in this case, *see Tr. Day 5, Morning Session*, pp. 55-56, he was unable to produce it. *Tr. Day 7*, pp. 8-10. Significantly, in reaching his conclusions about the Project's potential effects upon property values, he did not examine any data relating to the Lempster Wind Project, nor any New Hampshire-specific property sales information¹¹. *Id.*, pp. 33-34. The only record evidence regarding how a New Hampshire wind project has affected property values, is Mr. Cherian's Supplemental Prefiled testimony which states that since the Lempster Wind Project began operating in 2008, Mr. Cherian has received no complaints or negative comments about that project's effects upon real estate values. *Supplemental Application, Volume 1-A*, Exh. App. 5, *Supplemental Prefiled Testimony of Edward Cherian*, p. 6:4-7.

There is simply no record evidence to support the position that the value of any particular property in the vicinity of the Project will, in fact, be adversely affected by the Project. Simply put, property values are affected by myriad factors, most significantly - as we are seeing in the current economy - relative valuation and market demand. Even if Mr. McCann's speculative position prevailed, it would not bar the

¹¹ Although Mr. McCann orally testified that he "did consider sale information from New Hampshire", *Tr. Day 5, Morning Session*, p. 47:5-6, there is no documentary evidence in the record to substantiate this claim.

Subcommittee from issuing a certificate of site and facility in this case because “adverse impacts to property values” is not among the RSA 162-H:16 criteria that must be considered by the Subcommittee. Accordingly, there is no reason to impose a Property Value Guarantee condition in this case, especially in light of the fact that neither of the two other wind energy facilities that have been certificated in New Hampshire were subject to such a condition. In addition, Mr. Cherian testified that, to his knowledge, a Property Value Guarantee has never been requested or considered necessary by any local or state agency that he has ever worked with. *Tr. Day 1, Morning Session*, p. 98:14-24.

In addition to the fact that the record in this case does not support imposing Property Value Guarantee condition on the Applicant, sound public policy principles warrant the same result. A Property Value Guarantee would be unworkable and would create more problems and questions than it solves. For example, who would receive these Guarantees? How would it be possible to determine with certainty that the Project, and not some other factor, had a negative impact on a property’s value? The flip side of that question is what happens if a property’s value sharply increases? Would the owner be required to pay the excess value to the Project? As the foregoing discussion illustrates, Property Value Guarantees are fraught with difficulties, not the least of which is the potential for creating multiple enforcement proceedings before this Subcommittee long after the issuance of a Certificate of Site and Facility. For all of the foregoing reasons, the Subcommittee should reject Mr. McCann’s suggestion regarding Property Value Guarantees.

C. The Site and Facility Will Not Have Unreasonable Adverse Effects

1. Aesthetics

The Applicant has provided the Subcommittee with more than sufficient record evidence to support a conclusion that the Project will not have an unreasonable adverse effect on aesthetics. *See* RSA 162-H:16, IV(c). The only witness with expert qualifications who testified on this issue was John Hecklau. For over 10 years, Mr. Hecklau has worked extensively on visual impacts of wind energy projects. *See Application, Volume 1, Exh. App. 1, Prefiled Direct Testimony of John D. Hecklau ("Hecklau Prefiled")*, pp.2-3. For this Project, he prepared a Visual Impact Assessment ("VIA") which was submitted with Volume III the Application. *See Application, Vol. III, Exh. App. 3, Appendix 24*. The VIA provided an analysis of the Project's aesthetic effects using a blade tip topographic and vegetation viewshed analysis within a 10-mile radius study area. The VIA contains over 150 photographs taken at viewpoints from which the Project may be visible and several photo simulations which depict the Project's turbines at various locations. The VIA concluded, *inter alia*, that the Project has the potential to be visible from only a small portion (4%) of the 10-mile radius study area and, in most locations with potential visibility, fewer than half the turbines would be seen and most would be at least partially screened by hills and trees. The VIA further indicates that views of the Project are likely to be screened from 70% of the identified public resources in the study area. Several measures that will reduce or mitigate the visual effect have been incorporated into the design of the Project, including among other things the location in a remote forest area, the white color of the turbines (which blends well with the sky and eliminates the need for daytime FAA warning lights), the uniform design, speed, height and rotor diameter, the fact that there will not be any exterior

ladders or catwalks on the towers, and minimization of new road construction and forest clearing. As he indicated in his testimony, Mr. Hecklau holds the opinion that the Project will not have an unreasonable adverse effect on aesthetics, and that visual effects would not interrupt or detract from existing scenic resources within the area.

Mr. Hecklau also provided both prefiled and oral testimony to support the lack of an unreasonable adverse effect on aesthetics of the interconnection line and the Holderness substation during the final phase of the proceeding. In his Supplemental Prefiled Testimony dated November 19, 2010, Exh. App. 59, Mr. Hecklau provided his opinion regarding the visual effects of the alternative overhead power line that will run from the Project site to Route 25. He described the proposed line as including poles that will range in height from 34 to 42 feet above ground level and indicated that the line will follow existing logging roads and skid trails where possible and that tree height in this area averages approximately 60 feet on and adjacent to the proposed right-of-way (“ROW”). Exh. App. 59, pp. 2-3. He also described his methodology for assessing the visibility of this alternative overhead line which included three separate analyses, the first of which was a “worst case” assessment of visibility within a one mile radius that showed the maximum area from which any portion of any pole in the proposed line could potentially be seen. He indicated that this analysis “greatly overstates potential project visibility” because it did not take into account vegetation screening. Exh. App. 59, p. 4:4-6. The other two analyses factored in the screening effect of forest vegetation, one assigning a forest layer height of 40 feet (standard height typically used in a viewshed analysis) and one assigning a height of 60 feet (which more accurately reflects the average height of trees on and adjacent to the proposed ROW). *Id.*, p. 4. Mr. Hecklau

also visited the site and documented site conditions with photos that were attached to his testimony. The results of the analysis showed that the line would be screened from view by topography alone (not taking into consideration vegetation) in approximately 30% of the area. Assuming a conservative 40 foot tree height, visibility would be limited to approximately 6% of the one mile radius study area. Assuming a 60 foot height of vegetation would limit visibility to approximately 1% of the study area. Exh. App. 59, p. 5.

In his December 30, 2011 Second Supplemental Prefiled Testimony, Exh. App. 60, Mr. Hecklau described his visual effects analysis of the proposed Holderness substation. Part of this analysis included a site visit and documented views through photographs and one photographic rendering of the proposed facility. Exh. App. 60, p. 2. The substation site includes fragmented mixed deciduous and coniferous forest, industrial sites and residential areas. Exh. App. 60, p. 3. Views of the site from Route 175 are primarily screened by vegetation. Exh. App., p.4. While the substation may be visible from the rear sides of some of the residences, it would be at least partially screened by vegetation and it would not obstruct views of the mountains across the valley from those residences. *Id.* Mr. Hecklau concluded that the substation would not have an unreasonable adverse effect on aesthetics, indicating that the surrounding site does not possess notable aesthetic or scenic qualities, is located on a previously disturbed parcel much of which was recently cleared and excavated, and adjacent land uses include a sand quarry, light industrial facilities, forested areas and trailer parks. Exh. App. 60, pp. 6-7. See also *Tr. Day 6, Morning Session, pp. 91-92 and pp. 94-95* (this will not be a drastic change in landscape context and a further description of other facilities in the area) and

Tr. Day 6, Morning Session,, pp. 94 (the proposed facility will be about 1000 feet from route 175). Under cross examination during the last day of adjudicative hearings, Mr. Hecklau indicated that it was difficult to say that any additional plantings would enhance the vegetative screening along Route 175 given that the substation site is on an elevated bench. *Tr. Day 6, Morning Session, p. 90.*

To the extent that “shadow flicker” may be considered an aesthetic issue, Mr. Hecklau’s prefiled testimony included in the Application, Exh. App. 1, supports a finding that the Project’s shadow flicker will not have an unreasonable adverse effect on aesthetics because any potential shadows would occur well away from any local residence or business and only be observed for a very limited time. This is described in more detail in the Shadow Flicker section included below.

The weight of the evidence in this case supports a finding of no unreasonable adverse effect on aesthetics. It is noteworthy that the Subcommittee has recognized that “turbines are tall structures... but, at the same time, the evidence does not support a finding that the turbines themselves are aesthetically displeasing.” *Application of Granite Reliable Power, LLC, Decision Granting Certificate of Site and Facility with Conditions* (July 15, 2009), p. 43. Consequently, the Subcommittee found, by a preponderance of the evidence that the Granite Reliable Power Project would not have unreasonable adverse effects on the aesthetics of the area. *Id.* Given the Subcommittee’s express findings relative to aesthetics in the Granite Reliable Power decision, the Subcommittee should reject the Buttolph Intervenors’ assertions relative to aesthetic effects in this case and should therefore deny their request for mitigation in the form of property value guarantees.

2. Historic Sites

In support of its determination that the Project will have no unreasonable adverse effects upon historic sites, the Applicant presented the uncontroverted expert testimony of Dr. Hope Luhman, a Registered Professional Archeologist. Dr. Luhman is also an anthropologist with over 25 years of experience in historic preservation and cultural resource management, and has worked on other wind projects, e.g. the Deerfield and Searsburg Wind Projects in Vermont, and the Lempster and Coos County (Noble/Granite Reliable) Wind Projects in New Hampshire (including testifying as an expert witness before the SEC). *See Prefiled Direct Testimony of Hope E. Luhman*, pp. 1-2. In addition to her prefiled and supplemental prefiled testimonies in this docket, Ms. Luhman provided oral testimony at the adjudicative hearings held November 2, 2010 and March 22, 2011 updating her prefiled testimonies. *See Tr. Day 1, Afternoon Session*, pp. 104-139; and *Tr. Day 6, Morning Session*, pp. 14-83.

Dr. Luhman's determination that the Project will have no unreasonable adverse effects on historic sites was based upon survey findings, knowledge of the area, and her professional judgment. *See Prefiled Direct Testimony of Hope E. Luhman*, pp. 5:3-5. The Project's minor revisions to include the alternate line from the Groton turbine site to Route 25, the revised interconnection route which avoids Quincy Road, and the Holderness voltage step-up facilities did not change Dr. Luhman's expert opinion (which takes into account additional studies relating to the alternative line and Holderness substation.) *See Exh. App. 5, Supplemental Prefiled Testimony of Hope E. Luhman*, p. 4:7-10; *Exh. App. 51, Second Supplemental Prefiled Testimony of Hope E. Luhman*, p.

3:17-19; and *Third Supplemental Prefiled Testimony of Hope E. Luhman*, p. 2:20-21; Exh. App. 52.

Dr. Luhman's professional opinion that the Project will have no unreasonable adverse effect upon archaeological resources is supported by letters from the Division of Historical Resources ("DHR") which indicate that with respect to the Groton site, the interconnection line from that site to Route 25, and the Holderness substation facilities, "it has been determined that there are no known properties of archaeological significance within the area of the undertaking's potential impact and no further identification or evaluative studies are recommended." Exhs. App. 53 and 55.

With respect to the Project's potential effects on historic properties, Dr. Luhman has pointed out that no historic structures will be physically impacted, *Prefiled Direct Testimony of Hope E. Luhman*, pp. 5:10. Thus, there is no potential for direct effects; the only potential effects on historic resources will be on their viewshed. At the March 22, 2011 hearing, she testified about a number of interactions between Project representatives and DHR which had occurred since the November hearings in this docket. *Tr., Day 6*, p. 16:1-3. For example, a revised Project Area Form ("PAF") (Exh. App. 71) was submitted to and accepted by DHR. *Tr., Day 6, morning session* p. 18:2-6. DHR issued a letter dated February 1, 2011 stating that the PAF "follows New Hampshire Division of Historical Resources Project Area form guidelines", "succinctly summarizes the themes of development in the project area, outlines expected resource types, and lays a solid foundation for future survey needs." Exh. App. 56. The letter also identified and recommended three historic districts and 10 individual properties for survey. *Id.* By letter dated February 10, 2011, DHR granted the Project's request to remove 91 Groton

Road from the list of properties recommended for survey. *See* Exh. App. 57. Dr.

Luhman also testified that DHR has verbally indicated that there is no change to the Project's Area of Potential Effect ("APE") as the result of the revised interconnection line or substation in Holderness. *Tr., Day 6, morning session*, p. 20:20- p.21:1-2.

Dr. Luhman has indicated that she expects that the property surveys recommended by DHR, and the consultative process that involves DHR and the U.S. Army Corps of Engineers ("USACE") which results in determinations of eligibility (of properties for inclusion in the National Register of Historic Places), determinations of the Project's effects on those properties, and a Memorandum of Agreement regarding mitigation, are likely to be concluded in early summer, 2011. *Tr. Day 6, Morning Session*, p. 79:14-22 and p. 80:1-2. Dr. Luhman has testified that the Project could move forward prior to the consideration of mitigation options, because approach is contemplated and permitted under the federal National Historic Preservation Act, Section 106 process. *Id.*, p. 75:14-24. She also testified that in her experience, she is not aware of any instance where the USACE has determined an adverse impact without requiring mitigation *Id.*, p. 76:17-20, nor is she aware of any situation where the USACE has stipulated to a mitigation plan and the Applicant has refused to implement it. *Id.*, p.81:10-12. In short, the Applicant is committed to mitigation, if and when it is recommended by the lead federal agency, the USACE, in consultation with DHR.

The fact that the time for concluding the DHR/USACE process is beyond the current deadline established by the Subcommittee for its decision in this docket (i.e. April 26, 2011) does not in any way indicate that the Subcommittee must defer or delay its order. RSA 162-H:16, VII. expressly contemplates circumstances such as these and

permits the Subcommittee to deal with them by allowing it to condition a certificate on the Applicant's compliance with directives from the agencies whose study periods exceed the Application period, as has been done in other dockets. *See, e.g. Application of Lempster Wind, LLC, Order/Certificate of Site and Facility*, SEC Docket No. 2006-01 (June 28, 2007), p. 3 (Applicant ordered to continue to consult with DHR), and *Application of Granite Reliable Power, LLC, Order and Certificate of Site and Facility*, SEC Docket No. 2008-04 (July 15, 2009), p. 4 (Applicant ordered to obtain appropriate licenses from Federal Aviation Authority). Accordingly, the Subcommittee need not wait until the USACE/DHR process concludes before making its decision in this case. In addition, because the Applicant must work with DHR and USACE to develop and implement a mitigation plan if the Section 106 process results in "adverse effects" determinations for any property, the Subcommittee may properly determine that the Project will have no unreasonable adverse effect on historic sites.

3. Air Quality

Because the Project will use the wind to generate electricity, it will have no air emissions and therefore will not adversely affect air quality. The environmental benefits of this Project (from an air resources and climate change perspective) are explained in the Application at pages 65 and 67, and in Mr. Cherian's Prefiled Direct Testimony, at pages 16-18. Appendix 27 to the Application contains more details and statistics about the clean air impacts of wind energy as compared with other energy sources. The Project will contribute positively to New Hampshire and regional air quality when its operation is displacing generation from fossil fuel electricity plants. *Application, Volume I*, pp. 65 and 67. Over the course of 20 years, the Project will generate the equivalent amount of

electricity as is produced by combusting 700,000 tons of coal or 2.2 million barrels of oil. *Id.* at p. 67; *see also Prefiled Direct Testimony of Edward Cherian*, p. 17:10-11. That the Project will add a new power source without creating any air pollutants or greenhouse gases is a major benefit that should not be understated or taken for granted. In view of the foregoing, the Applicant clearly satisfies the air quality criterion in RSA 162-H: 16, IV(c).

4. Water Quality

Section I.4 of the Application and the Supplement to the Application summarizes the Project's effects on water quality. *Application, Volume I*, Exh. App. 1, and *Supplement to Application*, Exh. App. 5, respectively. More detailed information about the Project's effects on water quality is contained in the Application Appendices that contain the Project's Standard Dredge and Fill Application, Alteration of Terrain Application and Request for Section 401 Water Quality Certification, *Application, Volume II*, Exh. App. 2, and the DES Final Decision and Conditions from the DES Water Division contained in the Supplement to the Application, Exh. App. 5, Appendix 51.

Michael Leo from Vanasse Hangen Brustlin, Inc. ("VHB") submitted Direct Prefiled Testimony with the Application on the subject of water quality effects of the Project, and testified during the adjudicative hearings. He testified that the Project does not involve any new point source discharge, and that the civil engineering design includes the development of stormwater runoff analysis and contains plans to handle both the quantity and quality of non-point source stormwater runoff during construction. He indicated that the design was developed to avoid the creation of new impervious surfaces in order to substantially limit the potential for water quality effects and that the drainage

design was carefully engineered to maintain existing drainage patterns as much as possible. *Tr. Day 3, Morning Session, pp. 59-60.* As Mr. Leo and Mr. Walker further indicated, while effects are expected during construction for new access roads, they will be addressed through a number of conditions contained in the DES permits, and post-construction effects should be minimal because the intensity of use after construction is expected to be quite low. *Tr. Day 3, Morning Session, pp. 60-62.* In order to reduce water quality effects associated with the Project, the Applicant plans to re-use the existing main access road (a private logging road located on the portion of Groton Hollow Road within the Town of Groton) into the site and to keep the access roadway widths to the minimum required to provide safe and adequate access during the construction phase, and to allow the portions of the access roads widened to accommodate the crane to re-vegetate after construction to reduce post-construction road widths. The Applicant's submitted engineering plans include detailed erosion control measures like erosion control barriers, rock check dams, erosion control matting, pervious berms, hydro-seeding, soil tackifiers, stone drainage mattresses and stabilized rock slopes. *Application, Volume I, Exh. App. 1, Prefiled Direct Testimony of Michael J. Leo, p. 5.* These plans were developed in consultation with the NH DES Water Division.

This un rebutted testimony from the Applicant and the weight of the evidence supports a finding that there will be no unreasonable adverse effect on water quality. DES's approval of this Project demonstrates that the Applicant has fully satisfied state water quality regulations. In fact, the Applicant will be held to a standard that is higher than current regulatory requirements if DES's proposed conditions (many of which are guidelines that are not formal regulations) are included as conditions of the Certificate of

Site and Facility. The Applicant notes that it agrees to abide by all of the conditions contained in the DES Final Decision and Conditions. Exh. App. 5, Appendix 51. See also *Tr. Day 3, Morning Session, pp. 89-90*.

Wetlands Effects and Mitigation

In addition to the information included in the original Application, the Supplement to the Application, the wetlands application submitted to DES and the final conditions from DES cited in the section above, evidence of the Project's limited effects on wetlands was presented to the Committee in the form of prefiled and live testimony from its wetlands consultants, VHB, including its Senior Environmental Specialist, Nancy Rendall, and its Director of Environmental Services, Peter Walker. VHB filed Direct Prefiled Testimony dated March 2010, included in Exh. App. 1, Supplemental Prefiled Testimony dated October 12, 2011, Exh. App. 5, Second Supplemental Prefiled Testimony dated November 19, 2010, Exh. App. 64, and Third Supplemental Prefiled Testimony dated December 30, 2010, Exh. App. 65.

The VHB prefiled testimony and live testimony during the course of the proceeding covered the effect of the Project, the alternate connection line and the Holderness substation on the natural environment, particularly wetlands and wildlife habitat. Their testimony also described the plan for mitigating the effects of the Project on wetlands and wildlife habitat.

Ms. Rendall described the delineation and mapping of the 425 acre corridor study area, the classifying of wetlands and vernal pools, the evaluation of wetlands functions

and values, identification of wetlands effects, the assessment of wildlife habitats and evidence of wildlife use, and the meetings that VHB had with state and federal regulatory and resource agencies to discuss wetland issues. During the course of VHB's study and evaluation numerous changes in the design of the Project were made in an effort to avoid and minimize effects on wetlands. VHB's qualitative assessment of wetland functions and values on the Project site found that many of the wetlands on site had limited functions due to their small size and disturbed nature (the Project site has been modified substantially by timber harvesting operations that have occurred on this site since the 1940s and earlier). See also *Tr. Day 1, Afternoon Session, pp. 52-54*. VHB concluded that the Project will result in unavoidable permanent impacts to approximately 1.65 acres of wetlands and streams. As Ms. Rendall noted, because the Project will disturb about 116 acres (of the 4,180 total Project area) and taking into consideration the type and scope of the Project, 1.65 acres of permanent wetland impact is minor and represents less than 1% of wetlands within the Project area (0.1% of the total Project area). Exh. App. 1, Prefiled Direct Testimony of Nancy B. Rendall, p.7; Exh. App. 5, Supplemental Prefiled Testimony of Nancy B. Rendall and Peter J. Walker, p. 4. Ms. Rendall stated during her live testimony that, based on her familiarity with wetland inventories she has conducted for towns across the state, the Project's wetland impact is "far less" than what one would normally expect to see within any random 116 acre site in New Hampshire. *Tr. Day 3, Morning Session, p. 96*.

Once the Project site evaluation (which included site specific environmental surveys) was completed, VHB worked with the Applicant on the design of the Project to avoid proposed wetland effects where possible and developed a mitigation plan for

addressing unavoidable wetland effects. Ms. Rendall described the process of formulating the final design of the Project as “iterative” and said that it included experts from a variety of disciplines and involved collaboration among wetlands scientists, design engineers and civil engineers. The Project design incorporated concept plans and the continuous adjustment of proposed road layouts, tower locations and other structures in order to find sites having fewer wetlands effects. Where existing roadways cross wetland areas, existing culverts will be replaced with improved culverts or small spans to create more favorable conditions for fish, acro-invertebrates, herptiles and other aquatic organisms to use and access habitat on both sides of the roadway. See Prefiled Testimony of Nancy B. Rendall, Exh. App.1, and Supplemental Prefiled Testimony of Nancy B. Rendall and Peter J. Walker, App. 5.

The mitigation plan was prepared in consultation with representatives of DES, Fish and Game, EPA, USFWS and USACE. See *Supplement to Application*, Exh. App. 5, Appendix 44. As noted in the Wetlands Bureau Final Decision, Appendix 51 to Exh. App. 5, the mitigation conditions include a payment of \$150,000 to the DES Aquatic Resource Mitigation (ARM) Fund to support the preservation and restoration of wetlands in the Pemigewasset River Watershed, the upgrade of nine existing stream crossings along Groton Hollow Road, and the Applicant’s donation of property survey data and mapping, title research, and environmental data to the Society for the Protection of New Hampshire Forests to support their efforts to preserve up to 6,578 acres owned by Green Acres Woodlands, in Groton, Hebron, Rumney, Dorchester and Plymouth. (This land would be under a conservation easement held by the State of New Hampshire that

prohibits subdivision and development but allows management of forest products). *See Tr. Day 3, Morning Session, pp. 67-72.*

During the hearing, some issues were raised about the potential for the Project to have effects on nearby aquifers. Mr. Walker's un rebutted testimony was that impacts to aquifers typically result from either increased imperviousness or the introduction of contamination and the Groton Wind Project does neither. *Tr. Day 3, Morning Session, pp. 78-79.* As he also pointed out, DES reviewed area aquifers and potential effects. He also stated that area developments that are unrelated to the Project (e.g. the many commercial developments in the Baker River Valley) pose a far greater risk to the aquifer. *Tr. Day 3, Morning Session, p. 79.* The Application also provides details on area aquifers, including maps that indicate that the Project is not near or abutting a stratified drift aquifer. *See Application, Volume II, Exh. App. 2, Appendix 1, Figure 8.*

A question was also raised about the potential for blasting residue to migrate to water sources. *Tr. Day 3, Morning Session, p. 93, pp.106-107.* Mr. Leo addressed this issue by pointing out that downstream controls, filter barriers and other similar methods will be used to filter out nitrates and prevent them from leaving the site. *Tr. Day 3, Morning Session, pp. 122-123.* In any event, DES has taken steps to assure that area water resources will be protected from blasting residue by recommending conditions, i.e., Project Specific Conditions 21 and 22 of the Alteration of Terrain Bureau Final Decision October 8, 2010, Exh. App. 5, Appendix 51. It is noteworthy that these recommendations include guidelines (i.e. "Best Management Procedures" for blasting) that are not currently required by regulations.

VHB's analysis contained in supplemental testimony filed after the initial round of hearings addressed wetlands effects of the interconnection line to Route 25 and the Holderness substation. Ms. Rendall and Mr. Leo inspected the site of the proposed alternative power line route to determine the potential for effects to wetlands, streams, and vernal pools, and to assess engineering considerations. Exh. App. 44 and Exh. App. 64. While they found that the power line could not avoid crossing wetlands and streams, it could be built without creating permanent direct effects since none of the poles will be placed directly in a wetland or stream. Ms. Rendall and Mr. Walker noted that the line would require a 35 foot wide corridor to be cleared of trees and taller shrubs, and to be maintained for safety reasons. They discussed the alternate route with DES representatives who indicated they did not have any significant concerns, that it would not trigger Alteration of Terrain jurisdiction, and that the line could be constructed without any permanent impacts to wetlands. VHB therefore concluded that the alternative route would not have an unreasonable adverse effect on wetlands or water quality. Exh. App. 64, p. 6.

Ms. Rendall and Mr. Walker also analyzed the Holderness Substation site for wetlands resources, and water quality, and concluded that there would be no unreasonable adverse effects. Exh. App. 65, p. 3. They conducted a field investigation of the substation site over a one week period in December of 2010 and submitted a written report on their investigation that is attached to their Third Supplemental Prefiled Testimony. They concluded that there will not be a need to submit a wetland permit application because the proposed substation site does not impact any wetlands or streams and there are no vernal pools on the site. They also determined that an Alteration of

Terrain Permit is not likely to be required based on the estimate of the clearing needed to install the substation. *Id.* p.4. This testimony was not rebutted or contradicted on the record. For all of these reasons, the evidence supports a finding that there will be no unreasonable adverse effects on wetlands in connection with the construction of the Holderness substation.

5. The Natural Environment

The Applicant submitted substantial evidence to demonstrate that it has adequately studied the Project's natural environment and appropriately evaluated the Project's anticipated effects on the natural environment as it relates to birds, bats, wildlife, and plants/natural communities. The Applicant's numerous avian and bat studies¹² were conducted over numerous years and pursuant to work plans developed in consultation with the New Hampshire Fish and Game Department ("NHF & G") and the United States Fish and Wildlife Service ("USFWS"). *See Application, Volume 1*, p. 54, *Application Appendices 17, 18 and 19*, and *Supplemental Application, Volume 1-A*, Appendix 47. The Applicant consulted with the New Hampshire Natural Heritage Bureau ("NHNHB") for purposes of determining whether any known state or federally listed species, or exemplary natural communities occur within or in close proximity to the

¹² The following avian and bat studies were submitted with the Application and are contained in Volume IV of the Application (Exh. App. 4): Appendix 28 ("Bird and Bat Risk Assessment"), Appendix 29 ("Summer and Fall Wildlife Surveys at Tenney Mountain, New Hampshire"), Appendix 30 ("Spring 2008 Radar Survey Report"), Appendix 31 ("Fall 2008 Radar Survey Report"), Appendix 32 ("2009 Spring, Summer and Fall Avian and Bat Surveys") and Appendix 33 ("Summer and Early-Fall 2009 Peregrine Falcon Use Surveys"). The following additional avian and bat studies were submitted with the Supplemental Application and are contained in Volume 1-A (Exh. App. 5): Appendix 46 ("Phase I Avian Risk Assessment"), Appendix 48 ("Spring and Summer 2010 Acoustic Bat Survey Report") and Appendix 53 ("Post Construction Fatality Surveys for Lempster Wind Project").

Project area. *See Application, Volume 1*, pp. 54-55. In response to the notification by NHNHB regarding the possible presence of wood turtle, peregrine falcon and brook trout species in the vicinity of the Project, as well as deer wintering habitat on the Project site, the Applicant conducted a Wildlife Habitat Assessment of the Groton site in the spring, summer and fall of 2009 for wood turtles and deer wintering habitat. *See Application Volume 1*, p. 55, and *Application, Volume III*, Appendix 20. For peregrine falcons, the Applicant consulted with New Hampshire Audubon as recommended by NHF&G, due to Audubon's experience with peregrine falcons in New Hampshire. To address potential concerns expressed by NHNHB and NHF&G, New Hampshire Audubon and Stantec Consulting conducted a peregrine use survey during summer and fall, 2009. *See Application, Volume IV*, Appendix 33.

In addition to the numerous studies that were submitted with the Application and thereafter, the Applicant presented the expert testimony of Certified Wildlife Biologist Adam Gravel on the subjects of birds and bats, and the expert testimony of Nancy Rendall, a New Hampshire Certified Soil and Wetland Scientist, on the subjects of wildlife habitat and natural communities. As demonstrated below, there is ample record evidence to support the determination that the Project will not create an unreasonable adverse effect upon the natural environment as it relates to birds, bats, wildlife, wildlife habitat, or natural communities.

5.a. Birds and Bats

The Applicant's studies relative to avian and bat species at the Groton site were conducted by Stantec Consulting and are identified in pages 74-77 of the Application and on page 8 of the Supplemental Application. Because the State of New

Hampshire does not have any guidelines or regulations for pre-construction bird and bat surveys, the Project's surveys were designed and conducted principally based upon Stantec's extensive experience in conducting similar surveys for other proposed wind projects in New Hampshire and throughout the northeast, and pursuant to work plans that were submitted to state and federal agencies for prior review and comment. *Prefiled Direct Testimony of Adam J. Gravel*, Exh. App. 1, pp. 5-6, *see Tr. Day 4, Morning Session*, pp. 15-16. The Applicant met with staff from NH F&G and USFWS on March 4, 2009 to discuss the Project and proposed scope of work for bird and bat studies. *Id.*, p.6. That discussion was incorporated into the Applicant's "Proposed Work Plan for Avian and Bat Studies" which was submitted as Appendix 17 to Volume I of the Application. No written comments on this proposed work plan were received from USFWS. *Id.* In addition to recommending several additional wildlife studies reflected in the Wildlife Habitat Assessment performed by VHB (*see Application, Volume III, Appendix 20*), NH F&G recommended that the Applicant and Stantec consult with New Hampshire Audubon to discuss a proposed scope for conducting peregrine falcon use surveys at the Project site. *Id.*, pp. 6-7. Based on discussions with New Hampshire Audubon and NHF&G, a work plan was developed for peregrine use surveys which was approved by New Hampshire Audubon. *Id.*, p. 7. Subsequently, Stantec and New Hampshire Audubon jointly conducted peregrine falcon field surveys in accordance with the mutually agreed-upon study protocols. *Id.*

Based upon the above-described extensive studies, Stantec's vast experience, as well as the Post-Construction Fatality Surveys conducted for the Lempster Wind Project (*Supplemental Application, Exh. App. 5, Appendix 53*), the Applicant's expert, Mr.

Gravel, concluded that the Project will not have an unreasonable adverse effect upon any bird or bat populations. *Application, Volume 1, Prefiled Direct Testimony of Adam J. Gravel*, p. 31:14-16; *Supplemental Application, Volume 1-A, Supplemental Prefiled Testimony of Adam J. Gravel*, p. 16:16-18. Mr. Gravel reached the same conclusion with respect to the alternative interconnection line that will bring power from the turbine site in Groton to Route 25, as well as the Holderness substation site. *Second Supplemental Prefiled Testimony of Adam J. Gravel*, Exh. App. 66, p. 3:15-17, and *Third Supplemental Prefiled Testimony of Adam J. Gravel*, Exh. App. 67, p.4:12-14. Mr. Gravel reached these last two conclusions after conducting field site visits at the locations where the alternative interconnection line and substation facilities are propose to be located. *See Second Supplemental Prefiled Testimony of Adam J. Gravel*, Exh. App. 66, p. 2:15-22, and *Third Supplemental Prefiled Testimony of Adam J. Gravel*, Exh. App. 67, p.2:1-8.

Mr. Buttolph's testimony which criticizes the Applicant's pre-construction raptor and songbird migration studies should carry no weight as he is not an expert in avian or bat issues. Moreover, his criticisms have no basis in fact. For example, his allegation that the Applicant's radar studies did not indicate duration or times of nightly studies was incorrect and was flatly contradicted by the evidence contained in the Application. *See Application*, Appendix 30, Appendix A, Table 2, and Appendix 31, Appendix A, Table 2; *see also Tr. Day 5, Morning Session*, pp. 125-126. In addition, his assertion regarding the dangers posed by the wind turbines to nocturnal migrants was premised on his statement that "a bird's visual acuity is hampered under certain light and weather conditions" Exh. Buttolph 24, p. 10, a statement for which he could provide no authority,

and which was actually inconsistent with a publication upon which he relied in making this statement. *See Tr. Day 5, Morning Session*, pp.126-128.

The only other expert who testified on the subjects of birds and bats was Mr. Lloyd-Evans. While the Applicant does not dispute Mr. Lloyd-Evans' qualifications to render opinions regarding birds, it should be noted that he has never personally conducted acoustic surveys or bat mortality surveys, and, unlike Mr. Gravel, he has not personally conducted any surveys (bird or bat) at the Groton site, or even visited it. *Tr. Day 4, Afternoon Session*, p.51:14-24. Mr. Lloyd-Evans' prefiled testimony consists of his opinions, which are primarily based on his review of the Applicant's studies. Mr. Lloyd-Evans' prefiled testimony agrees with the Applicant's position that it is unlikely "that the construction phase of the project will impact any protected species, migratory birds or bat (sic) and is unlikely to significantly effect (sic) local populations of breeding birds..." Exh. PC 3, p.3. However, he is critical of the Applicant's post-construction survey plans and is also of the opinion that the Applicant lacks a sufficient mitigation plan to deal with the issue of a "taking" of peregrine falcons or any other protected raptor species, should that occur. *Id.*, p.4. He also states that although the methods and assessments of bird populations "seem to be appropriate," he could not assess the effectiveness of the Applicant's surveys because he lacked 2010¹³ and some 2009 data. *Id.*, p.5.

In his oral testimony at the November 4, 2010 adjudicative hearing, Mr. Lloyd-Evans indicated that the issue of responsive mitigation for a peregrine falcon or bald eagle fatality at the Project site "would very much be a matter for the legal authorities in the State of New Hampshire" *Tr. Day 4, Afternoon Session*, p. 24:5-6, that he is "not the

¹³ The Applicant believes that the only data that Mr. Lloyd-Evans was missing at the time of his prefiled testimony was the Spring and Summer 2010 Acoustic Bat Survey Report.

person to design those sorts of plans” *Tr. Day 4, Afternoon Session*, p. 39:15-24 and p. 40:1-7, and that he would defer to New Hampshire Fish & Game to come up with something useful. *Id.*, p.40:4-7. He also conceded that the Applicant predicts a very low likelihood of impact to peregrines and that he was aware that during the first year of post-construction monitoring at the Lempster Wind Project, no raptor fatalities were documented. *Id.*, p.40:8-14. He also agreed that it might be difficult to offer a mitigation plan if no impact is expected. *Id.*, p.40:15-17.

As explained in greater detail below, the Applicant’s post-construction avian and bat survey and monitoring plans (which include a commitment to conduct monitoring for the life of the Project, pursuant to Iberdrola Renewables’ corporate Avian and Bat Protection Plan) have been reviewed and approved by NH F&G. The Applicant has agreed to continue to consult with NHF&G regarding its post-construction surveys, as well as and any mitigation as necessary. In these circumstances, the above-described concerns expressed by Mr. Lloyd-Evans have been adequately addressed.

5.b. Post-Construction Surveys and Monitoring/Avian and Bat Protection Plan

The Applicant’s post-construction avian and bat survey and monitoring plan has been reviewed and accepted by NH F&G as reflected in a letter to the Subcommittee stating that NHF&G “concur with the information submitted by Iberdrola to the SEC.” Exh. App. 72. At a minimum, the plan calls for one full year of post-construction study similar to that conducted at the Lempster Wind Project, and annual monitoring for the life of the Project thereafter. *Application, Volume 1*, p. 78; *see also Supplemental Prefiled Testimony of Adam J. Gravel*, p. 9:9-10. The first full year of study will be conducted by a qualified consultant with experience in transect-based post-

construction studies at wind facilities. *Application, Volume 1*, p. 78. The study will cover spring and fall migration seasons and will include both birds and bats. *Id.* A report of this study will be made available to both the USFWS and NHF&G. *Id.* If this study reveals that the Project's mortality rates exceed the range of observed rates at other operational wind projects on forested ridges in the northeast United States, the Applicant will conduct a second year of post-construction monitoring with specific focus on the factors that may have influenced such results. *Supplemental Prefiled Testimony of Adam J. Gravel*, p. 9:13 -17. If a second year study is conducted, a report will be made available to the USFWS and the NHF&G. *Application, Volume 1*, p. 78. Alternatively, if the initial year of post-construction surveys indicate that the Project's bird and bat mortality rates are within or lower than known ranges of mortality rates at other wind projects in the northeast, then the Applicant will implement yearly monitoring for the life of the Project in accordance with Iberdrola Renewables' Avian and Bat Protection Plan ("ABPP"). *Id.* Iberdrola is the only company that has created a corporate-wide ABPP. The ABPP was drafted in consultation with the USFWS and "applies to all of Iberdrola's wind activities, including project development, construction, operations, and decommissioning..." *Application, Volume III*, Exh. App. 3, Appendix 16, p. viii.

The ABPP includes coordination of activities with state and federal wildlife agencies. For example, Section 3.1.3 of the ABPP describes how monitoring data will be shared with the USFWS. *Id.*, p.3-3. In addition, Section 3.2 of the ABPP provides that where results of formal monitoring indicate that either project-wide or per turbine bird or bat mortality is higher than expected based on pre-construction evaluations, comparisons with regional averages, and/or discussions with wildlife agencies, that finding will trigger

a need to reexamine the scope and sources of the avian or bat risk, and to discuss causes and mitigation with state wildlife agencies and the USFW. *Id.*, p. 3-4.

In addition to the above-described post-construction survey commitments, the Applicant has agreed to continue its collaboration with NHF&G. *See Memorandum from Kristen Goland to Carol Henderson- NHFG et al. (December 22, 2010)* attached to *Third Supplemental Prefiled Testimony of Edward J. Cherian*, Exh. App. 62. NHF&G has approved the post-construction studies outlined in the ABPP protocols and concurs with the above-cited December 22, 2010 memorandum. *See Exh. App. 72.* The memorandum with which NHF&G has expressed its concurrence indicates that the Applicant has agreed to continue to coordinate its post-construction avian and bat monitoring activities with NHF&G. For example, the Applicant has expressly agreed to: coordinate with NHF&G throughout the life of the Project; coordinate and obtain input from NHF&G staff on bat acoustic detection monitoring during the first year of post-construction; conduct baseline and operational monitoring to collect information used to implement adaptive management actions to minimize or avoid risks and identify mitigation measures if necessary; conduct mortality surveys using baseline and operational monitoring throughout the life of the Project in accordance with the ABPP and the SEC Application; provide a yearly mortality report (which includes baseline and operational monitoring data) to NHF&G; and to discuss any concerns with NHF&G regarding mortality data including the need for adaptive management measures, if necessary. *Id.*

In view of the foregoing, no additional post-construction avian or bat studies are necessary, contrary to the recommendation of Mr. Lloyd-Evans who is advocating for three years of post-construction monitoring. *Tr. Day 4, Afternoon Session*, p. 19:14-15.

Although Mr. Lloyd-Evans has stated that he is “impressed by the protocols” in the ABPP, and concedes that there are no federal regulations¹⁴ that require any post-construction mortality studies for wind projects, he is nonetheless “suggesting” his own personal preference for three years of post-construction studies in this case. *Tr. Day 4, Afternoon Session*, p. 31:2-19. Mr. Lloyd-Evans originally advocated for two years of post-construction mortality surveys. *See* Exh. PC 3, p.5. However, at the time of his oral testimony on November 4, 2010, he changed his opinion and said that he would rather see his own “choice” of three years of post-construction surveys, similar to what was ordered by the Subcommittee in the Granite Reliable Power case. *Tr. Day 4, Afternoon Session*, p. 29:8-10. He also stated that a very important part of the post-construction studies is that they be reviewed by New Hampshire Fish and Game to avoid any perceived conflict of interest. *Tr. Day 4, Afternoon Session*, p. 29:11-15.

Mr. Lloyd-Evans’ reliance upon the Granite Reliable Power (“GRP”) decision to support his recommendation in this case is misplaced. Comparisons between the Groton Project and GRP for purposes of deciding what constitutes appropriate post-construction avian and bat monitoring are not appropriate. As Mr. Lloyd-Evans concedes, it is appropriate to examine each site individually for purposes of analyzing bird mortality, and that it is not necessarily appropriate to overlay the same amount of assessment for the Granite site to the Groton Project site. *Tr. Day 4, Afternoon Session*, p. 74:21- p.75:1-3. Mr. Lloyd-Evans notes that GRP site is located in a sensitive high elevation alpine region, *see Tr. Day 4, Afternoon Session*, p. 75:4-6, which is not the case with the Groton

¹⁴ Nor are there any state regulations requiring post-construction mortality surveys of any type or duration.

site¹⁵. Accordingly, these physical and environmental habitat differences between the two sites, in and of themselves, compel a different result than the one suggested by Mr. Lloyd-Evans. In addition, unlike GRP, Groton Wind is subject to a corporate ABPP and has made substantial commitments to NHF&G regarding post-construction avian and bat surveys. The agreement set forth in the December 22, 2010 memorandum, as well as that contained in Ms. Henderson's March 21, 2010 letter (Exh. App. 72) demonstrate the Applicant's detailed coordination with NHF&G, and that agency's satisfaction with the Applicant's post-construction commitments. Therefore, they more than adequately address Mr. Lloyd-Evan's concerns regarding the number of years that the Applicant should conduct post-construction surveys, as well as his concerns regarding the involvement of an impartial agency such as NHF&G in those activities. For all of the foregoing reasons, the Subcommittee should accept the Applicant's post-construction avian and bat survey plans which have been approved by NHF&G instead of the unsupported recommendation suggested by Mr. Lloyd-Evans.

5.c. Other Wildlife and Wildlife Habitat

To demonstrate that the Project (including the Groton turbine site, the alternative interconnection line and the Holderness Substation) will not have an unreasonable adverse effect upon the natural environment insofar as non-avian wildlife and wildlife habitat are concerned, the Applicant submitted the prefiled testimonies of Nancy Rendall and Peter Walker, both of whom are employed by Vanasse Hangen Brustlin, Inc., ("VHB") the consultants who prepared the Wildlife Habitat Assessment Report which is contained in Appendix 20 of the Application and which is summarized in

¹⁵ Portions of the Granite Reliable project site are located in "high elevation areas," i.e., those above 2,700 feet. See *Application of Granite Reliable Power*, Decision Granting Certificate (July 15, 2009), p.19. The Groton site is below 2,300 feet in elevation. See *Application, Volume I*, Exh. App. 1, p. 6.

the Application at pages 78-81. Based on the VHB studies, Ms. Rendall concluded that the turbine site in Groton will not have an unreasonable adverse effect upon wildlife habitat natural resources. *Prefiled Direct Testimony of Nancy B. Rendall*, p. 18:1-2. Ms. Rendall's and Mr. Walker's, Second Supplemental Prefiled Testimony reached the same conclusion regarding the alternative overhead power line, based upon: their review of the NHNHB online "Data Check Tool" which indicated no known records of threatened, endangered or species of concern within a one-mile radius of the alternative power line, the relatively small footprint of the power line and the relatively limited amount of clearing needed for its construction. *Second Supplemental Prefiled Testimony of Nancy B. Rendall and Peter J. Walker*, Exh. App. 64, p. 6:1-9.

Subsequent to the time of their review of the "Data Check Tool," Ms. Rendall and Mr. Walker received notice from NHNHB that its database for records of rare species indicated that the peregrine falcon and wood turtle are species that may occur outside the area of the alternative interconnection line. *See Exh. App. 73*. However, they testified that this notice did not change any of their previous conclusions. *Tr. Day 6, Afternoon Session*, p. 31:10-13. Nor should it, given that the areas noted by NHNHB for potential occurrence of the two referenced species are well away from the area of the alternative interconnection line. *See Exh. App. 72*, p.2.

Ms. Rendall and Mr. Walker also conducted a field investigation of the Holderness interconnection facilities and contacted NHNHB to determine if there are any threatened, endangered or species of concern within that area. *See Third Supplemental Prefiled Testimony of Nancy B. Rendall and Peter J. Walker*, Exh. App. 65, p.2:8-14 and p. 4:1-4. NHNHB provided a memorandum indicating that that agency had no recorded

occurrences for sensitive species near this project area in Holderness. *See Attachment to Third Supplemental Prefiled Testimony of Nancy B. Rendall and Peter J. Walker*, Exh. App. 65.

The foregoing uncontested evidence supports a determination that the Project will not have an unreasonable adverse affect upon wildlife or wildlife habitat.

5.d. Natural Communities/Plants and Trees

The Applicant has submitted a memorandum from the New Hampshire Natural Heritage Bureau (“NHNHB”) dated August 31, 2010 indicating that NHNHB staff visited the Project site in Groton to search for state-threatened plant species and that, based on observations made during that visit, and the Application materials, NHNHB determined that it is unlikely that the proposed wind facility will impact rare plants species or exemplary natural communities. *See Supplemental Application, Volume 1-A*, Exh. App. 5, Appendix 45. This determination by NHNHB is uncontested, as is the determination contained in the memorandum from NHNHB (attached to the Third Prefiled Testimony of Nancy B. Rendall and Peter J. Walker) which indicates no occurrences of sensitive species near the Holderness site. Ms. Rendall also testified accordingly at the March 22, 2011 hearing. In response to questions from Dr. Kent, she acknowledged that identification of endangered plants requires specialized knowledge, and that it is appropriate to rely on the expertise of NHNHB in determining the occurrence of endangered or rare plants in a particular location. *Tr. Day 6, Afternoon Session*, pp.40-43. The Subcommittee may therefore rely upon this information and

find that, insofar as natural communities, plants and trees are concerned, the Project will not have an unreasonable adverse effect upon the natural environment.

6. Public Health and Safety

Section I.6 of the Application contains information regarding the Project's potential effects on public health and safety. *See* Exh. App.1, pp. 81-86. In addition, the Application discusses the issue of "shadow flicker" on pages 62-63. The Applicant also provided several expert witnesses on various topics relating to the Project's potential risks to public health and safety. As discussed below, the evidence in this case supports a finding that the Project will not have an unreasonable adverse effect on public health and safety.

Construction Issues

The prefiled testimony of Kevin Devlin, the IBR Vice President of Commercial Operations, submitted with the Application, indicates that contractors and consultants working on the Project site will be required to abide by applicable health and safety regulations. As described on page 81 of the Application, Iberdrola Renewables has a very good health and safety record. The measures proposed by NH DES will also adequately protect the public health and safety. The Project's remote location where public access is already restricted by locked gates helps to insure that the public's health and safety are not at risk from construction-related activities associated with construction vehicle traffic, blasting and other activities.

In addition, the agreements that the Applicant has reached with the Towns of Groton and Rumney, and that have been marked as Applicant's Exh. 32 and Rumney's Exh. 1, respectively, contain a number of provisions that address public health and safety

issues. For example, the Groton agreement contains many safety and health related provisions: access for the Town for emergency response and other purposes (sections 2.8 and 7); warning signage (2.7 and 5.2); on-site burning restrictions (2.6); controls and brakes on the turbines (3.2); conformance of electrical components to relevant codes (3.3); project site security (4.1-4.3); emergency response (7.1-7.5); procedures for the use of roads by the Applicant (8.1); construction period requirements, including blasting restrictions and construction vehicle limitations (9.1-9.7); operating period requirements, including spill protection, pesticides and herbicides and signal interference (10.1-10.3); noise restrictions (11.1-11.2); and a comprehensive decommissioning plan (14.1-14.3). The Town of Rumney agreement contains many similar safety and health-related provisions, including construction vehicle access and emergency response plans. The Town of Rumney has indicated that it is comfortable with the emergency procedures contained in the agreement. *Tr. Day 1, Afternoon Session, p. 22*. Both of these agreements were discussed and considered through numerous public meetings in those towns.

Michael Leo from VHB also testified regarding the safety issues related to the shipping of turbine components and the use of specialized hauling vehicles for over the road and on site transportation. He indicated that transport contractors will obtain all necessary DOT permits, use approved routes and escort vehicles, including state and local police escorts as required, and will abide by applicable federal OSHA and state health and safety regulations. *Prefiled Direct Testimony of Michael J. Leo, Exh. App. 1, pp. 6-7.*

A question arose during the hearings regarding emergency access on Groton Hollow Road when turbine components are being delivered. *Tr. Day 3, morning session, pp. 101-102.* This has been addressed by the Applicant in Exh. App. 46, a response to a record request, which explains the DOT permitting process and indicates that in the event of a truck breakdown State Police would direct emergency and other vehicles as needed.

In his Third Supplemental Prefiled Testimony, Exh. App. 62, Mr. Cherian described the design, construction and operation of the Holderness substation and indicated that the facility would be designed, constructed and operated in compliance with applicable electrical codes, and in coordination with the utility with which it was interconnecting, as well as with the ISO-NE, meeting applicable standards and codes associated with both entities. He also indicated that access to the site would be limited by appropriate fencing. In describing the interconnection line between the Project and the substation, Mr. Cherian indicated that it will be designed and constructed by the NH Electric Cooperative in compliance with electrical standards and codes and industry practices and that their contractors would have police details in place to ensure safety to motorists and workers. This unrebutted evidence supports a finding that the interconnecting line and the substation will not have an unreasonable adverse effect on public health and safety.

Shadow Flicker

In addition to the information about shadow flicker contained in the Application (which included a description of shadow flicker and the modeling used to evaluate the Project's shadow flicker, as well as maps illustrating the output of the modeling), Groton

Wind presented the expert testimony of John Hecklau. *See* Exh. App. 1. Mr. Hecklau's prefiled testimony indicates that the shadow flicker modeling analysis (which used *WindPRO 2.6 Basis* software and associated shadow module) was run using a "worst case" scenario, meaning that it assumed there were no clouds or fog, that wind conditions would allow continuous turbine operation, and that the turbine rotor would be continuously perpendicular to the sun and between the observer/residence and the sun. As Mr. Hecklau noted, at a distance beyond 10 rotor diameters (maximum of 870 m or 2,854 feet for this Project) shadow flicker effects are essentially undetectable. Based on this analysis, Mr. Hecklau concluded that of the 207 nearest structures identified and evaluated for effects from shadow flicker, 204 would not be affected, one may be affected less than one hour a year and 2 may be affected between one and three hours a year (none will be affected any more than three hours a year). He interpreted these results as indicating that the shadow flicker effect of the Project is almost non-existent given that the calculations do not take into account the screening effects like vegetation and buildings. Mr. Hecklau's conclusion was that the Project will not have an unreasonable adverse effect on public health and safety as a result of shadow flicker. *See* Section I.1(b) of the Application, Exh. App. 1. Prefiled Testimony of John Hecklau, Exh. App. 1, pp. 18-20, and Appendix 25 to the Application, App. Exh. 3. He also stated that this Project had by far the lowest shadow flicker effect of any project on which he had worked. *Tr. Day 1, Afternoon Session, pp. 96-97.* As no party refuted the Applicant's evidence concerning shadow flicker, the Subcommittee should conclude that there is no unreasonable adverse effect upon the public health and safety as a result of the Project's shadow flicker.

Sound

In support of the Application's conclusion that the Project will have no unreasonable adverse effect on public health and safety as a result of the sound it produces, the Applicant submitted the expert testimony (both oral and prefiled) of Robert O'Neal, a Principal at Epsilon Associates, Inc. ("Epsilon") with over 20 years of experience in the area of community noise effects and a member of the Institute of Noise Control Engineers, the Acoustical Society of America, the American Meteorological Society and the Air & Waste Management Association. See Exhs. App. 1, 5 and 68. Mr. O'Neal's prefiled testimony and oral testimony at the hearing, among other things, discussed the noise assessment/evaluation contained in Appendix 35 of the Application, Exh. App. 4. Mr. O'Neal reviewed the site plans and visited the site to note some of the closest potentially sensitive receptors in all directions around the proposed wind farm that might be affected by noise emissions. Epsilon measured existing sound levels at six representative locations around the Project over a two week period in the summer of 2009 to establish background levels. Mr. O'Neal also reviewed the noise conditions imposed by the NH Site Evaluation Committee as conditions on the Lempster Wind Project. He cited the "Guideline for Community Noise" prepared by the World Health Organization, Geneva, 1999 which indicated that daytime and evening outdoor living area sound levels at a residence should not exceed an Leq of 55 dba to prevent serious annoyance and an Leq of 50 dba to prevent moderate annoyance from a steady continuous noise and that at night sound levels outside facades of living spaces should not exceed an Leq of 45 dba so that people may sleep with bedroom windows open.¹⁶ He also cited to a U.S.

¹⁶ For comparison purposes, Mr. O'Neal testified that the sound level in the hearing room without any conversation going on was at 45dba. *Tr. Day 2, Afternoon Session, p.81.*

Environmental Protection Agency information document that contains an Leq of 55 dba (with a 10 dba penalty for sound levels at night). Prefiled Direct Testimony of Robert D. O'Neal, Exh. App. 1, pp. 4-7.

Mr. O'Neal utilized software specifically designed for sound level modeling that calculated worst-case future sound levels from the operation of the entire wind farm, not individual turbines or subgroups of turbines. He concluded that the predicted worst-case sound levels from the Project will be below 45 dba at all occupied buildings in the vicinity of the Project, with the two closest structures along the private, gated portion of Groton Hollow Road within Groton (which are not residences but seasonal camps, one of which is in disrepair and not used) at approximately 41 dba. All other residences will be less than 40 dba under worst-case operating conditions. He stated that the Project would easily meet the noise criteria that he cited, as well as the noise conditions included in the Lempster order. He also noted that some of the existing background sound levels are near or above 45 dba. Based on this analysis his conclusion was that the Project will not have an unreasonable adverse effect on public health and safety as a result of noise. Exh. App. 1, [Prefiled Direct Testimony of Robert D. O'Neal], p. 10.

As Mr. O'Neal noted in response to cross examination during the proceeding, the turbine closest to residences that was included in his modeling was later removed as a result of a design change, thus making his calculations even more conservative. *Tr. Day 2, Afternoon Session, p.51*. In addition, Mr. O'Neal indicated there was reasonably good agreement between pre-construction noise modeling and post-construction measurements for the Lempster project. *Tr. Day 2, Afternoon Session, p.11*. It should also be noted that at page 6 of his Supplemental Prefiled Testimony dated October 12, 2010, included in

Exh. App. 5, Mr. Cherian indicated that in the two years since Lempster Wind Farm began operation there had only been one noise complaint and it turned out to be a malfunctioning hearing aid. He also noted during hearing testimony, that residences are located much closer to the Lempster project than they are to the proposed Groton Project (in Lempster the closest distance between a turbine and a non-participating residence is 1300 feet, and in Groton that distance will be 2700 feet). *Tr. Day 1, Afternoon Session, p. 34.*

Public Counsel's consultant, Gregory Tocci of Cavanaugh Tocci Associates, Inc., evaluated potential sound impacts of the Project. By agreement between the Applicant and Public Counsel, additional sound studies were undertaken by Mr. Tocci in October of 2010. Mr. Tocci actually recorded somewhat higher ambient or background sound levels than Mr. O'Neal did at two locations. *Tr. Day 2, Afternoon Session, p.31, p.78.* As Mr. O'Neal pointed out during cross-examination (*Tr. Day 2, Afternoon Session, p.47-48*) and as Mr. Tocci later admitted (*Tr. Day 3, Afternoon Session, p.47*), Mr. Tocci made a mistake in his calculations that changed his conclusion about sound level effects at Baker River Campground from significant impact to minor impact. *Tr. Day 3, Afternoon Session, p.79.* Mr. Tocci also admitted that he had mixed up two of the locations in the study (*Tr. Day 3, Afternoon Session, p.82-84*) and that he had incorrectly stated the intervals at which sound level data were collected (*Tr. Day 3, Afternoon Session, p.85-86*).

Mr. O'Neal pointed out that the timing selected by Mr. Tocci for additional ambient noise surveys occurred during a time when there were fewer campers at the Baker River Campground than in the summer, and at a time when background noise

would necessarily be less than the background noise during summer. (Mr. O'Neal expected that the background noise at the Baker River Campground would likely be 5 dba higher in the summer than during the fall period when Mr. Tocci's surveys were conducted.) *Tr. Day 2, Afternoon Session, p.55, p. 84, pp. 104-105, p.108.* In fact, Mr. Tocci agreed that background noise would have been greater during the summer. *Tr. Day 3, Afternoon Session, p.93.* moreover, some of Mr. Tocci's assumptions were questionable, as Mr. O'Neal pointed out, because he was using as a basis for his conclusion the quietest times that occurred during a relatively small portion of the time that he conducted his survey, a time when there was virtually no wind, when it was likely the wind turbines would not even be running. *Tr. Day 2, Afternoon Session, p.56-57.*

On cross-examination, Mr. Tocci admitted that the sound levels from the Project at the Baker River Campground would be significantly below the sound levels imposed on the Lempster project – approximately 10dba below those sound levels. *Tr. Day 3, Afternoon Session, p. 94-95.* The Applicant's agreement with the Town of Groton, Exh. App. 32, contains general noise restrictions (sections 11.1-11.2), as well as limits on the times when construction vehicles can be used (9.7.2 and 9.7.4) and when construction can take place (9.7.3). The agreement with the Town of Rumney contains similar construction vehicle limitations that limit operation to address potential concerns about noise. Rumney Exh. 1; *see also Tr. Day 1, Afternoon Session, pp. 33-34.*

The Applicant also submitted as Appendix 52 to its Supplement to Application, Exh. App. 5, a report entitled "Wind Turbine Sound and Health Effects, An Expert Panel Review" that contains the results of a review by a scientific advisory panel that concluded that: there is no evidence that the audible or sub-audible sounds emitted by wind turbines

have any direct adverse physiological effects; ground-borne vibrations from wind turbines are too weak to be detected by, or to affect, humans; and the sounds emitted by wind turbines are not unique. In addition, with regard to the issue of so-called "wind turbine syndrome" raised by some intervenors, in response to questions by Dr. Mazur on cross-examination, Mr. O'Neal testified that he did not believe there are health hazards related to living near wind turbines when they are properly sited with appropriate setbacks as will exist at the Project. *Tr. Day 2, Afternoon Session, p.14-25*. Mr. O'Neal also said that any infrasound generated is not at a high enough level to cause a health concern *Tr. Day 2, Afternoon Session, p.39*. Public Counsel's witness, Mr. Tocci, agreed that he did not see any basis for adverse health effects from noise based on the technical literature that he had read. *Tr. Day 3, Afternoon Session, p.49*.

Mr. O'Neal submitted Second Supplemental Prefiled Testimony to address the issue of noise in relation to the Holderness substation. Exh. App. 68. In that testimony Mr. O'Neal indicated he had conducted a sound level modeling study for the substation. He said that the primary source of sound at the substation would be the transformer and that he used sound level data from a typical transformer manufacturer to predict future operational sound levels at the nearest residents in all directions. He provided a conservative estimate of noise effects by assuming no barrier walls around the transformer. Attached to this testimony was a memorandum summarizing the results of the study, which were that there would be very low sound levels well below the 45 dba sound level guideline contained in Appendix 35 to the Application, Exh. App. 1. In the same testimony he indicated that these sound levels were likely as low or lower than existing sound levels in the area from traffic and other natural or man-made sources. In

addition, the Applicant agreed to apply the construction vehicle limitations included in the Groton agreement sections 9.7.2 and 9.7.5 (Exh. App. 32) to Holderness substation construction. *Tr. Day 6, Afternoon Session, p.96*. The unrebutted testimony supports the conclusion that there are no unreasonable adverse effects on public health or safety in so far as noise levels are concerned in relation to the proposed Holderness substation. *See also responses to data requests contained in Exh. App. 63, 69 and 70.*

Accordingly, the weight of the evidence on this issue supports the Application's contention that the Project, including the Holderness substation, will have no unreasonable adverse effect on public health and safety as a result of noise.

Ice Shedding

The prefiled and oral testimony of Kevin Devlin establishes that the Project will not pose an unreasonable risk to public health and safety as a result of ice shedding. Mr. Devlin testified that the turbine model that the Project proposes to use, the Gamesa G87, shuts itself down when ice builds up on the blades. *Tr. Day 2, Morning Session, p.80*. He also stated that as ice builds up, the blade rotation slows down because ice build up affects the aerodynamics. *Tr. Day 2, Morning Session, pp.80-81*. As he noted, it is very unlikely that the ice will be thrown at full operational speed, it is much more typical for ice to drop to the ground than to be thrown, and he therefore considers ice throw to be a minimal risk. *Tr. Day 2, Morning Session, pp.97-98*. Mr. Devlin explained that ice shedding mostly occurs within one rotor diameter of the turbine, i.e. less than a 300 foot diameter, and that since the Project's setbacks from roads and residences are much greater than this distance, there is no public safety risk from ice shedding. *See also Application, Exh. App. 1, Section I.6 (a)*. Mr. Devlin also testified that potential for ice

shedding only occurs when there is ice on the machine and the machine is stopped – during the short period of time it restarts ice can be thrown. *Tr. Day 2 , Morning Session, p.75.*

The Applicant recognizes that there could be some risk to the general public from ice shedding in those areas where public access exists. However, the site is located on private land, is currently and has been gated and locked for many years to restrict access, and will continue to be restricted from public access during construction and thereafter. Despite these mitigating factors, to further mitigate risks, the Applicant proposes to install signs at appropriate locations to warn users of potential ice shedding risks. Trained maintenance technicians will also enforce procedures aimed at minimizing risk to the general public, such as closing and locking Project gates. In addition, Mr. Cherian testified that there have not been any issues with ice shedding at Lempster. *Tr. Day 1, Afternoon Session, p. 35.*

The Applicant submits that the unrebutted evidence with regard to ice shedding supports a finding that there will be no unreasonable adverse effects on public safety as a result of ice shedding.

Tower Collapse/Blade Throw

The above-referenced public safety measures also provide protection against public health and safety concerns relating to tower collapse and blade throw. The remote locations of the turbines effectively mitigate public safety concerns associated with tower collapse and blade throw. The turbines are constructed according to all applicable state and federal safety regulations and in compliance with design specifications and construction standards and the turbines meet international engineering standards.

Application, Vol. I., Exh. App. 1. Section I.6(c). The turbines have state-of-the-art braking systems, pitch controls sensors and speed controls that operate to reduce the risk of overspin which could lead to blade or tower failure.

Fire

Prior to building any projects, Iberdrola establishes an emergency response program dealing with fire and rescue issues. Part of the Project's fire protection and safety measures is to monitor every turbine 24 hours a day, 7 days a week at Iberdrola's Operations Center in Portland, Oregon. These monitoring and response functions, coupled with the emergency response conditions in the Project's agreements with the Towns of Groton and Rumney will assure that the public health and safety risk posed by a fire will be appropriately addressed.

Mr. Devlin testified that because the turbines are located a safe distance from each other the risk of a fire spreading to another unit is very small. *Tr. Day 2, Morning Session, p.84.* The Town of Plymouth's Fire Chief, Casino Clogston, concurred with this. *Tr. Day 4, Morning Session, p. 22.* Mr. Devlin and Chief Clogston agreed on the appropriate strategy for fighting a fire in the unlikely event that it were to occur in a turbine, i.e. keep it from spreading and let it burn out. *Tr. Day 4, Morning Session, pp. 141-142, p. 147.*

Chief Clogston submitted prefiled testimony in which he listed equipment that he believed the Applicant should purchase for the Plymouth Fire Department. As became clear during the course of the proceeding, however, the Project is not located in Plymouth (Plymouth does not have primary responsibility for fighting fires at the Project site - *Tr. Day 4, Morning Session, p. 135*) and the Fire Chief in the Town of Rumney, which is the

primary responder in the event of an emergency at the Project site, told the Rumney Board of Selectman that he does not need additional equipment. *See* Exh. App. 16 (Rumney Selectmen's Meeting Minutes). The Applicant has already had members of the Rumney Fire Department at the Lempster facility to review safety measures (*Tr. Day 1, Afternoon Session, p. 22*) and is required under the terms of the agreement with the Town to provide training. Exh. Rumney 1, sec. 6.2. In addition, Rumney is part of a mutual aid district that includes over 37 towns, some of which already have the equipment Plymouth was requesting. *Tr. Day 4, Morning Session, p. 127 and pp. 138-139*. Furthermore, the State of New Hampshire and the Forest Service have similar equipment that could be made available if needed. *Tr. Day 4, Morning Session, pp. 138-139*. Mr. Devlin testified that based on his experience he does not believe that the equipment requested by Plymouth is required. *Tr. Day 2, Morning Session, pp. 66-67, p. 78*.

As Chief Clogston admitted during the proceeding, the access to the proposed turbine areas is going to be quite a bit better than it is now for emergency vehicles given the new and upgraded access roads that will be part of the Project (*Tr. Day 4, Morning Session, p. 151*), which further obviates the need for the Applicant to acquire this equipment for Plymouth. Chief Clogston conceded that he was willing to accept less than he had originally asked for in this case. *Tr. Day 4, Morning Session, p. 166*. Finally, the agreement between Groton and the Applicant provides a mechanism for purchasing emergency services equipment if it becomes necessary. Exh. App. 32, sec. 7.2.

The State Fire Marshal's Office submitted a letter to the Committee raising a fire suppression issue and recommending that the Committee include conditions requiring

compliance with various codes, plans review and a final inspection. Exh. Buttolph 8. The Fire Marshal's letter did not meet the deadlines for state agency filings contained in RSA 162-H:6-a. In addition, the Fire Marshal did not submit testimony, did not appear at the hearing and was not subject to discovery. After the letter was submitted, the Applicant contacted and met with a representative of the Fire Marshal's Office, brought him to the Lempster wind facility, and arranged for a tour of a project under construction in New York. *Tr. Day 6, Morning Session, p. 104.* As Mr. Cherian testified on March 22, 2011, he expects the Fire Marshal to submit a letter clarifying its position, i.e. that the Fire Marshal's Office is more concerned about compliance with the intent of the codes than the actual specifications. *Id.* No such letter had been filed at the time this brief was submitted.

Mr. Devlin testified that it has not been the practice in the wind industry to install automatic fire suppression systems in wind turbines, *Tr. Day 2, p. 71*, and that putting fire suppression into the wind turbines actually increases the risk of hazard to employees because of the possibility of accidental discharge while the employees are in the turbine. *Tr. Day 2, Morning Session, pp. 84-85.* In addition, Mr. Devlin testified that it is always Iberdrola's policy to construct projects in accordance with relevant codes and specifications. *Tr. Day 2, Morning Session, pp. 67-68.*

The Applicant submits that the weight of the evidence supports a finding that there will be no unreasonable adverse effects on public health and safety and that public health and safety are more than adequately protected by the terms of the agreements between the Applicant and the Towns of Groton and Rumney, the design of the turbines

and practices of the Applicant, and the existing fire fighting capabilities available in the area of the Project.

Lightning and Stray Voltage

Lightning strikes do not pose a public safety risk because the lightning protection system on modern wind turbine generators and the extensive grounding system used by the Applicant (which includes copper rods and an embedded copper ring as a base) dissipate lightning safely through the underground collector system, thereby protecting the collection system and any nearby structures from damage caused by lightning strikes to the turbine. *Application, Vol. I, Exh. App.1, Section I.6(b)*. As Mr. Devlin indicated in his prefiled testimony, this system relies on lightning receptors and diverter strips in the blade to provide a path for the lightning strike to follow through the grounded tower. This system protects the blades from failure and protects against component damage. The monitoring system also shuts down the turbine automatically if it detects a problem. The locations of the turbines, with separation between turbines and their set-back some distances away from privately occupied structures, mitigates risks associated with lightning strikes. *Prefiled Testimony of Kevin E. Devlin, Exh. App. 1, pp. 12 and 13*. In addition to providing protection against damage from lightning strikes, properly grounded wires eliminate the occurrence of stray voltage. *Application, Vol. I, Exh. App. 1, Section I.6(d)*.

Hazardous Materials

The only hazardous material used in the operation of a wind energy facility is lubricating and waste oil, which is used in small amounts (each turbine contains approximately 150 gallons of oil for cooling in the gearbox and operation of hydraulic systems) and which will be contained in accordance with the Project's spill prevention control and countermeasures plan ("SPCC"), a plan that is required by the United States Environmental Protection Agency. *Prefiled Direct Testimony of Kevin E. Devlin*, Exh. App. 1, p. 10. The turbines are designed so that in the event of an oil leak containment is first attempted within the nacelle and then if it spills over from there, it would be contained within the tower. *Id.* The chances of an external leak are improbable and would likely be minimal if it were to occur and thus could be relatively easy to remediate. Turbine sensors are programmed to detect a drop in oil pressure or turbine performance, which would alert staff to the problem. *Id.* NH DES has required that the Applicant prepare and submit the SPCC to DES for review and approval at least 90 days prior to the installation of the first turbine. *Supplement to Application*, Exh. App. 5, Appendix 51 (AOT Condition 14.) The SPCC and material safety data sheets will also be provided to local responders in accordance with the agreements with the Towns of Rumney and Groton. Exh. Rumney 1, Sections 3.2 and 3.3; Exh. App. 32, Section 6.2.4.

Aviation Safety

The Applicant submitted preliminary turbine layouts to the Federal Aviation Administration ("FAA") in June of 2009. After receiving notification from the FAA on those layouts and the fact that three or four of the proposed turbine locations could create a hazard to aviation safety, the Applicant shifted the locations of the proposed turbines and resubmitted them to the FAA in February of 2010. Application Section I.6(f), Exh.

App. 1. Groton Wind, LLC subsequently received from the FAA a Determination of No Hazard to Air Navigation for all of the proposed turbines. *Tr. Day 2, Morning Session, p. 57; Supplement to Application, Exh. App. 5, Appendix 49.* As the Applicant's witness Kevin Devlin testified, they will install lighting on the turbines as required by the FAA, and will comply with all other FAA requirements. *Tr. Day 2, Morning Session, p. 91.* Mr. Devlin also testified that the Project would be willing to use a lower light signature as long as the lights complied with FAA requirements. *Tr. Day 2, Morning Session, p.91-92. See also Supplement to Application, Exh. App. 5, Appendix 43 (Revised Figure 9, FAA-directed Lighting Map).* The Applicant submits that this unrebutted testimony supports a finding of no unreasonable adverse effect on aviation safety.

Decommissioning

During the course of the hearing the Applicant specifically asked that the decommissioning provisions contained in the Agreement with the Town of Groton be incorporated into the Committee's order. *Tr. Day 1, Morning Session, pp. 69-70.* Those provisions require the Applicant to submit a detailed site-specific decommissioning estimate of costs associated with decommissioning activities to the Town before construction commences (14.1) and to complete decommissioning within 24 months of the end of the useful life of the facility (14.1.2). The agreement also requires that the Applicant submit a decommissioning plan to the Town at least three months before decommissioning is to begin. The Applicant must provide funding assurance to the Town in the amount of \$600,000 or the site-specific estimate, whichever is greater, before commencement of construction. The funding assurance will be a parental guarantee in a form acceptable to the Town. If the owner were to fail to complete

decommissioning the Town could require the expenditure of decommissioning funds on such measures as are necessary to complete the process.

Because the decommissioning plan is consistent with decommissioning plans approved by the Committee for other wind projects, particularly the Lempster project, it supports a finding of no unreasonable adverse effect on public health and safety with regard to decommissioning.

V. APPLICANT'S PROPOSED PERMIT CONDITIONS

Alteration of Terrain Permit and Wetlands Permit Conditions

Iberdrola Avian and Bat Protection Plan

Agreement with New Hampshire Fish and Game Department

Agreement Between Groton Wind, LLC and the Town of Groton

Agreement Between Groton, LLC and Town of Rumney

Commitments to Town of Holderness

VI. CONCLUSION

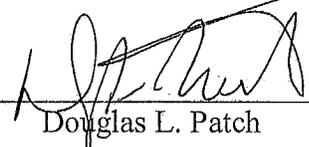
Based on the information contained in the record of this proceeding and for all of the reasons set forth above, the Applicant has demonstrated by a preponderance of the evidence that the Project meets the statutory criteria for a Certificate of Site and Facility. Therefore, the Applicant respectfully requests that the Subcommittee issue a Certificate of Site and Facility for the Groton Wind, LLC Project subject to the above-referenced conditions.

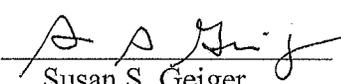
Respectfully submitted,

Groton Wind, LLC

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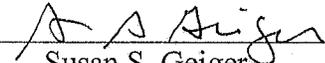
Dated: April 1, 2011

By: 
Douglas L. Patch

By: 
Susan S. Geiger

CERTIFICATE OF SERVICE

I hereby certify that on this 1st day of April, 2011, copies of the within Brief were sent to persons named on the Service List either by electronic mail or first class mail, postage prepaid.


Susan S. Geiger