THE STATE OF NEW HAMPSHIRE

SUPREME COURT

2017 TERM
SPRING SESSION

CASE NO. _____

ANTRIM WIND OPPONENTS GROUP

v.

NEW HAMPSHIRE SITE EVALUATION COMMITTEE

APPENDIX TO PETITION TO APPEAL FROM THE ADMINISTRATIVE DECISION OF THE SITE EVALUATION COMMITTEE PURSUANT TO NH RSA 541:6 AND SUPREME COURT RULE 10 AND REQUEST FOR SUSPENSION OF SITE EVALUATION COMMITTEE'S DECISION GRANTING CERTIFICATE OF SITE AND FACILITY DATED MARCH 17, 2017

Mary Allen, Bruce Berwick, Barbara Berwick, Loranne Block, Richard Block, Robert Cleland, Kenneth Henninger, Jill Fish, Annie Law, Janice Longgood, Brenda Schaefer, Mark Schaefer, the Stoddard Conservation Commission, and the Windaction Group

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STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

Docket No. 2015-02

Re: Application of Antrim Wind Energy, LLC
for a Certificate of Site and Facility

DECISION AND ORDER GRANTING APPLICATION FOR CERTIFICATE OF SITE AND FACILITY

March 17, 2017

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VI. CONCLUSION

I. INTRODUCTION

On October 2, 2015, Antrim Wind Energy, LLC, a Delaware limited liability company, authorized to do business in the State of New Hampshire (Antrim Wind or the Applicant), filed an Application for a Certificate of Site and Facility (Application) with the New Hampshire Site Evaluation Committee (Committee). Antrim Wind proposes to site, construct, and operate 9 Siemens SWT-3.2-113 direct drive wind turbines capable of generating 3.2 megawatts (MW) of energy each for a total nameplate capacity of 28.8 MW and associated civil and electrical infrastructure (Project). App 33, at 19, 27. [1] The Project is proposed to be located in the Town of Antrim on the Tuttle Hill ridgeline spanning southwestward to the northeastern slope of Willard Mountain (Site). App. 33, at 5. The Project will be constructed primarily on the ridgeline that starts approximately 0.75 miles south of NH Route 9 and runs south-west, for approximately 2 miles. App. 33, at 5. The Project will be located in the rural conservation zoning district on private lands owned by six landowners and leased by the Applicant. App. 33, at 5-6. Antrim Wind seeks the issuance of a Certificate of Site and Facility approving the siting, construction, and operation of the Project (Certificate). This Decision and Order memorializes the deliberations of the Subcommittee and sets forth the reasons for granting the Application.

II. PROCEDURAL HISTORY

This Application is not the first time that a wind energy project has been proposed for the Tuttle Hill-Willard Mountain area. A brief review of prior proposals provides a historical reference.

[1] Applicant's exhibits are hereinafter referred to by the following citation:– App. at [page no.].

A. Antrim Wind Energy, LLC - Docket No. 2012-01 – Application for a Certificate of Site and Facility (Antrim I)

On January 31, 2012, Antrim Wind, LLC filed an Application for a Certificate of Site and Facility with the Site Evaluation Committee. At that time, the Applicant [2] sought to site, construct, and operate ten (10) Acciona 3000 wind turbine generators each having a nameplate capacity of three (3) MW.

Adjudicative hearings were held in the Antrim I docket between October 16, 2012 and December 28, 2012.

The Subcommittee deliberated on February 5, 6, and 7, 2013, and denied the Application. *See* Docket No. 2012-01, Decision and Order Denying Application for Certificate of Site and Facility (April 25, 2013). The Subcommittee found that Project, as proposed at that time, had an unreasonable adverse impact on aesthetics and in particular its visual impact. *Id.* at 48-55. In coming to its conclusion to deny the Application, the 2012 Subcommittee felt that the 10 turbines proposed were out of scale and would have a significant qualitative impact on Willard Pond, Bald Mountain, Goodhue Hill and Gregg Lake. *Id.* A majority of the 2012 Subcommittee felt that the 10-turbine project would have a significant impact on the landscape with a particularly profound effect on Willard Pond and the dePierrefeu Wildlife Sanctuary. *Id.* In addition, the 2012 Subcommittee expressed concerns with the visual impact assessment and expert testimony presented during the adjudicative hearing. *Id.* Finally, a majority of the 2012 Subcommittee found that the mitigation plan offered by the Applicant was insufficient to offset the unreasonable adverse impact of the proposal. *Id.*

The Applicant filed a Motion to Reopen the Record on June 3, 2013. The Applicant requested that the Subcommittee reopen the record so that the Subcommittee could consider new

[2] In 2012, Antrim Wind Energy had different ownership and was a subsidiary company of Eolian Wind. In this docket, we will refer to Antrim Wind Energy as the Applicant with regard to all filings.

documents and evidence provided by the Applicant. Specifically, the Applicant asserted that, in response to the Subcommittee's comments during deliberation, the Applicant revised its plans and:

- Decided to remove turbine 10 in order to decrease the Project's impact on the aesthetics of the region;
- Agreed to conserve additional 100 acres on Tuttle Hill (total (908 acres);
- Reached an Agreement with the Town of Antrim on a one-time payment for enhancement to the Gregg Lake Beach area ($40,000); and
- Offered a one-time payment to the New Hampshire Audubon Society ($40,000).

The Subcommittee denied the Motion to Reopen the Record finding that:

> the review of the new evidence submitted by the Applicant would require the re-review of the entire Application in light of the requirements set forth by RSA 162-H. A distinction must be made between a request which would require the Subcommittee to review new evidence and a request which would materially change the original Application and would require the Subcommittee to conduct an extensive re-review of the entire Application. Although reopening of the record is permissible under the first set of circumstances, it is unacceptable under the second. Here, the Applicant seeks to introduce evidence which would materially change the original Application and would require extensive de novo review as opposed to "a full consideration of the issues *presented at the hearing*." NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES, Site 202.27 (b) (emphasis added).

See Order on Pending Motions, at 10-11 (Sept. 10, 2013).

B. Antrim Wind Energy, LLC - Docket No. 2015-02 – Application for a Certificate of Site and Facility (Antrim II)

On October 2, 2015, the Applicant filed an Application for a Certificate of Site and Facility with the Committee. The Applicant seeks to site, construct, and operate nine (9) Siemens SWT-3.2-113 direct drive wind turbines capable of generating 3.2 MW each for a total nameplate capacity of 28.8 MW[3] and associated civil and electrical infrastructure (Project). The Project will be located in the rural conservation zoning district of Antrim on private lands owned

[3] The estimated capacity does not include decreases in capacity due to curtailment associated with mitigation of shadow flicker impact. Tr., 09/13/2016, Afternoon Session, at 93. Decreases due to shadow-flicker control shall be minimal and are unlikely to have any impact on the Project's capacity. Tr., 09/13/2016, Afternoon Session, at 182.

by six landowners and leased by Antrim Wind. App. 33, at 5-6, 19, 27. The Applicant updated and supplemented the Application on February 19, 2016 and March 3, 2016.

On October 13, 2015, the Committee's Administrator forwarded correspondence to state agencies that appeared to have permitting, licensing or other regulatory authority over matters covered in the Application. The Administrator requested that each state agency review the relevant portions of the Application and advise the Committee if the Application did not contain sufficient information to consider the issuance of any permits, conditions, or licenses under the agencies' jurisdiction. No state agency reported that the Application was incomplete.

On October 16, 2015, the Administrator corresponded with the New Hampshire Attorney General requesting the appointment of an Assistant Attorney General as Counsel for the Public (CFP) pursuant to RSA 162-H:9. On October 19, 2015, the Attorney General formally designated Assistant Attorney General Mary E. Maloney to serve as CFP in this docket. By Order dated October 20, 2015, the Chair of the Committee appointed a subcommittee (Subcommittee) to review the Application, pursuant to RSA 162-H:4-a.

On October 21, 2015, Counsel to the Committee forwarded correspondence to the Towns of Antrim, Windsor, Stoddard, Nelson, Hillsborough, Hancock, Deering and Bennington notifying each municipality of the filing of the Application consistent with RSA 541-A:39 and the procedures to intervene in the proceeding. Similar letters were sent to the Hillsborough County Board of Commissioners and Southern Regional Planning Commission.

On December 1, 2015, the Subcommittee found that the Application contained sufficient information to carry out the purposes of RSA 162-H and accepted the Application.

On December 10, 2015, the Chair of the Subcommittee issued a Procedural Order setting forth a deadline for motions to intervene in this docket and scheduling a public information

session pursuant to RSA 162-H:10, I-a, a public hearing pursuant to RSA 162-H:10, I-c, and a prehearing conference. A public information session was conducted on January 6, 2016, and a public hearing was conducted on February 22, 2016.

Pursuant to the Procedural Order, the following parties filed Motions to Intervene with the Subcommittee:

- Town of Antrim Board of Selectmen;
- Stoddard Conservation Commission;
- Harris Center for Conservation Education;
- Audubon Society of New Hampshire;
- Windaction Group;
- International Brotherhood of Electrical Workers;
- Meteorologists – Richard Hendl, PhD., Joseph D'Aleo, PhD., Robert Copeland, MS, Bruce Schwoegler, Fred Ward, PhD.;
- Bruce Berwick and Barbara Berwick;
- Stephen Berwick;
- Brenda Schaefer, Mark Schaefer and Nathan Schaefer;
- Janice Duley Longgood;
- Clark A. Craig, Jr.;
- Loranne Carey Block and Richard Block;
- Annie Law and Robert Cleland;
- Ken Henninger and Jill Fish;
- Elsa Voelcker;
- Mary Sherbourne;
- Joshua Buco;
- Katherine Sullivan;
- Rosamund Iselin;
- Wesley Enman;
- Charles A. Levesque;
- Mary E. Allen;
- Benjamin Pratt;
- John F. Giffin;
- Apryl L. Perry and Timothy A. Perry; and

- Karen Weisswange.

On February 16, 2016, the Chairman of the Subcommittee issued an Order granting some of the petitions to intervene and combining the intervenors in the following groups:

- Town of Antrim Board of Selectmen;
- Stoddard Conservation Commission;
- Harris Center for Conservation Education;
- Audubon Society of New Hampshire;
- Windaction Group;
- International Brotherhood of Electrical Workers;
- Meteorologists Group of Intervenors– Richard Hendl, PhD., Joseph D'Aleo, PhD., Robert Copeland, MS, Bruce Schwoegler, Fred Ward, PhD.;
- Abutting Residents Group of Intervenors - Bruce Berwick, Barbara Berwick, Stephen Berwick, Brenda Schaefer, Mark Schaefer, Nathan Schaefer, Janice Duley Longgood and Clark A. Craig, Jr.;
- Non-Abutting Property Residents - Loranne Carey Block, Richard Block, Annie Law, Robert Cleland, Ken Henninger, Jill Fish, Elsa Voelcker, Mary Sherbourne, Joshua Buco, Katherine Sullivan and Rosamund Iselin;
- Wesley Enman; and
- Levesque/Allen/Pratt/Griffin Group of Intervenors - Charles A. Levesque, Mary E. Allen, Benjamin Pratt and John F. Giffin.

A Prehearing Conference was held on February 25, 2016. The Procedural Schedule was issued on March 25, 2016.

The Subcommittee conducted site visits on February 9, 2016 and September 8, 2016.

The adjudicative hearing lasted thirteen days.[4] During the adjudicative hearing, the Applicant presented testimony of its witnesses who were cross-examined by members of the Subcommittee, CFP and the Intervenors. CFP presented the testimony of her expert and other related exhibits in this docket. The Intervenors and their witnesses also presented testimony and

[4] Adjudicative hearings in this docket were held on September 13, 15, 20, 22, 23, 28, 29, October 3, 18, 19, 20 and November 1 and 7, 2016.

were cross-examined. In total, the Subcommittee received 220 exhibits. The Subcommittee also received a number of public comments, oral and written, from interested members of the public.

After the adjudicative hearings in this docket, Post-Hearing Memoranda and Final Briefs were filed by the following parties:

- Applicant;
- Counsel for the Public;
- Town of Antrim Board of Selectmen;
- Stoddard Conservation Commission;
- Harris Center for Conservation Education;
- Audubon Society of New Hampshire;
- Windaction Group;
- Fred Ward, PhD.;
- Bruce Berwick;
- Barbara Berwick;
- Stephen Berwick;
- Brenda Schaefer, Mark Schaefer, and Nathan Schaefer;
- Janice Duley Longgood;
- Clark A. Craig, Jr.;
- Loranne Carey Block and Richard Block;
- Annie Law and Robert Cleland;
- Ken Henninger and Jill Fish;
- Elsa Voelcker;
- Mary Sherbourne;
- Joshua Buco;
- Katherine Sullivan;
- Wesley Enman; and
- Charles A. Levesque and Mary E. Allen.

The Subcommittee deliberated over three days on December 7, 9 and 12, 2016.

After deliberation a majority of the Subcommittee voted to approve the issuance of the certificate subject to conditions.[5]

III. APPLICATION

A. Antrim Wind Energy LLC - Docket No. 2012-01 – Application for a Certificate of Site and Facility (Antrim I)

The facility, as originally proposed in 2012 consisted of ten (10) Acciona 3000 wind turbine generators each having a nameplate capacity of three (3) MW. Each turbine would rise to 492 feet above ground level when measured from its base to the tip of its blade. As proposed, each of the turbines would be constructed at the following site elevation: (1) WTG[6]-1 1,431 feet; (2) WTG-2 1,743 feet; (3) WTG-3 1,758 feet; (4) WTG-4 1,682 feet; (5) WTG-5 1,726 feet; (6) WTG-6 1,516 feet; (7) WTG-7 1,676 feet; (8) WTG-8 1,700 feet; (9) WTG-9 1,646 feet; (10) WTG-10 1,896 feet. The ridgeline designated for the location of the turbines has a site elevation fluctuating between 1,042 feet and 1,904 feet.

Six of the turbines would be equipped with red flashing aviation obstruction lights. The Applicant had agreed in 2012 to install a radar activated light control system, once it became available.

In addition, the projects as proposed in 2012 would consist of approximately 4 miles of new gravel surfaced roads within the project area, a joint electrical collector system consisting of both underground and overhead collection lines, an interconnection substation, and an operations and maintenance building of approximately 3,000 square feet. The main access road would be approximately 3.47 miles long and would be built in two sections: (1) the first section will connect Rte. 9 to wind turbine generator WTG #1; and (2) the second section includes the

[5] Commissioner Scott, Commissioner Rose, Director Forbes, Mr. Clifford and Ms. Weathersby voted to issue the Certificate. Mr. Boisvert voted in the minority.
[6] Wind Turbine Generator.

remainder of the road, from WTG #1 to the ridge and then along the ridgeline. There would also be two spur roads installed to access individual turbines.

The Applicant proposed to interconnect the original facility to an existing PSNH 115 kV electric transmission line through the proposed interconnection substation which would be constructed adjacent to the existing Public Service of New Hampshire (PSNH) L-163115 kV electric transmission line.

As proposed, the operation and maintenance building would be a single story structure comprising approximately 3,000 square feet including offices and associated facilities (bathrooms, kitchen, and storage) for technicians, a garage for spare parts and supplies and a computer server room.

The Applicant also would install a permanent meteorological tower on the ridgeline between turbine 3 and turbine 4 to obtain wind data at the site for wind turbine performance management.

The Applicant agreed to install radar activated lighting system, once it becomes available. The Applicant also agreed to conserve 800 acres of conservation lands. No shadow flicker control was proposed.

CFP's expert, Ms. Jean Vissering, recommended the following mitigation measures:

- Eliminate turbines 9 and 10.
- Use an Obstacle Collision Avoidance System or similar motion activated collision avoidance system.
- Use smaller turbines.
- Specific plans for land conservation as part of an off-site mitigation program must be identified and provide a meaningful counterbalance to the impacts of the natural and scenic resources of the area.
- Identify and address all areas from which portions of roads, ridgeline clearing, cut and fill slopes and/or turbine pads may be visible.
- General revegetation of cut and fill slopes and all non-permanent surfaces must occur immediately following construction. Revegetation must be with native plants and seed sources preferably using stockpiled soil. Introduction of exotic

species should be avoided. Planting of indigenous species may be required in some areas as discussed above. A specific plan should be developed and approved by the New Hampshire revegetation is successful.

- Any significant visibility of the substation and operation and maintenance facility may need to be mitigated with screening plantings.

B. Antrim Wind Energy, LLC - Docket No. 2015-02 – Application for a Certificate of Site and Facility (Antrim II)

Antrim Wind is a Delaware limited liability company that was formed as a special purpose entity to develop, build, own and operate the Project. App. 33, at 2; App. 14, at 3. Its principal place of business is in Portsmouth, New Hampshire. App. 33, at 2. Antrim Wind is owned by Walden Green Energy, LLC (Walden) through two wholly owned subsidiaries: (i) Walden Green Energy Northeast Wind, LLC (Walden Green EN); and (ii) Walden Antrim, LLC (Walden Antrim). App. 35, at 5; App. 15, at 6; App. 14, at 4. Walden, Walden Green EN and Walden Antrim are Delaware limited liability companies. App. 35, at 5; App. 14, at 4.

The Project is proposed to be located in the Town of Antrim on the Tuttle Hill ridgeline spanning southwestward to the northeastern slope of Willard Mountain. App. 33, at 5. The Project will be constructed primarily on the ridgeline that starts approximately 0.75 miles south of NH Route 9 and runs south-west, for approximately 2 miles. App. 33, at 5. The Project will be located in the rural conservation zoning district on approximately 1,870 acres of private lands owned by six landowners and leased by Antrim Wind. App. 33, at 5-6, 19. After construction, the leased area will be reduced to include only the footprint of the disturbed area and any required setback and undisturbed buffers (approximately 11.3-11.4 acres). App. 33, at 20; Tr., 09/20/16, Morning Session, at 123.

The Project will consist of 9 Siemens SWT-3.2-113 direct drive turbines each with a nameplate generating capacity of 3.2 MW with a total nameplate capacity of 28.8 MW. App. 33, at 19, 27. Each turbine that the Applicant seeks to install will consist of: (i) a tower; (ii) a

nacelle; and (iii) a rotor with three blades. App. 33, at 19, 27; App. 33, Appx. 5. The towers for turbines 1-8 will each be 92.5 meters tall and the tower for turbine 9 will be 79.5 meters tall. App. 33, at 19, 27; App. 33, Appx. 5. Each rotor will be 113 meters in diameter. App. 33, at 19, 27; App. 33, Appx. 5. The total turbine height from foundation to blade tip for turbines 1-8 will be 488.8 feet and for turbine 9 will be 446.2 feet. App. 33, at 19, 27; App. 33, Appx. 5.

The Project will also include turbine foundations, staging areas, work pads, gravel roadways, electrical substations, a permanent meteorological tower, radar system, and operations and management building. App. 33, at 19-21, 49-52; App. 33, Figure E.3.

Turbine foundations will be approximately 24 feet in diameter and made of concrete and steel. App. 33, at 50. Gravel staging/assembly areas and crane pads will be installed adjacent to each turbine foundation. App. 33, at 51. Turbines 1 and 9 will have additional adjacent crane assembly pads of approximately 200-feet by 50-feet. App. 33, at 51. The staging areas will be approximately one acre. App. 33, at 51. They will be reclaimed and reseeded post-construction. App. 33, at 51. Crane pads will remain in place after construction. App. 33, at 51.

During construction of the Project, the Applicant will use two temporary laydown yards for contractor offices and materials and equipment handling and storage. App. 33, 17 19-20. One laydown yard will be located in an upland area between Route 9 and the Project substation covering approximately 2 acres. App. 33, 17 19-20. The second laydown yard will be approximately 2.9 acres located off Route 9, west of the proposed Project entrance. App. 33, at 19-20.

The Project will require construction of a main access road and two spur roads that will be used for access to individual turbines. App. 33, at 20-21. The main access road will consist of two segments: (i) 0.7 miles connecting Route 9 with turbine 1; and (ii) 2.3 miles from turbine

1 to the ridge and along the ridge. App. 33, at 20. The spur roads will be 0.4 and 0.14 miles long. App. 33, at 20-21. Upon completion of the Project, all surface roads associated with the Project will be restored so that they will be 16 feet wide. App. 33, at 21, 49.

A joint collector system and interconnection substation will be constructed as part of the Project. App. 33, at 21, 49-51. A single 34.5 kV three-phase collector line will be constructed from the collector substation to the individual turbines. App. 33, at 51. It will follow the access road, with turbines connecting underground. App. 33, at 51; App. 33, Appx. 7B.

The collector and interconnection substation will be located immediately to the north of the PSNH L163 line. App. 33, at 21. The substation will deliver the power from the turbines to the grid. App. 33, at 30, 49. The substation yard will consist of: (i) a collection yard measuring 100 feet by 111 feet that will contain a transformer and control house (16x20); and (ii) an interconnection yard measured 172 feet by 186 feet, that will contain a three-breaker ring bus and a 20-foot by 24-foot control house. App. 33, at 30, 49. PSNH will own the land on which the interconnection yard will be located. App. 33, at 50. The Applicant will purchase the land and will transfer it to PSNH after completion of construction of the Project. App. 33, at 50. The Applicant has received the necessary subdivision approvals from the Town of Antrim to subdivide the land necessary for the conveyance of the substation to PSNH. App. 33, at 50; App. 33, Appx. 7F. The Applicant requests that the Subcommittee approve the transfer of the land and interconnection substation to PSNH. App. 33, at 50.

The meteorological tower will be a 100-meter free-standing lattice tower that will be located on the ridge between turbines 2 and 3. App. 33, at 20, 51. A radar activated system such as the Harrier Radar System manufactured by DeTect, Inc. will be installed: (i) on and at

the base of the meteorological tower; and (ii) on a steel monopole tower that will be approximately 90-feet tall. App. 33, at 51-52; App. 33, Appx. 5A; App. 24, at 40.

The operations and maintenance building will be comprised of approximately 3,000 square feet and will include offices and associated facilities for technicians, a garage for spare parts and supplies, and a computer server room. App. 33, at 37, 50; App. 33, Appx. 7C.

The Applicant will use a shadow control protocol provided by Siemens (SCADA System) to ensure that the shadow flicker at the affected properties will not exceed a total of eight hours per year. App. 13, at 13-14. The Applicant also will install a radar activated lighting system, "as soon as the FAA approves such systems for wind projects." App. 33, Appx. 10; App. 9, at 10-11.

IV. POSITIONS OF THE PARTIES

In this section, we summarize the position of the parties. This docket presents the unusual situation when a claim has been made that the Application should be dismissed or denied because the issues have been previously adjudicated. We first summarize the position of the parties with respect to the claims of *res judicata* and/or collateral estoppel. We then address the positions of the parties on issues before the Subcommittee.

A. Collateral Estoppel and *Res Judicata*

1. The Applicant

The Applicant argues that *res judicata* and/or collateral estoppel do not bar adjudication in this docket because the Project is materially and substantively different than that proposed in Antrim I and, the controlling law, under which the Application must be analyzed, has changed.

2. Counsel for the Public

CFP argues that the Project is not substantially or materially different from the project proposed in Docket No. 2012-01(Antrim I), and therefore the doctrines of *res judicata* (claim

preclusion) and/or collateral estoppel (issue preclusion) bar adjudication in this docket. Bruce Berwick, Richard Block and Loranne Carey Block agree and argue that the Project is substantially similar to the proposed project in Antrim I.

3. Intervenors

The Intervenors took no position.

B. Application

1. Applicant

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

- Patrick M. Martin, Civil Engineer of TRC Companies, Inc. (App. 8)[7];
- Arthur Cavanagh, Director, Wind Energy/Senior Project Manager at Reed & Reed, and Donald Marcucci, Director, Project Acquisitions for Siemens Energy, Inc. (App. App. 3);
- Darrell Stovall, Principal Engineer, Asset Management and Operations Services of DNV GL (App. 2);
- David Raphael, Professional Landscape Architects and Planner, Principal and Owner of LandWorks (original and supplemental pre-filed testimony) (App. 9, 23);
- John (Jack) Kenworthy, Head of Development of Walden Green Energy, LLC (original, amended and supplemental pre-filed testimony) (App. 10, 14, and 24);
- Mathew Magnusson, Owner of Seacoast Economics (App. 4);
- Dana Valleau, Environmental Specialist of TRC Environmental Corporation, and Adam J. Gravel, Managing Leader of Stantec Consulting (original and supplemental pre-filed testimony) (App. 7 and 22);
- Henry Weitzner, Co-Founder of Walden, and Eric Shaw, Global Head of Principal Investments for RWE Supply & Trading and Chief Executive Officer of

[7] Mr. Martin adopted pre-filed testimony that was originally filed as joint pre-filed testimony of Mr. Martin and Daniel T. Butler, Manager, Civil and Transmission Engineering Department of TRC Companies, Inc. *See* Correspondence for Applicant (Sept. 7, 2016).

RWE Trading Americas, Inc. (original, amended and supplemental pre-filed testimony) (App. 1, 15, and 20);

- Richard Will, Manager, Northeast Cultural Division, of TRC Companies, and Russell Stevenson, Architectural Historian of A. D. Marble & Company (App. 5); and

- Robert O'Neal, Principal of Epsilon Associates, Inc. (original, amended and supplemental pre-filed testimony) (App. 6, 13, and 21).

The Applicant asserts that the information contained in its Application, pre-filed testimony, and exhibits clearly demonstrate that it has the financial, managerial and technical capability to construct, manage, and operate the Project in accordance with the conditions of the Certificate. App. 33, at 60-73. In addition, the Applicant asserts that the Project will not unduly interfere with the orderly development of the region and will not have an unreasonable adverse effect on aesthetics, historic sites, air and water quality, the natural environment, or public health and safety. App. 33, at 74-117. The Applicant asserts that the Subcommittee should grant the Application and issue a Certificate to the Applicant.

2. Counsel for the Public

CFP submitted the pre-filed testimony and the report prepared by Kellie Anne Connelly, Registered Landscape Architect and Co-Owner/Principal of Terraink Incorporated. CFP 1. Based of Ms. Connelly's report and testimony, CFP argues that the Project will have unreasonable adverse effect on aesthetics of the region.

CFP also argues that the Project is contrary to the land use in the region because its construction is not allowed by the Town of Antrim's Master Plan, Zoning Ordinance and Open Space Conservation Plan. *See* CFP Post Hr'g Mem. CFP asserts that the Project will have an unreasonable impact on tourism and argues that a number of residents in the Town of Antrim and local boards expressed their strong opposition to the Project. *See* CFP Post Hr'g Mem. at 50-51.

Finally, CFP asserts that the decommissioning plan and financial assurances of decommissioning are inadequate. *See* Post Hr'g Mem. At 49-50.

3. Intervenors

a. Town of Antrim Board of Selectmen

The Town of Antrim Board of Selectmen (Town of Antrim) filed testimony of:

- John Robertson, Chairman, Antrim Board of Selectmen, Michael Genest,[8] Selectmen, and Robert L. Edwards, Selectmen (Antrim 2, 3); and
- Everett Thurber, Town of Lempster Board of Selectmen (Antrim 1).

The Town of Antrim asserts that it and its residents support the siting, construction, and operation of the Project. Antrim 2, at 2; Antrim 3, at 2. The Town of Antrim further submits that the Project will benefit the Town, the Contoocook Valley School District, the region and the economy. Antrim 2, at 3. The Town asserts that it negotiated a 20 year Agreement for Payment in Lieu of Taxes (PILOT). Antrim 2, at 3. Under the PILOT the Applicant will pay approximately $324,000 per year in property tax. Antrim 2, at 3. The Applicant also agreed to fund improvements of the Gregg Lake boat launch, picnic area and other facilities. Antrim 2, at 4. The Applicant has also agreed to make a $5,000 annual payment to the Antrim Scholarship Committee. Antrim 2, at 4.

The Town also asserts that the construction and operation of the Project will promote State and local renewable energy goals and will promote conservation by conserving 908 acres of land through conservation easements and providing $100,000 for conservation land acquisition to the New England Forestry Foundation. Antrim 2, at 4-5.

The Town of Antrim also argues that the Project will not have an unreasonable adverse effect on aesthetics and the natural environment of the region. *See* Town of Antrim's Post Hr'g

[8] The Town of Antrim also filed the supplemental testimony of Mr. Genest and Mr. Robertson.

Mem. At 22-25. The Town further asserts that the Project will not have an unreasonable adverse effect on public health and safety where: (i) shadow flicker and noise will be within the limits set forth by the Committee's rules; and (ii) the risk of ice throws will be minimized through the use of appropriate technology. *See* Town of Antrim's Post Hearing Mem. The Town concludes that the Project's benefits outweigh the Project's adverse impacts and requests the Subcommittee to grant a Certificate to the Applicant. Antrim 2, at 3.

b. Stoddard Conservation Commission

The Stoddard Conservation Commission (SCC) submitted testimony (original and supplemental) for Mr. Geoffrey T. Jones (SCC Exhibit B and C). SCC opposes the Application.

Mr. Jones testified that 21,896 acres (65% of the Town) in the Town of Stoddard are permanently protected from development though the use of a conservation easement or fee ownership of land by land trusts. SCC Exhibit C, at 3. Out of 21,896 acres, 6,518 acres are in a "Forest Wild" designation. SCC Exhibit C, at 3. Mr. Jones asserted that these conservation lands and abutting undeveloped lands are one of the most significant, unfragmented habitat areas in southern New Hampshire. SCC Exhibit C, at 3. The conservation land in Stoddard abuts protected lands representing over 40,000 acres of permanently protected conservation lands in Washington, Windsor, Antrim, Hancock, Sullivan, Nelson, Harrisville, Gilsum, and Marlow (the so called "Super Sanctuary"). SCC Exhibit C, at 4. Mr. Jones argued that construction and operation of the Project will have a "profound" impact on the interconnected conservation lands and adjacent conservation lands in Stoddard, will fragment important high elevation habitat and will splinter wildlife corridors. SCC Exhibit C, at 5. Mr. Jones claimed that development of Tuttle Hill and surrounding lands will result in habitat loss and will make the area vulnerable for invasion of invasive plants and pests. SCC Exhibit C, at 6. Mr. Jones believes that the impact is

particularly negative considering that the Wildlife Action Plan gave Tuttle Hill the highest habitat ranking and recommended to avoid new development in this area. SCC Exhibit B, Geoffrey Jones.

Mr. Jones further argued that construction and operation of the Project will have an unreasonable adverse effect on views from Pitcher Mountain and views from Bacon Ledge. Pre-Filed Testimony, Geoffrey Jones, at 7.

Finally, the Stoddard Conservation Commission argues that the Project is not in the public interest because it will produce a limited amount of power, while causing significant adverse impacts on the natural environment of the region. *See* Stoddard Conservation Comm. Final Brief.

c. Harris Center for Conservation Education

The Harris Center for Conservation Education (HCCE) took no position regarding the Applicant's request. *See* Post-Hearing Memorandum, ¶1. HCCE did not present any exhibits and did not examine any witnesses in this docket. *See* Post-Hearing Memorandum, ¶2. HCCE acknowledged, however, that, if the Subcommittee issues a Certificate, the conservation easement proposed by the Applicant will make a valuable contribution to the conservation interests of stakeholders in the region. *See* HCCE Post Hr'g Mem., ¶4.

d. Audubon Society of New Hampshire

The Audubon Society of New Hampshire (ASNH) opposed the Application and filed the following pre-filed testimony:

- Carol R. Foss, Senior Advisor for Science and Policy (original and supplemental pre-filed testimony) (ASNH 3 and 4);
- Douglas A. Bechtel, a President of Audubon Society of New Hampshire (ASNH 2);

- Michael J. Buscher,[9] a professional landscape architect and owner of T.J. Boyle Associates, LLC (ASNH 6);

- Michael J. Bartlett, a President of ASNH (ASNH 1); and

- Frances Von Mertens, a former Trustee and current honorary Trustee of ASNH and a member of ASNH's Sanctuaries and Land Management Committee (ASNH 5).

Ms. Foss asserted that the Applicant seeks to construct the Project in a region that is targeted by a collaborative effort to conserve wildlife habitat and managed timberlands within approximately two million acres between the Quabbin Reservoir in Massachusetts and the White Mountain National Forest in New Hampshire (Qaubbin to Cardigan Initiative or Q2C). ASNH 3, at 2. The Project will also be located within the area that was recognized by The Nature Conservancy as a Tier I Matrix Forest Block.[10] ASNH 3, at 3. She further testified that the Project Site will be abutted on the south and east by the "Super Sanctuary" – an assemblage of protected lands in the Monadnock Region's central highlands, including portions of Antrim, Greenfield, Hancock, Harrisville, Nelson, Peterborough, and Stoddard. ASNH 3, at 3. Furthermore, a majority of the Project's Site is identified in the 2015 New Hampshire Wildlife Action Plan as the Highest Ranked Habitat in New Hampshire. ASNH 3, at 4. Ms. Foss opined that the Project will have an unreasonable adverse effect on aesthetics and the natural environment, it will unduly interfere with the orderly development of the region and its construction and operation is not in the public interest. ASNH 3, at 5-7.

[9]The Subcommittee received two sets of pre-filed testimony from Mr. Buscher: (i) pre-filed testimony for ASNH; and (ii) joint pre-filed testimony for ASNH (addressing impact of the Project on Willard Pond) and the Non-Abutting Property Owners Group of Intervenors (addressing the impact of the Project on Gregg Lake).

[10] A Tier I Matrix Forest Block is "a large contiguous area with a size and natural condition that allow for the maintenance of ecological processes and viable matrix forest communities, large and small patch communities, and populations of native plant and animal species, represent the best examples of a viable matrix forest within the region." ASNH 3, at 3.

Mr. Bartlett asserted that the dePierrefeu-Willard Pond Wildlife Sanctuary in Antrim and Hancock is ASNH's largest and most significant property. ASNH 1, at 2. He also testified that Willard Pond is a unique resource because its entire shoreline is undeveloped and no human infrastructure is visible from the water. ASNH 1, at 4. Mr. Bartlett opined that the Project will have an unreasonable adverse effect on aesthetics and the natural environment. He also opined that the Project is not in the public interest. ASNH 1, at 15.

Ms. Von Mertens testified about unique nature of Willard Pond. ASNH 5. She opined that the Project is not in the public interest and will have an unreasonable adverse effect on aesthetics and the natural environment. ASNH 5, at 12.

ASNH argues that the Project will have an unreasonable adverse effect on three scenic resources within the dePierrefeu Sanctuary: (i) Willard Pond; (ii) Bald Mountain; and (iii) Goodhue Hill. *See* Post Hr'g Mem. at 2-12 or *passim.* ASNH also argues that the New Hampshire Environmental Community does not support construction and operation of the Project. *Id.* ASNH further opines that Mr. Raphael's visual impact assessment did not adhere to the Committee's rules. *Id.* at 22-25.

e. Windaction Group

Windaction Group filed the testimony (original and supplemental) of Lisa Linowes, Executive Director of Windaction (WA-01 – 04).

Ms. Linowes argued that the decommissioning plan proposed by the Applicant does not comply with the Committee's rules. WA-01, at 3-4. Ms. Linowes further argued that the Applicant's expert, Robert O'Neal's, assessment of the Project's sound impacts does not comply with the rules. WA-01, at 3-4. Ms. Linowes also asserted that Mr. O'Neal's shadow flicker analysis is deficient. WA-01, at 7-9. Ms. Linowes further argued that the Project is not safe,

may catch on fire and may throw detached blades or ice. WA-01, at 9-14. Ms. Linowes argued that the Applicant failed to demonstrate that it has the financial and managerial capability to construct and operate the Project in accordance with the Certificate. WA-01, at 15-16.

Windactions's post hearing memorandum took issue with Mr. O'Neal's predictive sound modeling methodology stating that his methodology did not comply with ISO[11] standard ISO 9613-2 which is incorporated into the Committee's rules. See NH ADMIN. RULES, Site 301.18(c)(1). WA-02, at 2-5. Windaction also stated that ice throw risk from the turbines is a public health risk (*Id.* at 15-16) and that the Applicant does not have the financial, managerial and technical skills to operate the facility because the pro-forma financial statements accompanying the application overstate revenues, understate costs and overstate both the depreciation and investment tax credits applicable to the Project. *Id.* at 18-19.

f. International Brotherhood of Electrical Workers

The International Brotherhood of Electrical Workers (IBEW) did not file testimony with the Subcommittee. In its Motion to Intervene, however, IBEW asserted that it supports the construction and operation of the Project. Specifically, it argued that the Project will benefit its members and will benefit the orderly development of the region and economy by generating approximately 84 full-time positions during its construction and 12 full-time positions during its operation.

g. Meteorologist Group of Intervenors

The Meteorologist Group of Intervenors filed the testimony of Fred Ward, PhD. MI 1. Dr. Ward argued that in order to compensate for the days when the wind turbines do not operate

[11] International Organization for Standardization headquartered in Switzerland sets international standards covering all aspects of technology and manufacturing including methods for calculating the attenuation of sound. For more information see https://www.iso.org/home.html

due to the weather conditions, the turbines should operate at their highest capacity when the weather permits. MI 1, at 2-4. He further testified that, due to the weather conditions in the State of New Hampshire, all turbines in the State of New Hampshire will be generating at their maximum capacity at the same time. MI 1, at 2-4. He opined that such a situation may cause an overload of the electric grid. MI 1, at 2-4. Dr. Ward further asserted that the Subcommittee cannot determine the effect of the Project on aesthetics from visual simulations because the Project will consist of various moving parts and will not be stagnant. MI 1, at 4-5. Finally, Dr. Ward opined that the Subcommittee should consider meteorological factors and weather conditions while analyzing the impact of the Project on the development of region, sources of shadow flicker and ice throws. MI 1, at 5-10.

h. Abutting Residents Group of Intervenors

The Subcommittee received testimony from the following members of the Abutting Property Group of Intervenors:

- Richard Block (original and supplemental pre-filed testimony) (AB 12-14);
- Loranne Carey Block (AB 11);
- Richard R. James (original and supplemental pre-filed testimony) (AB 20-22);
- Janice Duley Longgood (AB 1 and 2);
- Clark A. Craig, Jr. (AB 36);
- Barbara Berwick (original and supplemental pre-filed testimony) (AB 6-8);
- Bruce Earl Berwick (AB 9);
- Stephen Berwick (AB10); and
- Brenda Schaefer, Mark Schaefer, and Nathan Schaefer (AB 39).

Mr. Block argued that the Project will have an unreasonable effect on aesthetics. AB 12, at 3-19. He asserted that the Project is substantially similar to the Project rejected by the Committee in the prior docket. AB 12, at 3-19. He further opined that the Visual Impact Assessment filed by the Applicant is unreliable and misleading. AB 12, at 3-19. Mr. Block claimed that the Project is not supported by the people of the Town of Antrim. AB 14, at 3-4. He argued that his claim is supported by the fact that people in Antrim voted against the latest amendment to the Town's Zoning Ordinance that was proposed by the Applicant. AB 14, at 3-4. Finally, Mr. Block opined that construction of the Project will cause the destruction of currently existing boulders and associated habitat on the Site. AB 14, at 4-5.

Ms. Block argued that the Project is "grossly out of scale" and is "totally inappropriate for the region." AB 11, at 2; Tr., 10/18/16, Afternoon Session, at 94-95. Ms. Block further asserted that, although the Applicant promised to install an aircraft detecting lighting system, it failed to involve communication with the Federal Aviation Administration (FAA) and failed to implement any measures required for its installation. AB 11, at 6-7. Finally, Ms. Block argued that the Project will have a direct negative effect on her and her family where five turbines and associated lightening will be visible from her house and she and members of her family will be exposed to noise associated with the Project. AB 11, at 7.

The Abutting Landowners Group of Intervenors filed the testimony (original and supplemental) of Richard R. James. AB 20 and 21. Mr. James opined that the Applicant's expert's sound assessment is inaccurate and contrary to industry practices. AB 20, at 3-4, 7-14.

Ms. Longgood testified that noise, night-time lighting and shadow flicker associated with the Project will have an adverse effect on her property and her enjoyment of the property. AB 1, at 1-2. She expressed her concerns about the effect of blasting associated with the Project may

have on her well and ground waters. AB 1, at 2. Ms. Longgood urged the Subcommittee to consider the Project's effect on her property and to compensate her for the enjoyment she may lose as a result of the construction and operation of the Project. AB 1, at 2.

Mr. Craig asserted that he owns the land abutting the Project and his back property line will be approximately 1,000-feet from turbine 3, and his side property line will be approximately 990-feet from turbine 2. AB 36, at 1. Mr. Craig expressed his concerns about the effect the noise, lights, shadow flicker and blasting may have on his property. AB 36, at 1. Mr. Craig requested the Subcommittee to deny the Project or, in the alternative, to request the Applicant to relocate the turbines at least 400 feet away. AB 36, at 1-2.

Ms. Berwick argued that the Project will negatively affect the enjoyment of her property because she will be forced to observe and experience the Project's lights, shadow flicker and noise. AB 6, at 1-2. Ms. Berwick also opined that the sound measurement performed by the Applicant's expert is unreliable because they did not account for weather conditions and other intervening factors. AB 6, at 2-3. She further argued that the shadow flicker analysis filed by the Applicant is unreliable because it failed to calculate the "worst case scenario" and failed to account for all sunshine that potentially can cause a shadow flicker effect. AB 6, at 3-4. Ms. Berwick also claimed that construction and operation of the Project will have an adverse effect on wildlife of Tuttle Mountain. AB 6, at 3-4. She argued that the Project will present a significant threat to the public's health and safety if there is a lightning strike, ice throw or a fire due to a mechanical malfunction. AB 6, at 3-4; AB 8; Post-Hearing Brief of Barbara Berwick. Citing the defect of a recent wind ordinance of Town meeting, Ms. Berwick claimed that the people of Antrim do not approve of the construction and operation of the Project. AB 6, at 4. Ms. Berwick also expressed her concern about the effect of the Project on the views and value of

her property. AB 6, at 2. She urged the Subcommittee to deny the Application or, in the alternative, to order the Applicant to purchase real estate that will be affected by the Project. AB 6, at 2.

Mr. Bruce Berwick concurred with Ms. Berwick's position that the people of Antrim do not support construction and operation of the Project. AB 9, at 2. He also asserted that he reviewed a number of sources about the effect of the turbines on health and argued that the Project and associated noise and lights may have an adverse effect on human health. AB 9, at 1. Mr. Berwick also argued that the Project will have an unreasonable adverse effect on aesthetics and water quality. *See* Post-Hearing Brief of Bruce Berwick. Mr. Berwick expressed his concerns about the effect of noise and shadow flicker associated with the Project on a new structure that his family recently constructed approximately one mile from the Project. *See* Post-Hearing Brief of Bruce Berwick.

Mr. Stephen Berwick also concurred with Ms. Berwick's position that the people of Antrim do not support the construction and operation of the Project. AB 10, at 1. Mr. Berwick is concerned about the effect of the Project on the property he intends to inherit from his parents, Mr. and Mrs. Berwick, and argues that the Project is not a "green" energy project. AB 10, at 1.

Brenda Schaefer, Mark Schaefer and Nathan Schaefer filed joint testimony. AB 39. They asserted that construction and operation of the Project is not in the public interest because the turbines do not present the most efficient form of generating facilities and New Hampshire does not have a need for additional electricity. AB 39, at 1. They also claimed that the Project will permanently alter the rural character of area. AB 39, at 1. The Schaefers also argued that the people of Antrim do not support the operation and construction of the Project and requested the Subcommittee deny the Application. AB 39, at 1-2.

i. Non-Abutting Property Residents

The Non-Abutting Property Residents Group of Intervenors submitted the following testimony from:

- Kenneth Henninger;
- Elsa Voelcker (original, supplemental and revised pre-filed testimony);
- Annie Law and Robert Cleland (original and supplemental pre-filed testimony) (AB 24)[12]; and
- Michael Buscher (NA 12).

Mr. Henninger testified that he and his wife own a house in Stoddard and a recreational cross-country ski facility in Antrim. Pre-Filed Testimony, Kenneth Henninger, at 1. Mr. Henninger testified that he and his wife observed numerous wind turbines during their tour in Europe. Pre-Filed Kenneth Henninger, at 1. He further testified that none of these turbines were constructed in forested areas. Pre-Filed Testimony, Kenneth Henninger, at 2.

Ms. Voelcker argued that the Project is substantially similar to the project previously addressed and rejected by the Subcommittee. Pre-Filed Testimony, Elsa Voelcker, at 1. She further opined that, similar to the prior project, this Project will have a substantial adverse effect on aesthetics in the region. Pre-Filed Testimony, Elsa Voelcker, at 1. She asserted that the visual simulations of the Project "were purposely designed to fade the wind towers into the haze." Pre-Filed Testimony, Elsa Voelcker, at 1. She argued that the towers and lighting associated with the Project will be visible from multiple points in the Town of Antrim and will have a substantial adverse effect on aesthetics of the region. Pre-Filed Testimony, Elsa Voelcker, at 1. She further opined that construction of the Project and associated blasting will have a substantial adverse effect on the natural environment. Pre-Filed Testimony, Elsa

[12] Appraisal attached to Annie Law and Robert Cleland's supplemental pre-filed testimony was stricken by Order dated September 13, 2016.

Voelcker, at 1. Finally, she opined that noise associated with the Project will have an adverse effect on people residing nearby. Pre-Filed Testimony, Elsa Voelcker, at 1.

Annie Law and Robert Cleland expressed their concerns about the effect of the Project on aesthetics and health. AB 24, at 1. They also asserted that their house is located approximately 1.5 miles from Tuttle Mountain and opined that the Project will have a significant adverse effect on the value of their house. AB 24, at 1. They urged the Subcommittee to require the Applicant to purchase their property. *See* Supplemental Pre-Filed Testimony, Annie Law and Robert Cleland, at 2. They also argued that Mr. Kenworthy lacks the required experience for construction and operation of the Project. AB 24, at 2-3. Annie Law and Robert Cleland also claimed that the voters of the Town of Antrim do not support the construction and operation of the Project and requested that the Subcommittee deny the Application. AB 24, at 4.

j. Wesley Enman

Mr. Enman filed his testimony in support of the Project. Pre-Filed Testimony, Wesley Enman. Mr. Enman asserted that he visited the proposed Site and the Lempster Project that was approved in SEC Docket No. 2006-01. Pre-Filed Testimony, Wesley Enman. He further testified that during his tour of the Lempster Project: (i) he did not observe any significant impact on wildlife; (ii) measured the sound levels of the Project and concluded that it was much lower than proposed by the Applicant; and (iii) spoke with town officials and residents who confirmed that, apart from two abatements, the Town did not receive any complaints about the Project. Pre-Filed Testimony, Wesley Enman. Mr. Enman also observed and testified that the Lempster Project did not negatively affect tourism in the area and, although it impacted some scenic views, did not make these views unpleasant. Pre-Filed Testimony, Wesley Enman. Mr. Enman urged

the Subcommittee to consider his observations and grant a Certificate to the Applicant. Pre-Filed Testimony, Wesley Enman.

Mr. Enman also testified that he and Mr. Ben Pratt conducted two informal surveys. AD 18. Mr. Enman testified that, on two separate occasions, they asked 26 separate visitors of the Willard Pond whether, in their opinion, construction of the turbines would impact their enjoyment of the Pond. AD 18. Mr. Enman asserted that opinions about the impact of the Project varied depending on visitors' background and reasons for visiting the Pond. AB 18.

k. Levesque/Allen Group of Intervenors

The Levesque/Allen Group of Intervenors provided testimony of the following witnesses:

- Charles A. Levesque (LA 3);
- Chris Wells, President and Executive Director of Piscataquog Land Conservancy (LA 9); and
- Mary Allen (LA 1).

Mr. Levesque testified that the residents of the Town of Antrim do not support the construction and operation of the Project. LA 3, at 3. 5-6. Mr. Levesque also claimed that the PILOT Agreement is not beneficial for the Town of Antrim. LA 3, at 6-7. Specifically, Mr. Levesque asserted that, under the PILOT Agreement, the Town will receive $14,200,000.00 in projected property tax revenue. LA 3, at 6-7. Without the PILOT Agreement, however, the Town would receive $19,800,000.00. LA 3, at 6-7. Mr. Levesque asserted that the model he used to conduct these calculations has never been used before for these purposes and he is not aware of its margin of error. Tr., 10/20/16, Afternoon Session, at 138-139.

Mr. Levesque further testified that, although the Town of Antrim's Master Plan encourages the use of alternative energy sources, including geothermal, solar, wood pellets,

wind, and water power, it does not contemplate construction of an industrial wind energy facility in the Rural Conservation Zone of the Town of Antrim. LA 3, at 15-17; LA 5.

Mr. Levesque stated that the current Zoning Ordinance of the Town of Antrim does not allow construction and operation of the Project in the Rural Conservation Zone and in the Highway Business District of the Town and that, in order to construct the Project, the Applicant would have to receive a variance. LA 3, at 21-25; LA 6; LA 7. Mr. Levesque testified that the residents of the Town of Antrim indicated their opposition to the Project by unanimously adopting an Open Space Conservation Plan that identifies the land where the Applicant seeks to construct the Project as desirable for permanent conservation. LA 3, at 26-27.

Mr. Wells testified that the Quabbin to Cardigan Partnership is a collaborative landscape-scale effort to conserve the Monadnock Highlands of north-central Massachusetts and western Massachusetts. LA 9, at 3. Mr. Wells further testified that partners of the Quabbin to Cardigan Partnership strive to permanently protect the region's most ecologically significant forest blocks and key connections between them. LA 9, at 5-6. Mr. Wells opined that construction and operation of the Project within the Quabbin to Cardigan corridor could negatively affect its conservation attributes. LA 9, at 5-8.

Ms. Allen opined that construction and operation of the Project is inconsistent with the goals and principals of the Supersanctuary, Quabbin to Cardigan Partnership, and the Antrim Open Space Conservation Plan. LA 1, at 7. Ms. Allen opined that construction and operation of the Project is not in the public interest where it will negate 50 years of efforts of various groups and landowners to preserve and conserve the natural environment and lands surrounding the Project. LA 1, at 8-9.

l. Pratt/Giffin Group of Intervenors

Mr. Benjamin Pratt and Mr. John Griffin did not file any testimony. Mr. Pratt, however, filed a Post-Hearing Brief with the Subcommittee. Mr. Pratt disagreed with the position of ASNH and opined that the benefits of the Project will outweigh its negative impacts, if any. Mr. Pratt argued that the Project, as a renewable energy project, will decrease levels of carbon dioxide and will assist with prevention of global warming.

V. DELIBERATIONS

A. The Subcommittee Deliberation Process

The Subcommittee deliberated on December 7, 9 and 12, 2016. First, the Subcommittee considered whether adjudication in this docket is barred by the doctrine of collateral estoppel or *res judicata*. The Subcommittee next reviewed the status of state permits. The Subcommittee then considered all of the factors set forth in RSA 162-H:16, and the Committee's rules. The deliberative process used by the Subcommittee was to engage in a general discussion of each subject area. At the conclusion of each discussion, the Presiding Officer sought to obtain a sense of the Subcommittee's position with respect to that subject area. In some cases, a non-binding "straw vote" of the Subcommittee was taken. In other cases, the sense of the Subcommittee was apparent from the discussion. This section of the Decision and Order summarizes the deliberative process of the Subcommittee.

B. Collateral Estoppel and *Res Judicata*

1. Applicable Law

The doctrines of *res judicata* and collateral estoppel preclude the relitigation of issues and claims that either have been or should have been tried in an earlier action. The New Hampshire Supreme Court has held that the doctrines of *res judicata* and collateral estoppel both

apply to administrative proceedings. *In re White Mountains Educ. Ass'n*, 125 N.H. 771, 775 (1984) (finding that *res judicata* limitations apply in administrative proceedings); *Cook v. Sullivan*, 149 N.H. 774, 777-78 (2003) (noting that in order for *res judicata* to apply to an administrative decision, the officer or board must have been acting in a judicial capacity); *Farm Family Mut. Ins. Co. v. Peck*, 143 N.H. 603, 605 (1999) (discussing circumstances when collateral estoppel is applicable in administrative proceedings). In order for *res judicata* "to apply to an administrative decision, however, the officer or board must have been acting in a judicial capacity." *Cook*, 149 N.H. at 777-78. An administrative tribunal acts in a judicial capacity when its deliberations include the "essential elements of adjudication." *Id.* at 778 (citing Restatement (Second) of Judgments § 83 (1982)). "Actions by administrative agencies are quasi-judicial if the adjudicatory process, provided by statute, requires notification of the parties involved, a hearing including receiving and considering evidence, and a decision based upon the evidence presented." *Gould v. Dir., N.H. Div. of Motor Vehicles*, 138 N.H. 343, 347 (1994).

Though the doctrines of *res judicata* and collateral estoppel are similar in their preclusive effect, they are distinct doctrines. The distinction between *res judicata* and collateral estoppel has been explained by the New Hampshire Supreme Court as follows:

> The doctrine of *res judicata* precludes the litigation in a later case of matters actually litigated, and matters that could have been litigated, in an earlier action between the same parties for the same cause of action.... Collateral estoppel precludes the relitigation by a party in a later action of any matter actually litigated in a prior action in which he or someone in privity with him was a party.

In re Alfred P., 126 N.H. 628, 629 (1985) (citations omitted); *see also In re Manchester Transit Auth.*, 146 N.H. 454, 461 (2001).

a. *Res judicata* (Claim Preclusion)

The doctrine of *res judicata* "forbids a party to relitigate in a second action matters actually litigated or matters that could have been litigated in an earlier action between the same parties for the same cause of action." *White Mountains Educ. Ass'n*, 125 N.H. at 775. The doctrine of *res judicata* "has no application unless the cause of action is the same in each case." *Alfred P.*, 126 N.H. at 630. In order for *res judicata* to apply to an administrative decision, the officer or board must have been acting in a judicial capacity. *Cook*, 149 N.H. at 777-78. Three elements must be met for *res judicata* to apply: (1) the parties must be the same or in privity with one another; (2) the same cause of action must be before the court in both instances; and (3) a final judgment on the merits must have been rendered on the first action. *Brzica v. Trs. of Dartmouth Coll.*, 147 N.H. 443, 454 (2002). Cause of action has a broad definition in the context of *res judicata*, "including the right to recover regardless of the theory of recovery. *Res judicata* will bar a second action even though the plaintiff is prepared in the second action to present evidence or grounds or theories of the case not presented in the first action." *Id.* at 455-56.

b. Collateral Estoppel (Issue Preclusion)

The New Hampshire Supreme Court has explained that "[u]nder appropriate circumstances, collateral estoppel may preclude the relitigation of findings by an administrative board." *Farm Family*, 143 N.H. at 605. In order for collateral estoppel to apply, the following elements must be satisfied: (1) the issue subject to estoppel must be identical in each action; (2) the first action must have resolved the issue finally on the merits; (3) the party to be estopped must have appeared in the first action or have been in privity with someone who did; (4) the party to be estopped must have had a full and fair opportunity to litigate the issue; and (5) the

finding must have been essential to the first judgment. *Id.* (citing *In re Hooker*, 142 N.H. 40, 43-44 (1997)). Collateral estoppel is a doctrine the New Hampshire Supreme Court has described as "an extension of *res judicata* which prevents the same parties, or their privies, from contesting in a subsequent proceeding on a different cause of action any question or fact actually litigated in a prior suit." *Hooker*, 142 N.H. at 43 (citing *Scheele v. Village Dist.*, 122 N.H. 1015, 1019 (1982)). Collateral estoppel "bars relitigation of factual issues which have already been determined[.]" *State v. Pugliese*, 122 N.H. 1141, 1144 (1982). "Like the doctrine of *res judicata*, it 'has the dual purpose of protecting litigants from the burden of relitigating an identical issue . . . and of promoting judicial economy by preventing needless litigation.'" *Id.*

c. Exceptions to Application of Preclusion

Generally, "*res judicata* does not allow dispensation for intervening changes in the law." *Haag v. Shulman*, 683 F.3d 26, 32 n.2 (1st Cir. 2012); *see also Federated Dep't Stores v. Moitie*, 452 U.S. 394, 395 (1981) ("[T]he *res judicata* consequences of a final, unappealed judgment on the merits are not altered by the fact that the judgment may have . . . rested on a legal principle subsequently overruled in another case."). An exception to *res judicata* traditionally exists "where between the time of the first judgment and the second . . . there has been an intervening . . . change in the law creating an altered situation." *Fontes v. Gonzales*, 498 F.3d 1, 3 (1st Cir. 2007) (citing *State Farm Mut. Auto. Ins. Co.* v. *Duel*, 324 U.S. 154, 162 (1945) (noting that *res judicata* is no defense where between the time of the first judgment and the second there has been an intervening decision or a change in the law creating an altered situation)); *see also Blair v. Comm'r*, 300 U.S. 5, 9 (1937) (the U.S. Supreme Court finding that after the decision in the first proceeding, the opinion and decree of the state court created a new situation such that *res judicata* did not bar litigation). "It has long been recognized that *res judicata* (and collateral

estoppel) are applicable only where the second suit is based on the same matters as the first and where the controlling facts and law remain unchanged." *Minarik Elec. Co. v. Electro Sales Co.*, 223 F. Supp. 2d 334, 338 (D. Mass. 2002) (citing *Comm'r v. Sunnen*, 333 U.S. 591, 600 (1948)). *Res judicata* "is inapplicable in the face of an intervening change in the law or when a modification of significant facts creates new legal conditions." *Id.* at 340.

d. Consideration of Subsequent Applications

The New Hampshire Supreme Court has acknowledged that, in the context of administrative proceedings, a second application may be considered where there has been a finding "either that a material change of circumstances affecting the merits of the application ha[s] occurred or that the second application [is] for a use that materially differ[s] in nature and degree from the use previously applied for and denied by the board." *Morgenstern v. Town of Rye*, 147 N.H. 558, 565 (2002) (citing *Fisher v. Dover*, 120 N.H. 187, 190 (1980)). In *Fisher v. Dover*, 120 N.H. 187 (1980), the New Hampshire Supreme Court articulated a rule that requires town boards and arguably state agencies, prior to considering re-filed applications, to determine that (i) a material change of circumstances affecting the merits of the application has occurred or (ii) the application is for a use that is materially different in nature and degree from its predecessor. 120 N.H. at 190. In *Fisher*, the applicant filed a second application for a variance after the first was denied. *Id.* The board granted the application without first finding either that a material change of circumstances affecting the merits of the application had occurred or that the second application was for a use that materially differed in nature and degree from the use previously applied for and denied by the board. *Id.* The Court ruled that the board's consideration of a second application without addressing these issues was error. *Id.* "The determination of whether changed circumstances exist is a question of fact which necessitates a

consideration of the circumstances which existed at the time of the prior denial." *Id.* (internal quotations and citation omitted).

In *Morgenstern*, the New Hampshire Supreme Court vacated and remanded the superior court's ruling upholding a zoning board of adjustment's (ZBA) refusal to consider a second application on the merits where the changes to the application "included a new driveway design that allowed for more natural absorption of rainfall into the ground and a new . . . footprint design which no longer required a retaining wall to protect the wetlands." 147 N.H. at 565-66. In reaching its decision upholding the ZBA's refusal to consider the second application, the superior court had relied on a lack of changes to the neighborhood and the Plaintiff's property as opposed to the changes in the application, such as the variations on building structure and design. *Id.* at 566. In vacating the superior court's order, the Supreme Court noted that the superior court appeared to have "concluded that it was unnecessary to consider whether engineering studies and the variations on the building structure constituted material changes to the plaintiff's application . . . [T]his was error." *Id.* The Court found that the ZBA should have considered such changes in making a determination of whether the second application contained material changes sufficient to warrant consideration.

In *Morgenstern* and *Town of Nottingham*, the Supreme further clarified that applications to the ZBA and the Department of Environmental Services, respectively, should have been considered where the second applications were filed in response to comments made by the ZBA and DES on the original denied applications. *Morgenstern*, 147 N.H. at 566; *In re Nottingham*, 153 N.H. 539, 565-66 (2006). In *Hill-Grant Living Trust v. Kearsarge Lighting*, 159 N.H. 529 (2009), the New Hampshire Supreme Court reconciled the rules articulated in *Fisher*, *Town of Nottingham* and *Morgenstern* and held that if the Board "invites submission of a subsequent

modification to meet its concerns, it would find an application so modified to be materially different from its predecessor, thus satisfying *Fisher*." 159 N.H. at 536. "[B]efore accepting a subsequent application under the *Fisher* doctrine, a board must be satisfied that the subsequent application has been modified so as to meaningfully resolve the board's initial concerns . . . An administrative board 'should not be required to reconsider an application based on the occurrence of an inconsequential change, when the board inevitably will reject the application for the same reasons as the initial denial.'" *CBDA Dev. v. Town of Thornton*, 168 N.H. 715, 725 (2016).

2. Positions of the Parties

a. Counsel for the Public

CFP filed a post-hearing memorandum. In the memorandum CFP argues that the Project is not substantially or materially different from the project proposed in Antrim I, and therefore the doctrines of *res judicata* (claim preclusion) and/or collateral estoppel (issue preclusion) bar adjudication. CFP notes that, generally, under the doctrine of *res judicata,* a judgment on the merits in a prior suit bars a second suit involving the same parties or privies based upon the same cause of action. CFP further notes that under the doctrine of collateral estoppel, the second action under a different cause of action and the judgment in the prior suit precludes relitigation of issues actually litigated and necessary to the outcome in the first suit. CFP argues that the doctrines of *res judicata* and collateral estoppel serve to avoid repetitive litigation and promote judicial economy and a policy of finality and certainty in the legal system and warrant denial of a Certificate of Site and Facility for the Applicant in this docket.

CFP argues that under the principles of *res judicata* the "same cause of action" is before the Committee because AWE is seeking a Certificate for Site and Facility as it was in Antrim I.

CFP notes that the original denial of a Certificate of Site and Facility was based upon the unreasonable adverse impact that the Project will have on aesthetics. CFP argues that the Certificate of Site and Facility sought by the Applicant should be denied on the grounds of *res judicata* because: (1) the parties in this docket are the same as those in the Antrim I docket; (2) the same cause of action is before the Subcommittee as the Applicant is seeking a Certificate for Site and Facility as it was in Antrim I; (3) the Subcommittee acted in a judicial capacity when in ruled on the Applicant's application in Antrim I; (4) the parties in Antrim I had a full opportunity to litigate; (5) the matter was resolved by issuance of a denial of a Certificate for Site and Facility; and (6) the Subcommittee's decision in Antrim I is a final decision on the merits.

CFP argues that the doctrine of collateral estoppel is applicable to two subject areas in this docket: (1) the identification of sensitive sites by the Subcommittee in Antrim I; and (2) the issue of the benefit of off-site conservation land in mitigation of aesthetic impacts. CFP argues that the Subcommittee made rulings on both of these issues in Antrim I. With regard to the sensitive resources site list, CFP notes that the Subcommittee in Antrim I identified Willard Pond and the dePierrefeau Wildlife Sancutary, Goodhue Hill, Bald Mountain and Gregg Lake, Robb Reservoir, Island Pond, Highland Lake, Nubanusit Pond, Black Pond, Franklin Pierce Lake, Meadow Marsh and Pitcher Mountain as sensitive sites. CFP argues that the resources themselves have not changed and their determination as important resources in the region is independent of any changes that the Applicant is proposing in the current docket. CFP further argues that the promulgation of rules for the Committee poses no bar to issue preclusion because all of these sites fall within the definition of scenic resources under Site 102.45. With respect to the issue of off-site conservation land as mitigation, CFP argues that in Antrim I, the Subcommittee stated that the dedication of off-site lands to a conservation easement would not

suitably mitigate the impact and explained that additional conserved lands would be of value to wildlife and habitat but would not mitigate the imposing visual impact that the Facility would have on valuable view sheds.

CFP argues that with respect to both identification of sensitive sites and off-site conservation land as mitigation, collateral estoppel precludes relitigation. CFP submits that both issues were fully litigated in Antrim I, and the party to be estopped – the Applicant – is the same party in both dockets. With regard to the issue of off-site conservation land, CFP argues that the additional 100 acres on the right top of Tuttle Hill does not impact the analysis because it was not the amount of conservation land that the Committee in Antrim I found to be insufficient as mitigation for aesthetic impacts, but rather that the conservation land itself was unsuitable as mitigation for aesthetic impacts.

Finally, CFP argues that recent changes to the statute governing the Committee's proceedings do not serve to bar the application of *res judicata* or collateral estoppel because the statute does not speak directly to these principals. CFP argues that statutes that invade the common law are to be read with a presumption favoring the retention of long-established and familiar principals except when a statutory purpose to the contrary is evident. CFP submits that the "statute in question does not speak to these common law judicial doctrines. It does not address claim or issue preclusion or the rationale behind the doctrines which is to avoid repetitive litigation, promote judicial economy and a policy of finality and certainty in our legal system . . . For this reason the changes to the statute cannot be interpreted to prevent the application of *res judicata* or collateral estoppel in the instant case." CFP Post Hr'g Mem., at 14.

b. Bruce E. Berwick

Mr. Berwick filed a post-hearing brief. In the brief, Mr. Berwick argues that this Project is not significantly different than the 2012 Antrim proposed project.

c. Richard Block & Loranne Carey Block

The Blocks filed a post-hearing brief. In the brief, the Blocks argue that the Project is substantially similar to the 2012 project. They argue that the changes to the Project are minimal and do not alter the impact of the Project on aesthetics. The Blocks further argue that the increased mitigation efforts by the Applicant will have no effect. The Blocks argue that the Project poses only minor physical alterations to the 2012 proposed project and that the Applicant's 2015 Application is essentially a repackaged appeal.

d. Applicant

The Applicant filed a post-hearing memorandum. In the memorandum, the Applicant argues that the proposed Project is materially different from the proposal in the 2012 Antrim docket. The Applicant argues that the adjudication of the Applicant's Application for the proposed project is not barred by *res judicata* because the parties in this docket are not the same parties as the parties in the 2012 Antrim docket and are not in privity with such parties.[13] The Applicant additionally argues that the "cause of action" is not the same in this proceeding as the "cause of action" in the 2012 Antrim docket. The Applicant argues that the "cause of action" differs in this docket from the cause of action in the 2012 Antrim docket because the Project includes both physical changes and modifications to the mitigation package proposed. The Applicant notes that it made targeted physical changes to the Project design to reduce the aesthetic impacts. Notably, the Applicant argues, the turbine closest to Willard Pond, turbine 10,

[13] The Applicant notes that Walden Green Energy and RWE were not parties in the previous docket and, since the prior docket, Eolian was acquired by Walden Green Energy.

has been removed, and turbine 9 has been lowered so that the tower and nacelle are below the tree line when examined from Willard Pond. The Applicant argues that these two modifications have a dramatic effect on overall visibility from the region and from many sensitive resources. The Applicant notes that in addition to shorter turbines than those proposed in the 2012 Antrim docket, the Siemens turbines proposed in this docket, are quieter and smaller in other dimensions. The Applicant argues that these changes further minimize visibility of the Project from scenic resources in the region. The Applicant notes that the number of turbines visible from Willard Pond and Gregg Lake, as well as other scenic resources, has been reduced.

The Applicant submits that it has also significantly increased the mitigation associated with the Project in that it has added 100 acres of conservation land that will now conserve 100% of the ridgeline. Additionally, the Applicant notes that it will provide $100,000.00 to New England Forestry Foundation to acquire new permanent conservation lands in the general region of the Project for the enhancement and maintenance of the region's aesthetic character, wildlife habitat, working landscape, and public use and enjoyment. The Applicant states that it has entered into agreements with the Town of Antrim to provide additional public benefits, and has addressed all of the mitigation measures suggested by the visual expert for CFP, in Antrim I. The Applicant argues that there are significant changes between this Project and that proposed in the 2012 Antrim docket, and therefore adjudication in this docket does not constitute the same cause of action for purposes of *res judicata.*

The Applicant further argues that CFP is incorrect in stating that this Application is the "same cause of action" as the 2012 Antrim proposal. The Applicant notes that the Subcommittee's Jurisdictional Order and Decision recognized that the Committee would need to make a factual inquiry to determine whether the differences between the proposals are different

enough to yield a different result. The Applicant submits that it is too simplistic and too late to contend that the current Application is prohibited.

The Applicant argues that the changes made by the Applicant to the Project design are significant and therefore consideration of the Application is not barred by the doctrine of *res judicata*. The Applicant notes that it has eliminated more than 10% of the Project from the prior design, increased proposed conservation lands, invested additional funds in local improvements and employed a quieter and more slender turbine model. The Applicant suggests that its position is supported by the Subcommittee's conclusion in the 2012 Antrim docket in that the order denying the Motion to Reopen concluded that consideration of alternative configurations of the proposed project would be improper because they would likely change the dynamics of the proposed project to such a degree that the consequences could not be confidently assessed. *See* Docket No. 2012-01, Order on Pending Motions, at 10-11 (September 10, 2013).

The Applicant also notes that the Project is subject to review under a revised statue and new rules. The Applicant argues that key aspects of the framework that the Subcommittee must use to assess the Project are different and new findings are now required under the Committee's newly adopted rules. The Applicant submits that the findings required for this docket involve issues that could not have been adjudicated during the prior proceeding. The Applicant notes, by way of example, that in the prior docket, the Subcommittee declined to consider the Applicant's modifications to the Project, as part of the Applicant's request for rehearing and to reopen the record, because the Subcommittee determined that consideration of these material changes would require re-evaluation of the entire Application. The Applicant indicates that since the prior project, among other changes, the Applicant has removed turbine 10, a change that the Antrim I

Subcommittee determined would likely change the dynamics of the proposed project to such a degree that the consequences could not be assessed in that prior docket.

The Applicant claims that in addition to not satisfying the necessary elements of *res judicata*, the policy rationale for the doctrine is also not served in this case. The Applicant notes that *res judicata* and collateral estoppel are meant to promote judicial economy and that by waiting to raise these claims after vast resources have been expended litigating the matter, CFP undercuts the purpose of the doctrines and has arguably waived such claims. The Applicant concludes that CFP's assertion that the Project constitutes the same "cause of action" as the 2012 Antrim docket is not supported by the record as the Project has materially different impacts and benefits and is subject to review under a revised statute and a comprehensive set of new rules with new evaluative criteria.

The Applicant similarly disputes the application of collateral estoppel to preclude adjudication of issues in this docket. The Applicant notes that the purpose of collateral estoppel is to preclude the relitigation by a party in a later action of any matter actually litigated in a prior action in which he or she or someone in privity with him/her was a party. The Applicant argues that the key issues in the Application presently before the Subcommittee were not litigated in a prior action. The Applicant disputes, for example, CFP's assertion that issues of identification of sensitive sites and the issue of benefits of off-site conservation to mitigate aesthetic impacts were resolved in the prior docket, and argues that while the SEC did reach a final determination in the prior docket, it did so in the context of a different project under different rules and did not reach a final determination with respect to all criteria required under the rules. The Applicant argues that the proposed project in this docket is fundamentally a new application and consequently, the essential predicate for preclusion is absent. The Applicant submits that the substantial

modifications made to the proposed project require the Subcommittee to evaluate the Project in its totality under the newly revised statue and newly adopted rules. Additionally, the Applicant argues that the adoption of the new SEC rules, which contain new evaluative criteria, preclude the application of collateral estoppel.

3. Subcommittee Deliberations

In considering whether adjudication of the Application in this docket is barred by the doctrines of collateral estoppel or *res judicata*, the Subcommittee considered whether the Project is substantially or materially different from the project proposed in Antrim I (Docket No. 2012-01). Specifically, the Subcommittee considered the differences between the Application in this docket and the Application in the Antrim I docket including the conservation of an additional 100 acres, the removal of one turbine, the change in turbine type, and the $100,000.00 funding to New England Forestry Foundation to acquire new permanent conservation lands in the general region of the Project. The Subcommittee notes that since the Application in Antrim I, there has been a change in the controlling law and Site Evaluation Committee rules.

The Subcommittee further considered that in Antrim I, when the Applicant sought to make material changes to the Application, the Subcommittee had indicated that the differences were so material and so substantial that they would need to be addressed thoroughly through a separate Application. The Subcommittee noted that, in the prior docket, the Subcommittee had reached a conclusion that the alterations to the Application were material differences such that they could not be considered under the auspices of that Application. The Subcommittee finds this to be akin to an invitation for submission of a new Application for consideration. With respect to whether the issues of sensitive sites and conservation land as a mitigation method had been actually litigated and resolved finally on the merits in the prior docket, the Subcommittee

finds that the issues were not fully resolved in the prior docket. The Subcommittee further notes that the finding of the Subcommittee in the prior docket that dedication of land to a conservation easement would not suitably mitigate the impact in that case was a case-specific determination not binding in future dockets. There was some discussion that the differences between the present application and the prior application were so numerous that there had been a substantial change precluding the application of *res judicata* and collateral estoppel in this instance. Tr., 12/07/16, Morning Session, at 9-24.

The Subcommittee found that adjudication of the Application in this docket is not barred by the doctrines of collateral estoppel or *res judicata. Id.* at 25.

C. State Agency Permits and Reports

The Subcommittee further reviewed the status of state permits and agency reports.

1. Wetlands Permit – Department of Environmental Services Section 401 Water Quality Certificate

The Applicant filed a Wetland Permit Application as a part of its Application with the Committee. *See* App. Appx. 2A. The Wetland Permit Application states that a total of ten wetlands will be impacted by the Project's construction and operation: (i) seven palustrine forested wetlands; and (ii) three palustrine scrub-shrub wetlands. App. 33, Appx. 2A, Attachment A, at 2. The Project will have a temporary effect on approximately 0.22 acres (9,573 square feet) of wetlands and streams consisting of the following:

- Forested wetland – 5,896 square feet;
- Scrub-shrub wetland – 2,270 square feet;
- Emergent wetland – 955 square feet;
- Intermittent stream – 156 square feet; and
- Perennial stream/River – 296 square feet/74 feet.

App. 33, Appx. 2A, at 4; App. 33, Appx. 2A, Attachment A, at 2.

On August 30, 2016, Department of Environmental Services (DES) issued a Revised Final Decision identifying, among others, the following Project specific conditions:

- All work shall be in accordance with revised plans by TRC dated June 17, 2016, as received by DES on June 29, 2016;
- Prior to construction, any plan revisions or changes in construction details or sequences shall be submitted to DES for review and approval;
- Appropriate siltation/erosion/turbidity controls shall be in place prior to construction, shall be maintained during construction, and remain in place until the area is stabilized. Silt fence(s) must be removed once the area is stabilized;
- Work shall be conducted in a manner so as to minimize turbidity and sedimentation to surface waters and wetlands;
- Discharge from dewatering of work areas shall be to sediment basins that are: a) located in uplands; b) lined with hay bales or other acceptable sediment trapping liners; c) set back as far as possible from wetlands and surface waters, in all cases, with a minimum of 20-feet of undisturbed vegetated buffer;
- Dredged material shall be placed outside of the jurisdiction of the DES Wetlands Bureau;
- Stream work shall be done during low flow conditions;
- Proper headwalls shall be constructed within seven days of culvert installation;
- Where construction activities occur between November 30 and May 1, all exposed soil areas shall be stabilized within one day of establishing the grade that is final or that otherwise will exist for more than five days. Stabilization shall include placing three inches of base course gravels, or loaming and mulching with tack or netting and pinning on slopes steeper than 3:1;
- This Project includes the conservation of six parcels for preservation which shall have deeds written for the conservation to run with the land, and both existing and future property owners shall be subject to the conservation restrictions; and
- The plans noting the six conservation parcels with a copy of the final deed language shall be recorded with the Registry of Deeds for each appropriate lot. A copy of the recording from the County Registry of Deeds shall be submitted to the DES Wetlands Bureau.

DES Revised Final Decision (August 30, 2016).

On July 26, 2016, the Watershed Management Bureau advised the Subcommittee that construction and operation of the Project requires a federal Clean Water Act (CWA) Section 404 (33 U.S.C. 1344) permit from the United States Army Corps of Engineers (Corps). In accordance with Section 401 of the CWA (33 U.S.C. 1341) and RSA 485-A: 12, III, it also requires a Section 401 Water Quality Certification from DES. On February 24, 2016, the Corps indicated that the Section 404 General Permit (i.e., the New Hampshire Programmatic General Permit or PGP) applies to the proposed activity. The last PGP was issued in 2012. A 401 Water Quality Certification (WQC # 2012-404P-002) for the current PGP was issued by DES on August 2, 2012. WQC # 2012-404P-002 is applicable to all activities covered by the PGP. Since the construction and operation of the Project is covered by the PGP, the Applicant is required to comply with the conditions of WQC #2012-404P-002. Ultimately, DES determined that compliance with WQC #2012-404P-002 issued in 2012, and the conditions for the Alteration of Terrain and Wetlands permits, provides "reasonable assurance" that construction and operation of the Project will not violate surface water quality standards.

Pursuant to RSA 162-H:16, I, the Certificate in this docket will be conditioned upon the Applicant's compliance with the conditions, limitations and mitigation measures identified within the Wetlands Permit. The Wetlands Permit is incorporated into the Certificate to be issued in this docket. Pursuant to RSA 162-H:4, III, the Subcommittee delegates its authority to monitor the construction and operation of the Project to ensure that terms and conditions of the Wetlands Permit and the Certificate are met, to DES. Pursuant to RSA 162-H:4, III-a, the Subcommittee delegates to DES, the authority to specify the use of any technique, methodology, practice or procedure approved by the Subcommittee within the Certificate, as may be necessary

to effectuate conditions of the Certificate and Wetlands Permit. However, any action to enforce the provisions of the Certificate must be brought before the Committee. *See* RSA 162-H:4, I(d).

2. Alteration of Terrain Permit – Department of Environmental Services

An Alteration of Terrain Permit Application was filed as part of the Application with the Committee. App. 33, Appx. 2B. The Alteration of Terrain Permit Application identifies the North Branch River, Gregg Lake and an unnamed stream as "receiving waters." App. 33, Appx. 2B, at 2. The Alteration of Terrain Permit Application further states that the Project will cause approximately 2,487,956 square feet of total disturbance and 495,292 square feet of impervious cover as a result of its construction and operation. App. 33, Appx. 2B, at 2.

On August 30, 2016, DES issued a Revised Final Decision identifying, among others, the following project specific conditions:[14]

- Revised plans shall be submitted for an amendment approval prior to any changes in construction details or sequences. DES must be notified in writing within ten days of a change in ownership;
- DES must be notified in writing prior to the start of construction and upon completion of construction;
- The smallest practical area shall be disturbed during construction activities;
- The Applicant shall employ the services of an environmental monitor ("Monitor"). The Monitor shall be a Certified Professional in Erosion and Sediment Control or a Professional Engineer licensed in the State of New Hampshire and shall be employed to inspect the site from the start of alteration of terrain activities until the alteration of terrain activities are completed and the site is considered stable;
- During this period, the Monitor shall inspect the subject site at least once a week, and if possible, during any Y2 inch or greater rain event (i.e. Y2 inch of precipitation or more within a 24 hour period). If unable to be present during such a storm, the Monitor shall inspect the site within 24 hours of this event;

[14] These conditions are based on the understanding that the New Hampshire Programmatic General Permit issued by the United States Army Corps of Engineers applies to this Project.

- The inspections shall be for the purposes of determining compliance with the permit. The Monitor shall submit a written report with photographs to the Department within 24 hours of the inspections. The reports shall describe, at a minimum, whether the project is being constructed in accordance with the approved sequence, shall identify any deviation from the conditions of the permit and the approved plans, and identify any other noted deficiencies;

- Within 24 hours of each inspection, the Monitor shall submit a report with photographs to DES;

- Unless otherwise authorized by DES, the Applicant shall prepare a turbidity sampling plan to confirm that measures to control erosion during construction are not causing or contributing to surface water quality violations. The plan shall be submitted to DES for approval at least ninety days prior to construction. The Applicant shall then implement the approved plan. Unless otherwise authorized by DES, the turbidity sampling results along with station ID, date, time, other field notes, and a description of corrective actions taken when violations of state surface water quality criteria for turbidity are found, shall be submitted to DES via electronic mail within forty-eight hours of collection;

- Unless otherwise authorized by DES, the Applicant shall develop and submit a monitoring plan to the DES Watershed Management Bureau for approval at least ninety days prior to construction. The Applicant shall consult with DES and submit the monitoring data in a format that can be automatically uploaded into the DES Environmental Database. Once approved by DES, the Applicant shall implement the sampling plan;

- The Applicant shall prepare and submit a Spill Prevention, Control, and Countermeasures Plan (SPCC) for the activity in accordance with federal regulations (40 CFR part 112). The plan shall include a certification by a Professional Engineer licensed in the State of New Hampshire. The Applicant shall submit the plan to the DES Watershed Management Bureau for review and approval at least ninety days prior to the installation of the first turbine. The Applicant shall then implement the approved plan and maintain records demonstrating compliance with the plan. Such records shall be made available to DES within thirty days of receiving a written request by NHDES;

- The Applicant shall submit a plan to prevent water quality violations due to discharges of concrete wash water during construction. The Applicant shall submit the plan to the DES Watershed Management Bureau for review and approval at least ninety days prior to placement of any concrete within the Activity area. The Applicant shall then implement the approved plan;

- Herbicide use associated with the Activity shall be minimized to the maximum extent possible and shall only be allowed on a limited, as-needed basis in the switchyard and substation areas to control vegetation that could otherwise disrupt

operation of the Project, or for other reasons approved by DES including, but not limited to, control of invasive species where other forms of control are ineffective. Herbicides shall only be applied in strict accordance with the manufacturer's recommendations. Unless otherwise authorized by DES, the Applicant shall maintain records of herbicide use, including the name and brand of herbicide used, the date herbicides where applied, where they were applied, and the amount used. Such records shall be provided to DES within thirty days of receiving a request from DES;

- Unless otherwise authorized by DES, fertilizers shall only be applied once on soils disturbed during construction to support the initial establishment of vegetation. Prior to fertilizer application, soils shall be tested to determine the minimum amounts of lime, nitrogen (N), phosphorus (P) and potassium (K) needed to support vegetation. Lime application rates, fertilizer selection (in terms of N, P and K content) and fertilizer application rates shall be consistent with the soil test results. Fertilizers shall not contain any pesticides. Where possible, fertilizer with slow release nitrogen shall be used; and

- Application of de-icing materials containing chloride shall be minimized to the maximum extent possible, and shall only be allowed when necessary to ensure safe access to the site for operations or emergency response personnel. Unless otherwise authorized by DES, the Applicant shall maintain records of the dates when chloride was applied, the reason it was applied, and the estimated amount of chloride applied on each date. The Applicant shall submit such records to DES by May 1 of the first two years of operation and within thirty days of receiving a request from DES thereafter. All applicators of road salt containing chloride that are retained to de-ice surfaces associated with the Project shall be certified per the Green SnowPro program within two years of the issuance date of the Certification and shall maintain records of road salt use on the web-based tracking system.

DES Revised Final Decision (August 30, 2016).

Pursuant to RSA 162-H:16, I, the Certificate in this docket will be conditioned upon the Applicant's compliance with the conditions, limitations and mitigation measures identified within the Alteration of Terrain Permit. The Alteration of Terrain Permit is incorporated into the Certificate to be issued in this docket. Pursuant to RSA 162-H:4, III, the Subcommittee delegates its authority to monitor the construction and operation of the Project to ensure that terms and conditions of the Alteration of Terrain Permit and the Certificate are met, to the DES. Pursuant to RSA 162-H:4, III-a, the Subcommittee delegates DES, the authority to specify the

use of any technique, methodology, practice or procedure approved by the Subcommittee within the Certificate, as may be necessary to effectuate conditions of the Certificate and the Alteration of Terrain Permit. However, any action to enforce the provisions of the Certificate must be brought before the Committee. *See* RSA 162-H:4, I(d). Tr. 12/09/16, Morning Session at 6-10.

3. Application for Individual Sewage Disposal System – Department of Environmental Services

On July 23, 2015, the Applicant filed an Application for Individual Sewage Disposal System with the DES Water Division – Subsurface Systems Bureau. The Application was filed with the Committee as Appendix 2F of the Application. App. 33, Appx. 2F. The Applicant requested that DES allow it to install an Individual Sewage Disposal System (Enviro-Septic) that will be associated with the Operations and Maintenance building and will accommodate 300 gallons per day. App. 33, Appx. 2F.

On July 26, 2016, the Subsurface Systems Bureau approved the Applicant's request, under the condition that all work will be performed in accordance with the revised plan dated October 30, 2015, as received by DES on November 1, 2015. Pursuant to RSA 162-H:16, I, the Certificate in this docket will be conditioned upon the Applicant's compliance with the conditions identified within the Individual Sewage Disposal System Permit. The Individual Sewage Disposal System Permit is incorporated into the Certificate to be issued in this docket. Pursuant to RSA 162-H:4, III, the Subcommittee delegates its authority to monitor the construction and operation of the Project to ensure that terms and conditions of the Individual Sewage Disposal System Permit and the Certificate are met to DES. Pursuant to RSA 162 H:4, III-a, the Subcommittee delegates to DES, the authority to specify the use of any technique, methodology, practice or procedure approved by the Subcommittee within the Certificate, as may be necessary to effectuate conditions of the Certificate and Individual

Sewage Disposal System Permit. However, any action to enforce the provisions of the Certificate must be brought before the Committee. *See* RSA 162-H:4, I(d).

4. **Historical Resources – Department of Cultural Resources Division of Historical Resources**
   Section 106 Review

The Applicant conducted a Phase IA study and a Phase IB archaeological walkover survey in order to determine whether the Project will have an unreasonable adverse effect on archeological resources within a 10 km radius of the Project. App. 33, Appx. 9B. The Phase I survey containing the results of these studies was provided to the New Hampshire Division of Historical Resources (DHR) on December 7, 2011. App. 33, Appx. 9B. It was also provided to the Committee as Appendix 9b of the Application. App. 33, Appx. 9B. On January 6, 2012, DHR determined that there are no known properties of archaeological significance within the area of the Project's potential impact and no further identification or evaluative studies were recommended. App. 33, Appx. 9C. DHR requested the Applicant to consult on the need for appropriate evaluative studies, determinations of National Register eligibility, and mitigation measures, if any archeological resources are discovered or affected as a result of the Project planning or implementation. App. 33, Appx. 9C. DHR also requested that the Applicant consult with the Division in case of a change of plans. App. 33, Appx. 9C.

As to the above ground resources, on July 28, 2016, DHR advised the Subcommittee that a number of historical properties and districts have been identified within the Project area. App. 25. DHR further advised the Subcommittee that the area of most concern is the White Birch Point Historic District on Gregg Lake in Antrim, New Hampshire. App. 25. The White Birch District is eligible to be listed in the National Register. App. 25. The nearest turbines to the District, turbines 7, 8, and 9, will be located approximately 2.5 miles west and northwest rising

along the ridgeline across from Gregg Lake. App. 25. DHR determined that "the introduction of turbines within the viewshed of the eligible district would diminish its historic setting, feeling and association." App. 25. To address the effect of the Project on the District, DHR recommended the following mitigation measures:

- The Applicant shall hire an Architectural Historian qualified under 36 CFR 61 to oversee the development and installation of an interpretive sign within the eligible White Birch Point Historic District. The sign shall focus on the history and significance of the eligible White Birch Point Historic District as a grouping of camp buildings united by their pattern of development and setting that represent summer and vacation home tourism in New Hampshire in the early to mid-20th century. The sign shall incorporate historic and present-day images and text. The Applicant shall coordinate with the White Birch Point Association and the NH State Historic Preservation Officer (NHSHPO) to determine an appropriate location for the interpretive sign. The Architectural Historian will work with the White Birch Point Association in developing and installing the sign. NHSHPO will have thirty days to review and comment on the draft design prior to installation. The deadline for installation will be one year from the start of Project construction.

- If the White Birch Point Association has no interest in the installation of the historic signage, the Applicant shall hire an Architectural Historian qualified under 36 CFR 61 and a web designer to develop the historical content and design of a website page devoted to the history and significance of the eligible White Birch Point Historic District as a grouping of camp buildings united by their pattern of development and setting that represent summer and vacation home tourism in New Hampshire in the early 20th century. The page shall feature historic and present-day photographs of the district, as well as other similar camp communities in Antrim, in order to place the eligible White Birch Point Historic District into a larger historic context. The Applicant shall work with the Antrim Historical Society to determine its interest in content development as well as its ability to host the page on their website. NHSHPO will have thirty days to review and comment on a draft of the webpage content and design. The deadline for completion will be one year from the start of Project construction.

- Should neither option be feasible, the Applicant shall continue to consult with the NHSHPO to determine a mutually agreeable project of similar scope and cost to document the history of the eligible White Birch Point Historic District.

App. 25. In addition, DHR requested the Applicant to comply with the following general conditions:

- If the Applicant materially changes plans for the proposed Project and such changes lead to newly-discovered effects on historic properties, the Applicant shall consult with NHSHPO to resolve any adverse effects to such properties.

- If any unanticipated archaeological resources are discovered as a result of the Project planning or construction, the Applicant shall consult with NHSHPO to determine the need for appropriate evaluative studies, determinations of National Register eligibility, and/or mitigation measures, if needed, to resolve adverse effects.

App. 25.

On August 10, 2016, the Applicant and DHR entered into a Memorandum of Understanding requiring the Applicant to comply with mitigation measures recommended by the DHR. App. 26

Finally, DHR advised the Subcommittee that the United States Army Corps of Engineers, as the Section 106 lead federal agency, did not include the White Beach Point within the Section 106 project area and independently determined that the Project will have no effect on historic properties. App. 25.

The Certificate is conditioned upon the Applicant's compliance with the Memorandum of Understanding executed by DHR and the Applicant (App. 26). In addition, in the event that new information or evidence of archeological resources, historic sites or other cultural resources is found in the Project area, the Applicant shall immediately report said findings to DHR and the Committee. The Applicant shall consult with DHR to determine the need for appropriate evaluative studies, determinations of National Register eligibility, and/or mitigation measures, if needed, to resolve adverse effects. In addition, the Applicant shall notify DHR and the Committee of any material change in the construction plans of the Project and of any new

community concerns for any archaeological resources, historic sites or other cultural resources affected by the Project. If such changes lead to newly-discovered effects on historic properties, the Applicant shall consult with DHR to resolve any adverse effects to such properties. Pursuant to RSA 162-H:4, III-a, the Subcommittee delegates to DHR the authority to specify the use of any appropriate technique, methodology, practice, or procedure associated with architectural, historical or other cultural resources affected by the Project. Tr. 12/07/16, Morning Session at 82-118.

5. Department of Transportation

The Applicant filed Applications for Driveway Permits for the main entrance to the Project and for temporary laydown areas. *See* App. Appx. 2D-1, 2D-2.

On November 17, 2016, the Subcommittee received a final report from the Department of Transportation (DOT) addressing requests for temporary laydown yard driveway and main driveway. *See* Correspondence from DOT (November 11, 2016). Specifically, DOT granted the permit for a temporary laydown area driveway that will be located approximately 0.31 miles west of Loveren Mill Road on the south side of NH Route 9. *See* Correspondence from DOT (November 11, 2016). The Permit contains conditions, including the following specific requirements:

> Any change in use, increase in use or reconstruction of the driveway requires reapplication.
>
> The right-of-way line is located 50-feet from and parallel to the centerline of the highway. The entrance shall be graded so that the surface of the drive drops six inches at a point 10 feet from NH Route 9 (S0000009) edge of pavement to create a drainage swale.
>
> The driveway shall not exceed 16-feet in width. The entrance of the drive may be flared; typically the flare radius is one half the driveway width.

The DOT also granted the permit for a paved access to be used as the Project's main entrance driveway. *See* Correspondence from DOT (November 11, 2016). It will be located approximately 0.63 miles east of Loveren Mill Road on the south side of NH Route 9. *See* Correspondence from DOT (November 11, 2016). The permit contains conditions, including the following specific requirements:

> Any change in use, increase in use or reconstruction of the driveway requires reapplication.
>
> The right-of-way line is located 50-feet from centerline. The entrance shall be graded so that the surface of the drive drops three inches at a point 5-feet from NH 9 (Reference point S0000009)[15] edge of pavement to create a drainage swale.
>
> The driveway shall not exceed 16 feet in width. The entrance of the drive may be flared; typically the flare radius is one half the driveway width.
>
> A new eighteen inch diameter plastic culvert is required for drainage.

See Correspondence from DOT (November 11, 2016). The DOT permit for the temporary laydown yard expired on February 4, 2017.

The Applicant shall comply with all conditions and requirements of DOT's permits. Pursuant to RSA 162-H:4, III, the Subcommittee hereby delegates the authority to monitor the construction and operation of the Project to ensure compliance with the Certificate and permits issued by DOT to DOT. Pursuant to RSA 162-H:4, III-a, the Subcommittee delegates to DOT the authority to specify the use of any technique, methodology, practice, or procedure approved by the Subcommittee within the Certificate as may be necessary to effectuate conditions of the Certificate and conditions of the permits issued by DOT. This includes the authority to extend the expiration date or to issue a new permit with similar terms and conditions. However, any

[15] As referenced in correspondence from DOT dated November 11, 2016.

action to enforce the provision of the Certificate must be brought before the Committee. *See* RSA 162-H:4, I(d). Tr., 12/09/16, Morning Session at 6-10.

6. FAA 7460-1 Determination

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

On May 4, 2015, the FAA issued nine Determinations of No Hazard to Air Navigation pertaining to the turbines. App. 33, Appx. 2E. The FAA determined that the turbines will not create a hazard to air navigation if the Applicant implements the following requirements: (i) each turbine must be marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only – Chapter 12 and 13 (turbines); (ii) temporary lighting, as required, during construction of the Project; and (iii) contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan in case of modification of the Project. App. 33, Appx. 2E.

The Certificate is conditioned upon the Applicant's compliance with the Determinations of No Hazard to Air Navigation issued by the FAA. Tr. 12/09/16, Afternoon Session at 83-85.

7. State Fire Marshal

On November 10, 2016, the Subcommittee received correspondence from the Office of the Fire Marshal. The Fire Marshal advised the Subcommittee that he required the Applicant to install a fire suppression system in the nacelles of the turbines. The Fire Marshal further advised the Subcommittee that the Applicant agreed to install the requested suppression system and included it in the Safety Plan. The Fire Marshal further asserted that plans for the suppression

system should be submitted for review and approval to the Office of the State Fire Marshal and the Antrim Fire Department.

The Subcommittee finds that the Fire Marshal's request is reasonable. Prior to erection of the turbines, the Applicant shall submit the plans for the fire suppression system in the nacelles of the turbines to the State Fire Marshal and the Town of Antrim Fire Department for review and approval. The Applicant shall submit one hard copy and an electronic version of the final approved plans to the Administrator. Tr. 12/09/16, Afternoon Session at 74-76.

D. Applicant's Financial, Technical and Managerial Capability

During the course of deliberations, the Subcommittee considered the financial, technical and managerial capabilities of the Applicant as required by RSA 162-H:16, IV (a).

1. Technical and Managerial Capability

Under RSA 162-H:16, IV(a), when making a decision whether to issue a Certificate, the Subcommittee is required to determine whether the Applicant has adequate technical and managerial capability to assure construction and operation of the Project in continuing compliance with the terms and conditions of the Certificate. *See* RSA 162-H:16, IV(a).

Under N.H. CODE ADMIN. RULES, Site 301.13, when determining whether an Applicant has the technical capability to construct and operate the Project, the Subcommittee is required to consider the following:

> (1) The applicant's experience in designing, constructing, and operating energy facilities similar to the proposed facility; and
>
> (2) The experience and expertise of any contractors or consultants engaged or to be engaged by the applicant to provide technical support for the construction and operation of the proposed facility, if known at the time.

When determining whether an Applicant has the managerial capability to construct and operate the Project, N.H. CODE ADMIN. RULES, Site 301.13 (c), requires the Subcommittee to consider the following:

> (1) The applicant's experience in managing the construction and operation of energy facilities similar to the proposed facility; and
>
> (2) The experience and expertise of any contractors or consultants engaged or to be engaged by the applicant to provide managerial support for the construction and operation of the proposed facility, if known at the time.

a. Positions of the Parties

(1) Applicant

The Applicant argues that it has sufficient managerial and technical capability to ensure construction and operation of the Project in accordance with the Certificate. App. 35, at 16-19.

The Applicant claims that it will be responsible for "the overall management of the Project" and will maintain oversight of all contractors on the Site to ensure that the Project is constructed, operated and maintained in accordance with the Certificate. App. 35, at 16. The Applicant further presents that Walden will be responsible for the management of all contractors that will be engaged in the construction and operation of the Project. App. 35, at 16.

The Applicant agrees that neither Antrim Wind nor Walden have constructed and operated wind energy facilities in the United States. Tr., 09/15/2016, Morning Session, at 116. The Applicant relies on its a Pre-Construction Service Agreement (PSA) with Reed & Reed to establish its managerial and technical capacity to construct and operate the Project. App. 35, at 16; App. 3, at 4-5. The PSA, in time, will be replaced with a Balance of Plant Contract that, according to the PSA, will require Reed & Reed to provide, "all post-permit electrical design (Civil Design by Owner), related procurement, the technical and construction services required

to complete and, working in a coordinated manner with Siemens, turn over a fully commissioned and operational project within designated cost, schedule, quality and safety requirements." App. 35, at 16; App. 3, at 5. The Applicant reports that Reed & Reed has installed more than two hundred eighty wind turbines that are capable of generating 556 MW in New England. App. 33, at 24; App. 33, Appx. 19A; App. 3, at 1-2.

The Applicant selected Siemens Energy, Inc. (Siemens) as its turbine supplier and service and maintenance provider. App. 35, at 16-17. The Applicant entered into a Memorandum of Understanding with Siemens. App. 35, at 17. According to the Memorandum of Understanding, Siemens will have an exclusive right to negotiate a Turbine Supply Agreement and a Service and Maintenance Agreement. App. 35, at 17; App. 3, at 12. The Turbine Supply Agreement will: (i) address Siemens' responsibilities to manufacture and deliver turbine components; and (ii) contain warranty and performance guarantee provisions covering the turbines. App.35, at 17; App. 3, at 12. The Service and Maintenance Agreement will be in effect for two years with an option to extend for an additional eight years and will address: (i) Siemens' maintenance team; (ii) performance of scheduled maintenance; (iii) parts/consumable supply and inventory management; (iv) provision, maintenance and calibration of tools required for maintenance; (v) provision and maintenance of safety equipment; (vi) remote monitoring of the Supervisory Control and Data Acquisition system; (vii) monitoring and analysis of the Turbine Condition Monitoring data to predict and mitigate potential malfunctions; (viii) initiating appropriate response to the events, warnings and alerts monitored; (ix) maintaining turbine specific logs; (x) submitting monthly reports; (xi) notifications of unusual events and malfunctions; (xi) report of any incidents involving Siemens' personnel, etc. App. 35, at 17; App. 3, at 13-14; Tr., 09/15/16, Morning Session, at 150; Tr., 09/15/16, Afternoon Session, at 12, 29. The Applicant asserts that

Siemens has sufficient experience and expertise to assure compliance with the Turbine Supply Agreement and the Service and Maintenance Agreement. App. 35, at 16-17; App. 33, Appx. 19B. Siemens was ranked 58 on the 2014 Fortune Global 500 and has already installed 758 wind turbine units, including 64 SWT-3.2-113 units, for a total 2,228 MW capacity in seventeen countries across the world. App. 33, Appx. 19B; App. 3, at 9. The Applicant's witness, Mr. Kenworthy, testified that the Applicant may retain another maintenance company upon the expiration of the Service and Maintenance Agreement with Siemens (2 years). Tr., 09/15/2016, Afternoon Session, at 30. Mr. Kenworthy assured the Subcommittee, however, that the successive maintenance company will have extensive experience and expertise with the maintenance and operation of wind turbines. Tr., 09/15/2016, Afternoon Session, at 30-32.

As of the date of the Application, the Applicant engaged DNV-GL as its Owner's Engineer. App. 35, at 16; App. 2, at 3. According to the exhibits provided by the Applicant, DNV-GL has ninety years of experience in the power industry, including thirty years in energy efficiency and wind energy. App. 33, Appx. 19C, at 14. DNV-GL has a staff of their employees in fifty locations across twenty-seven countries. App. 33, Appx. 19C. The Applicant asserts that, with the assistance of DNV-GL, it will ensure that the following operations and maintenance issues will be addressed prior to the operation of the Project: (i) managing scheduled maintenance of the above and below ground electrical collector system through licensed electrical contractors; (ii) managing maintenance of the Project's substation; (iii) performing inspections and maintenance of pad mount transformers; (iv) parts supply and inventory management; (v) fiber/Ethernet network maintenance; (vi) daily turbine monitoring and fault analysis; (vii) road maintenance and repair; (viii) general building maintenance and repair; (ix) vegetation removal, waste disposal and general site upkeep; (x) maintaining site

security; (xi) managing and ensuring compliance with all post-construction environmental monitoring and reporting requirements; and (xii) ensuring compliance with the Certificate and the Town of Antrim Agreement, etc. App. 35, at 17-18; App. 2, at 3-4.

The Applicant will hire two full-time employees who, along with 2-3 Siemens' technicians, will work on-site and ensure operation of the Project in compliance with the Certificate. App.35, at 18-19; App. 2, at 6. The Applicant's witness, Donald Marcucci, further clarified that Siemens employees will not be present on the site but will be on call in case of emergency. Tr., 09/15/16, Afternoon Session, at 12-13.

(2) Intervenors

The Town of Antrim and Wesley Enman argued that the Applicant demonstrated its managerial and technical ability to construct and operate the Project in accordance with the Certificate. *See* Town of Antrim's Post Hearing Mem; Final Brief of Wes Enman.

Lisa Linowes, in her pre-filed testimony, argued that the Applicant does not have the managerial and technical capability to construct and operate the Project in accordance with the Certificate. WA-01, at 15-16. Ms. Linowes argued that, although the Applicant relies on its contractors to establish its ability to construct and operate the Project, neither the Applicant nor its principals have experience in actual construction and operation of wind projects of the Project's magnitude. WA-01, at 16.

b. Subcommittee Deliberations

The Applicant has never constructed and/or operated a wind energy project of the proposed magnitude. The evidence and testimony presented demonstrate, however, that the Applicant's contractors, DNV-GL and Reed & Reed have extensive experience in designing and constructing renewable energy projects, including wind turbine projects. In addition, the

Applicant will retain and will enter into a Turbine Supply Agreement and a Service and Maintenance Agreement with Siemens Energy. Under these agreements, Siemens will assist the Applicant with delivery, installation, commissioning and servicing the turbines for two years following the beginning of the operation of the Project. Siemens is a global company that has significant experience with providing and servicing Siemens wind turbines around the world.

The Subcommittee finds that, although the Applicant has not constructed and operated similar projects, it retained companies that possess significant experience in the design, construction and operation of renewable energy projects, including wind turbines projects. Through its subcontractors, the Applicant demonstrated that it has the required technical capability to construct and operate the Project in accordance with the Certificate.

The Applicant's managerial experience in the construction and operation of wind turbines facilities is similarly limited. The Subcommittee finds, however, that the Applicant demonstrated, by a preponderance of the evidence, that its principals, Walden Green Energy and RWE, have substantial experience in managing renewable energy facilities, including wind turbines project, of a similar magnitude. The Subcommittee also finds that DNV-GL, Reed & Reed and Siemens have significant experience in constructing and managing renewable energy facilities. The Subcommittee finds that the Applicant's principals and subcontractors are capable of managing the Project and will assist the Applicant, if needed, with managing the construction and operation of the Project.

Considering the Applicant's testimony of its intent to retain another servicing contractor upon expiration of the Operation and Maintenance Agreement with Siemens, and to ensure that the Applicant and its contractors continue to have sufficient technical and managerial capability to construct and operate the Project in compliance with the Certificate, the Applicant is required

to notify the Administrator of the Committee, in writing, of any modifications or replacement of the Operation and Maintenance Agreement within sixty days of such modification or replacement. In addition, within thirty-days of issuance of the Certificate, the Applicant shall provide an updated plan for the timing and sequence of construction of the Project. Furthermore, considering that the finding of the Applicant's technical and managerial capability is based, in part, on the experience and expertise of its principals, the Applicant shall immediately notify the Committee of any change in ownership or ownership structure of the Applicant or its affiliated entities and shall seek approval of the Committee for such a change.

Subject to the conditions stated herein, the Subcommittee finds that the Applicant demonstrated, by a preponderance of the evidence, that it has sufficient managerial and technical capability to construct and operate the Project in accordance with the Certificate. TR. 12/07/16, Morning Session at 43-65.

2. Financial Capability

Under the N.H. CODE ADMIN. RULES, Site 301.13 (a), when determining whether an Applicant has the financial capability to construct and operate the Project, the Subcommittee is required to consider the following:

> (1) the applicant's experience in securing funding to construct and operate energy facilities similar to the proposed facility;
>
> (2) the experience and expertise of the applicant and its advisors, to the extent the applicant is relying on advisors;
>
> (3) the applicant's statements of current and pro forma assets and liabilities; and
>
> (4) financial commitments the applicant has obtained or made in support of the construction and operation of the proposed facility.

a. Positions of the Parties

(1) Applicant

The Applicant asserts that it has sufficient financial capability to construct and operate the Project in accordance with the Certificate. App. 33, at 62-69. The Applicant relies on the experience and expertise of its principals, Walden and RWE. App. 33, at 62-69. The Applicant submits that Walden has significant experience in the financing of energy projects. App. 35, at 7. Walden developed, financed, constructed and either currently operates or sold upon completion, over 10 MW of renewable generation assets in Massachusetts and Vermont. App. 35, at 8. As of the date of the Application, Walden was developing over 200 MW of wind, solar and hydro generation assets in United States, Latin America and Central Eastern Europe. App. 35, at 8. Walden's management team has a combined forty-five years of experience and has successfully financed more than $5 billion power generation and oil and gas energy infrastructure assets. App. 35, at 8. As examples, the Applicant asserts that Walden Green Energy's management team led and executed the following transactions: (i) Customized Hedge Facility for oil and gas producer Chesapeake Energy (Energy Risk Magazine Deal of the Year 2010); (ii) a thirty year agreement with University of Massachusetts; (iii) LNG off-take and service agreement to manage the supply of natural gas for Excelerate's Northeast Gateway Deep Water port; and (iv) financing for Chesapeake Energy. App. 35, at 7.

Walden is owned by: (i) Walden Founders; and (ii) RWE Supply & Trading, a subsidiary of RWE AG (collectively RWE). App. 35, at 7-8. The Applicant will "benefit" from RWE's experience in developing and financing numerous wind projects. App. 35, at 9. According to the Applicant, RWE has a market capitalization of $12.9 billion, assets of $104.4 billion[16], and operating revenues of $63.3 billion. App. 35, at 9. RWE and its affiliates have 49,064 MW of

[16] As of December 31, 2014.

electric generation capacity in Europe, and have developed, financed and constructed 3,112 MW of renewable generation assets, including 2,530 MW of wind assets. App. 35, at 9. The Applicant also asserts that, in 2014, RWE invested $4.2 billion in property, plant and equipment, including $929 million that was invested in renewable assets. App. 35, at 10. The Applicant submits that RWE Principal Investments manages the investment in Walden and is headed by Mr. Eric Shaw. App. 35, at 10. The Applicant further asserts that Mr. Shaw is a Global Head of RWE Principal Investments since 2009 and, formerly, was Head of Commodity Principal Strategies of Citigroup and a Director in Commodities at Barclay Capital. App. 35, at 10-11. The Applicant concludes that its affiliation with RWE demonstrates its capability to construct and operate the Project in accordance with the Certificate. App. 35, at 9.

The Applicant submits that its financing strategy is based on the following assumptions: (i) obtaining a long-term Power Purchase Agreement at current market rates; (ii) a construction cost of approximately $63-65 million; and (iii) financial ratios that will be agreeable to the lenders. App. 35, at 14. Based on these assumptions, the Applicant asserts that it anticipates that construction of the Project will be funded with a $50-55 million construction loan, converting to a term loan and $10-13 million, or more, if needed, in equity. App. 35, at 14; App. 15, at 8; Tr., 09/13/2016, Afternoon Session, at 22-24, 41, 86. The Applicant asserts that RWE will provide the construction equity funding to Walden which, in turn, will invest the equity into the Applicant through its subsidiary, Walden Green NE. App. 35, at 12; App. 1, at 7; App. 15, at 1; Tr., 09/13/2016, Afternoon Session, at 77. The Applicant's witnesses admitted that RWE has been facing some financial challenges in the European market, the company's operating earnings fell in 2015, its equity value has decreased since 2011. Tr., 09/13/2016, Afternoon Session, at 44-54, 66. Moody's rating of RWE was downgraded in 2016. Tr., 09/13/2016, Afternoon

Session, at 44-54, 66. They assured the Subcommittee, however, that RWE maintains a BBB- credit rating and is in the position to provide the required equity for the Project. Tr., 09/13/2016, Afternoon Session, at 60-62, 70-71.

The Applicant asserts that it has already obtained non-binding letters of intent for a construction loan from Bayerische Landesbank, KeyBank, State Street, Citigroup, and CCA Group. App. 33, at 68; App. 33, Appx. 18B, 18C; App. 1, at 8; App. 15, at 2; App. 20, Ex. W/S-1, W/S-2, W/S-3; Tr., 09/13/2016, Afternoon Session, at 13-16. The letters indicate willingness of lenders to provide the debt financing package for the Project. App. 33, at 68; App. 33, Appx. 18B, 18C; App. 1, at 8; App. 15, at 2; App. 20, Ex. W/S-1, W/S-2, W/S-3; Tr., 09/13/2016, Afternoon Session, at 13-16. The Applicant's witness, Mr. Henry Weitzner, admitted that the letters from the financial institutions were non-binding and were subject to certain enumerated conditions, including receipt of all necessary permits. Tr., 09/13/2016, Afternoon Session, at 13-16. He argued, however, that the letters evidence the financial institutions' intent and committal to fund the Project. Tr., 09/13/2016, Afternoon Session, at 13-22, 82.

Finally, to provide additional assurance of the Applicant's financial ability to finance construction of the Project, the Applicant agreed to provide to the Committee documentation demonstrating that the debt and equity financing required for the construction of the Project is in place prior to the construction of the Project. App. 35, at 15.

The Applicant asserts that, upon completion of construction of the Project, the construction loan will convert into a term loan. App. 33, at 15; App. 15, at 6-7. Mr. Weitzner testified that the Project will rely on the Production Tax Credit, Investment Tax Credit, capacity payments (approximately 8% of revenue), renewable tax credits (approximately 20% of revenue), and generation of cash flow to establish its financial capability to operate the Project.

App. 35, at 15; App. 15, at 7, 9; Tr., 09/13/2016, Morning Session, at 47, 69-70; Tr., 09/13/2016, Afternoon Session, at 6, 86.

The Applicant's witnesses testified that the Applicant needs the Production Tax Credit to establish its financial capability to construct and operate the Project in accordance with the Certificate. App. 35, at 15; App. 15, at 7, 9; Tr., 09/13/2016, Morning Session, at 47. The Applicant's witnesses further opined that the Applicant will qualify for the Production Tax Credit. Tr., 09/13/2016, Morning Session, at 47.

The Applicant claims that, once construction financing is closed, the Project will generate a sufficiently strong cash flow to ensure its operation in compliance with the Certificate. App. 33, at 69. The Applicant asserts that it has already entered into a Power Purchase Agreement for 25% of the Project with New Hampshire Electric Co-op. Tr., 09/13/2016, Morning Session, at 92. The Applicant also provided correspondence from Partners HealthCare indicating that the Applicant and Partners HealthCare have entered into a letter of intent to negotiate a Power Purchase Agreement for the purchase of approximately 70% of energy and renewable energy credits that will be generated by the Project. *See* Correspondence from Partners HealthCare (September 30, 2016). Although the Applicant's witnesses testified that entering into Power Purchase Agreements would be a preferred route to guarantee financing of the operation of the Project, they also opined that, as an alternative, they would consider employing a financial bank hedge or synthetic Power Purchase Agreements[17] instead. App. 20, at 6; Tr., 09/13/2016, Afternoon Session, at 25-28. The Applicant's witnesses concluded that, because the Applicant will secure the cash flow of the Project through fixed contractual arrangements, a forecast for

[17] A Synthetic Power Purchase Agreement is a financial hedge instrument that guarantees total hedged cash-flow amount over a specific period of time. Synthetic Power Purchase Agreements are typically used to hedge revenue of gas-fired power plants.

what energy prices will be in the future is irrelevant for the determination of the Applicant's financial ability to operate the Project. Tr., 09/13/2016, Afternoon Session, at 34.

(2) Counsel for Public

CFP argued that RWE faced the financial decline associated with a shift in the German generating market and expressed concerns about RWE's financial stability and, consequently, the Applicant's ability to raise capital required for construction of the Project. Tr., 09/13/2016, Afternoon Session, at 44-54, 66-67.

(3) Intervenors

Ms. Linowes argued that the Applicant does not have the financial capability to construct and operate the Project in accordance with the Certificate. WA-01, at 15-16; Tr., 11/07/16, Evening Session, at 35-37. In support, Ms. Linowes asserted that the Applicant failed to provide credible evidence of its ability to obtain financing for construction and operation of the Project. WA-01, at 15-20. Ms. Linowes argued that it is unlikely that the Applicant will be able to sell its output and renewable energy credits at the price it asserts and, as a result, will not be able to generate cash flow required for operation of the Project. WA-01, at 15-20. Ms. Linowes also argued that it is possible that the Applicant will not receive an Investment Tax Credit and, consequently, will not be able to finance construction and operation of the Project. Tr., 11/07/16, Evening Session, at 27-28. Finally, she asserted that the Applicant may not be able to generate sufficient cash flow because the Applicant has presented only a letter of intent for purchase of 70% of the Project's output. Tr., 11/07/16, Evening Session, at 28-29. She asserted that the intent expressed in the letter may never be finalized and become an enforceable contract. Tr., 11/07/16, Afternoon Session, at 28-29.

Mr. Cleland asserted that Mr. Kenworthy lacks the experience to raise the financing required for the construction and operation of the Project. AB 24, at 2-3.

The Town of Antrim and Mr. Enman argued that the Applicant clearly demonstrated financial capability to construct and operate the Project in accordance with the Certificate. *See* Town of Antrim's Post Hr'g Mem; Final Brief of Wes Enman.

c. Subcommittee Deliberations

The Applicant proposes two-phase financing that is standard in the United States for renewable wind energy facilities: (i) the construction financing phase; and (ii) the operation phase.

The Applicant testified that it plans to finance the construction phase through combination of a construction loan that eventually will convert into a permanent term loan and equity investment. The Applicant, as a special purpose entity, does not have experience in raising capital. However, the Applicant demonstrated that its principals and advisors have substantial experience in financing Projects of similar magnitude and are willing to invest in the Project. The *pro forma* submitted by the Applicant does not contain information suggesting that the Applicant will not be able to finance construction and operation of the Project. Finally, it is noted that, as of the date of deliberations, the Applicant has already obtained and provided to the Subcommittee a number of letters of interests from commercial institutions demonstrating their interest in providing funds for a construction loan. The Subcommittee also received testimony demonstrating that RWE will provide construction equity, even if such equity exceeds $11 million. CFP expressed concerns about the financial standing of RWE. However, the testimony submitted to the Subcommittee demonstrated that RWE remains financially sound, continues to

maintain above average credit ratings and continues to be able to raise financing on favorable conditions.

Notably, to ensure that the Applicant has raised sufficient capital for construction and operation of the Project, the Applicant agreed to provide loan documentation demonstrating sufficient funds were raised for construction of the Project prior to the commencement of construction of the Project.

The Applicant demonstrated its ability to raise required cash flow for financing of the operation of the Project by entering into a Power Purchase Agreement for 25% of its output and providing a letter of interest for an additional 70% of the output.

As to the concerns about the capacity factor, the Subcommittee notes that the Applicant estimated a 37% factor and the lending institutions agreed to provide financing based on a 26% capacity factor. The Subcommittee finds that curtailment associated with shadow flicker and noise controls will have no impact on the Project's estimated capacity and ability to raise required capital.

To ensure that the Applicant has a sufficient financial capability to construct and operate the Project, prior to the construction of the Project, the Applicant shall provide documentation demonstrating that debt and/or equity financing required for the construction of the Project is in place to the Committee's Administrator. Furthermore, the Applicant shall immediately notify the Committee of any change in ownership or ownership structure of the Applicant or its affiliated entities and shall seek approval from the Subcommittee for such a change. Subject to compliance with these conditions, the Subcommittee finds that the Applicant demonstrated, by a preponderance of the evidence, that is has sufficient financial capability to construct and operate the Project. Tr., 12/12/16, Afternoon Session, at 147-157.

E. Orderly Development of the Region.

RSA 162-H:16, IV(b) requires the Subcommittee to consider whether the proposed Project will unduly interfere with the orderly development of the region, with due consideration given to the views of municipal and regional planning commissions and municipal governing bodies. *See* RSA 162-H:16, IV(b).

Under the N.H. CODE ADMIN. RULES, Site 301.15, when determining whether the Project will unduly interfere with the orderly development of the region, the Subcommittee is required to consider the following:

> (a) the extent to which the siting, construction, and operation of the proposed facility will affect land use, employment, and the economy of the region;
>
> (b) the provisions of, and financial assurances for, the proposed decommissioning plan for the proposed facility; and
>
> (c) the views of municipal and regional planning commissions and municipal governing bodies regarding the proposed facility.

1. Land Use

a. Positions of the Parties

(1) Applicant

The Applicant asserts that the Project "represents a reasonable degree of development that also largely preserves the status of an area that has long been associated with open space, commercial timber production, and passive recreation." App. 33, at 119.

The Applicant opines that the Project is "compatible" with open space and conservation land usage in the region because it: (i) will permanently occupy only 11.3 acres; (ii) will ensure the permanent conservation of approximately 908 acres of land; and (iii) will demotivate local landowners from developing or subdividing their lands by providing lease revenues. App. 33, at

119. The Applicant acknowledges, however, that the conservation easements provided by the Applicant reserve to the easement grantors the right to construct a road of less than 80 feet, a home and a cell tower. Tr., 09/29/16, Morning Session, at 117-126. The Applicant argues that the Project is consistent with past timber production activity because the local landowners will be allowed to continue timber harvesting on the land that they leased to the Applicant. App. 33, at 119.

The Applicant also claims that the Project "will have almost no effect on the public's ability to use the general area for outdoor recreation." App. 33, at 119. The Applicant submits that there is only one "formal" hiking trail within one mile of the Project and the Project will not affect its usage. App. 33, at 119. The Applicant further asserts that informal hiking and hunting will not be affected by the Project. App. 33, at 119. The Applicant also asserts that the Project will not have a direct impact on wildlife and bird watching, boating and swimming. App. 33, at 120-121. The Applicant also relies on the support of several conservation agencies, including the Nature Conservancy, New England Forestry Foundation[18] and the New Hampshire Sierra Club.

(2) Counsel for the Public

CFP argued that the Project is contrary to the land use in the region because its construction is not allowed by the Town of Antrim's Master Plan, Zoning Ordinance and Open Space Conservation Plan. CFP Post Hr'g Mem., at 40.

(3) Intervenors

Ms. Foss testified that the Applicant seeks to construct the Project in a region that is the subject of a collaborative effort designed to conserve wildlife habitat and managed timberlands

[18] The Nature Conservancy and New England Forestry Foundation are partners in the Quabbin to Cardigan Initiative.

within approximately two million acres between the Quabbin Reservoir in Massachusetts and the White Mountain National Forest in New Hampshire (Qaubbin to Cardigan Initiative or Q2C). ASNH 3, at 2. Mr. Wells testified that the Project will be constructed within the Quabbin to Cardigan area that was identified by the Partnership as a core conservation focus area. LA 9, at 6-7. The Project will also be located within the area that was recognized by The Nature Conservancy as a Tier I Matrix Forest Block. ASNH 3, at 3. In addition, the Project site will be abutted on the south and east by the Super Sanctuary – over 40,000[19] acres of permanently protected conservation lands in Washington, Windsor, Antrim, Hancock, Sullivan, Nelson, Harrisville, Gilsum, and Marlow. ASNH 3, at 3. The Super Sanctuary's goal is to protect the uplands watershed area between the Merrimack and Connecticut rivers from becoming fragmented, and to preserve large tracts of land. LA 1, at 5. The Project will be constructed within 12,994 acres of forest that abuts: (i) the Robb Reservoir (over 1,700 acres of protected lands) and (ii) the Peirce Reservation (3,400 acres). SCC Exhibit C, at 5. Carol Jones, Chris Wells, Geoffrey Jones and Mary Allen opined that construction and operation of the Project will negatively affect conservation attributes of the region, is inconsistent with land use designed to conserve and preserve the natural environment and forests, and will have an unreasonable adverse effect on the orderly development of the region. LA 9, at 5-8; SCC Exhibit C, at 5; ASNH 3, at 7; LA, at 7.

As to the Applicant's argument that the Project is consistent with conservation goals and usage because it will preserve nine hundred eight acres of land, Ms. Ross opined that easements offered by the Applicant lack provisions that are standard for easements held by New Hampshire land trusts in general and provisions that relate to forest management specifically. ASNH 3, at 7. Ms. Ross also noted that one of the easements granted the right to construct a house and road

[19] According to the testimony of Mary Allen - 34,500 acres. Pre-Filed Testimony, Mary E. Allen, at 5-6.

within the easement at high elevation. ASNH 3, at 7. She claims that construction of the house and associated road will cause additional fragmentation. ASNH 3, at 7.

The Allen/Levesque Group of Intervenors, in its Post-Hearting Brief, requested the Subcommittee to condition the Certificate and require the Applicant to remove language from the easements that allows for any type of future development or construction on conservation land. The Group also requested the Subcommittee to require the Applicant to conserve all leased parcels, totaling over 1,000 acres.

Brenda Schaefer, Mark Schaefer and Nathan Schaefer argued that the Project will have an unreasonable adverse effect on the orderly development of the region by permanently altering the Town's rural character. Pre-Filed Testimony, Brenda Schaefer, Mark Schaefer, and Nathan Schaefer, at 1.

b. Subcommittee Deliberations

The Applicant seeks to construct the Project in a rural conservation district subject to many conservation initiatives. Despite those conservation initiatives, other type structures and/or recreational facilities can be constructed in the same district. Once construction of the Project is complete, the Site and surrounding area subject to conservation, as proposed by the Applicant, will continue to be held in private ownership and will continue to be used in a manner consistent with its prior usage, *i.e.* hiking, forestry, hunting, etc. The Subcommittee further finds that the conservation easements entered into by the Applicant will promote the current land use and will ensure that use will remain preserved. Considering the limited footprint of the Project and the proposed conservation easements, the Subcommittee finds that construction of the Project will not have an unreasonable adverse impact on the current land use of the region. Our finding regarding the impact of the Project on current land use relies on the conservation easements as

proposed by the Applicant. The Certificate is conditioned on final closing and recording of the conservation easements and adherence to the terms and conditions contained within the easements. Tr., 12/09/16, Afternoon Session at 128-140.

2. Economy and Employment

a. Positions of the Parties

(1) Applicant

The Applicant retained Matt Magnusson to study potential impacts of the Project on the economy and employment of the region. Mr. Magnusson prepared a report entitled "Economic Impact of the Proposed 28.8 MW Antrim Wind Power Project in Antrim, NH[20]." App. 33, Appx. 14A. Mr. Magnusson asserted that the Applicant has already brought investments into the New Hampshire economy by spending $2,160,000 on professional services and lease payments. App. 33, Appx. 14A, at 5. Mr. Magnusson opined that the Project is expected to bring $53.4 million in increased economic activity to New Hampshire over the next twenty years. App. 33, Appx. 14A, at 5; App. 4, at 6. The greatest economic benefits will be generated during the construction phase of the Project and will benefit Cheshire, Hillsborough, Merrimack, Rockingham and Sullivan counties. App. 33, Appx. 14A, at 5; App. 4, at 6. Mr. Magnusson also opined that, during construction, the Project will generate twenty-five full-time equivalent construction jobs and will support an additional fifty-nine full-time equivalent jobs in the local economy. App. 33, Appx. 14A, at 5; App. 4, at 6. In turn, it will generate approximately $5.9 million in wages and earnings. App. 33, Appx. 14A, at 5; App. 4, at 6. Mr. Magnusson further opined that, during operation, the Project is expected to create an estimated four[21] full-time

[20] Mr. Magnusson used the latest versions of JEDI and IMPLAN economic models to calculate the impact of the Project on the local economy and employment. Pre-Filed Testimony, Matthew Magnusson, at 5.
[21] During operation of the Project, the Applicant intends to hire two full staff employees and utilize 2-3 Siemens technicians. App. at 72.

equivalent new jobs for employees of Antrim Wind and will support an additional eight full-time equivalent jobs in the surrounding area. App. 33, Appx. 14A, at 5; App. 4, at 6.

Mr. Magnusson reported that the Project will have no impact on electricity rates and will have a direct positive effect on the Town of Antrim by providing a total of $8.4 million to the Town under the PILOT Agreement. App. 33, Appx. 14A, at 6.

Mr. Magnusson also reviewed and testified about the report entitled "Impact of the Lempster Wind Power on Local Residential Property Values Update." He determined that the Project will have no impact on residential real estate values in the region. App. 33, Appx. 14A, at 7; App. 4, at 6-9.

Mr. Magnusson asserted that he evaluated the effect of the Lempster Project on real estate values. App. 4, at 7-8. Specifically, Mr. Magnusson reviewed 2,593 arms-length, single-family home sales transactions from January 2005 through November 2011 for all of the towns and cities located in Sullivan County and determined that "there was no relationship between the proximity of a property to a wind turbine or views of wind turbines and the selling prices of properties." App. 4, at 7-8. He updated his studies and confirmed his conclusion that the Project will not have an adverse effect on the values of properties in the region. App. 4, at 7-10.

Mr. Magnusson acknowledged that he did not conduct any real estate studies specific to the Town of Antrim. Tr., 09/20/16, Morning Session, at 144. He further acknowledged that he did not analyze for how long the properties stayed on the market and did not consider the properties that were removed from the market without a sale. Tr., 09/20/16, Afternoon Session, at 8-9. Mr. Magnusson further acknowledged that there were two assessments in Lempster that indicated a decline in property values due to the wind project. Tr., 09/20/16, Afternoon Session, at 30-31. He indicated, however, that these assessments are "outliers" and are not indicative of

the general effect of wind projects on real estate values. Tr., 09/20/16, Afternoon Session, at 30-32. Mr. Magnusson concluded that, based on Lempster project, the Project will have no effect on real estate values regardless of proximity or visibility of the turbines. Tr., 09/20/16, Morning Session, at 145; Tr., 09/20/16, Afternoon Session, at 36.

Mr. Magnusson also testified about the report entitled "The Impact of Wind Farms on Tourism in New Hampshire." App. 33, Appx. 14A, at 7. He noted that this report made the following findings:

> The introduction of the Lempster Wind project appears to have had little or no impact on meals and room sales in the region where the project is located. Since Lempster Wind began operating, growth in tourism-related employment in the project region has been as large, or larger, than it has been in majority of regions in the state. State park revenues have grown more at the state parks closest to the Lempster Wind region than have aggregate state park revenues, with the largest increase at the park closest to Lempster Wind. Weekend traffic volume (an indication of visitor activity) in the Lempster Wind region suggests that the presence of the wind farm has not discouraged visits to the region.

App. 33, Appx. 14A, at 7; App. 4, at 5. Mr. Magnusson, during his testimony, acknowledged that he did not study, analyze, or compare tourist attractions in Lempster and Antrim. Tr., 09/20/16, Afternoon Session, at 10-11. He further testified that he could not, with certainty, state that it was the wind project in Lempster, as opposed to other tourist attractions, that caused a growth in sales, revenues and traffic. Tr., 09/20/16, Afternoon Session, at 10-13. Based on his review of the Report, however, Mr. Magnusson concluded that "there was no evidence to indicate that a relationship exists between wind power projects and tourism." App. 33, Appx. 14A, at 7.

Mr. Magnusson concluded that the Project will positively impact the economies of Cheshire, Hillsborough, Merrimack, Rockingham and Sullivan counties. App. 4, at 6-7.

(2) Intervenors

IBEW argued that that Project will benefit the orderly development of the region and economy by generating approximately eighty-four full-time positions during its construction and twelve full-time positions during its operation. *See* Motion to Intervene.

Wesley Enman testified that the Lempster Project did not negatively affect tourism. Pre Filed Testimony, Wesley Enman.

Charles Levesque argued that the PILOT Agreement is not beneficial for the Town of Antrim. LA 3, at 6-7. In support, Mr. Levesque asserted that, under the PILOT, the Town will receive $14,200,000.00[22] in projected property tax revenue. LA 3, at 6-7. Without the PILOT Agreement, the Town would receive $19,800,000.00. LA 15. In this regard, Allen/Levesque Group of Intervenors, in their Post-Hearing Brief, requested the Subcommittee to nullify the PILOT Agreement.

Annie Law and Robert Cleland, Barbara and Stephen Berwick, Janice Longgood and Mr. Schaefer argued that the Project will have an adverse effect on the value of their properties. AB 24, at 1; AB 7, at 2; AB 10, at 1; AB 1, at 1-2; Tr., 10/18/16, Morning Session, at 161-162, 168, 174; Tr., 10/18/16, Afternoon Session, at 135. Specifically, Ms. Berwick opined that construction of the Project will decrease real estate appeal for the people who are interested in residing in a rural setting. Tr., 10/18/16, Morning Session, at 162. Ms. Longgood requested that the Subcommittee compensate her for the enjoyment she will lose as a result of construction and operation of the Project and condition the Certificate on some sort of value guarantee. AB 1, at 2; Tr., 10/18/16, Morning Session, at 169. Ms. Berwick and Ms. Law requested the

[22] $8,276,469, according to supplemental pre-field testimony of Jack Kenworthy. Supp. Pre-Field Testimony of Jack Kenworthy, at 6.

Subcommittee to deny the Application or, in the alternative, order the Applicant to purchase real estate that will be affected by the Project. AB 8, at 2; Tr., 10/18/16, Afternoon Session, at 136-137. Ms. Berwick also requested the Subcommittee to order the Applicant to provide a "value guarantee." Tr., 10/18/16, Afternoon Session, at 33. Specifically, she stated that the Intervenors' real estate should be appraised by two independent appraisers prior to the construction of the Project. Tr., 10/18/16, Afternoon Session, at 33-34. She requested the Subcommittee to condition the Certificate upon requiring the Applicant to pay the appraised value plus moving costs to the owners of residences within two miles of the Project. Tr., 10/18/16, Afternoon Session, at 33-35; Post-Hearing Brief, ¶ 1. Similarly, Ms. Law and Mr. Cleland, in their Post-Hearing Memorandum, requested that the Subcommittee require the Applicant to buy the properties from anybody who is directly affected and willing to sell at fair market value before construction of the Project.

b. Subcommittee Deliberations

The Subcommittee received testimony and reports demonstrating that the Project will create new employment opportunities and jobs during its construction and operation. Although the argument was made that the Applicant will not create a significant number of full-time jobs during its operation, it is undisputed that the Project will create some jobs and will have a positive effect on employment. It is also undisputed that the Project will bring additional taxes to the Town of Antrim and will have a positive effect on the local economy. Arguments were presented that other arrangements such as ad valorem taxation would be more beneficial for the Town. However, on the record, the Subcommittee is not in a position to second guess the decisions made by the Board of Selectmen of the town and the Applicant in coming to the PILOT Agreement. We assume that the Selectmen are acting in the best interests of the Town.

Mr. Magnusson's testimony and the report about the impact of wind farms on tourism provide a basis for our finding that there will not be an unreasonable adverse impact on tourism in the area. Considering its limited footprint, the Project is unlikely to interfere with hiking, fishing, hunting and camping in the region.

The Subcommittee heard testimony and received a report indicating that the Lempster project did not adversely affect real estate values in the region. The Subcommittee did not receive any reports that would indicate that the Project will have an adverse effect on real estate values in the Town of Antrim. A number of intervenors testified about their concerns about the impact of the Project on values of their real estate. No evidence indicating the impact and/or extent of the estimated impact was submitted. Although the Subcommittee is not convinced that the Project will have not have any effect on values of some properties, the Subcommittee received no evidence indicating that this impact, if any, will have unreasonable adverse effect on the orderly development of the entire region. The Subcommittee finds that the Project will not have an unreasonable adverse effect on the local economy, employment, tourism and real estate values in the region.[23] Tr. 12/09/16, Afternoon Session at 142-174; 12/12/16, Morning Session at 4-13.

3. Decommissioning

a. Positions of Parties

(1) Applicant

Under the Agreement with the Town of Antrim, the Applicant agreed to the following decommissioning requirements:

[23] As noted above, some of the intervenors proposed a property value guarantee designed to compensate homeowners in the event that their properties do lose value as a result of the Project. Those proposals are addressed in greater detail in the public interest section of this Decision at p. 144.

14.1.1 The Owner shall submit a detailed estimate of both the costs associated with site-specific decommissioning activities and the salvage value of the decommissioned materials from the site to the Town before construction of the Wind Farm commences. The estimates shall be prepared by a qualified third party consultant, reasonably satisfactory to the Town, with experience in wind farm decommissioning and salvage value estimates. These estimates shall be updated and submitted to the Town every three years thereafter and in each instance shall be performed by a qualified third party consultant reasonably acceptable to the Town. The consultant shall produce, as part of the scope of services, a "Site Specific Decommissioning Estimate" that shall be the cost of decommissioning activities, minus the recoverable salvage value of the decommissioned materials. The plan and estimate shall include the cost of removing the foundations down to eighteen (18) inches below grade.

14.1.2 The Owner shall, at its expense, complete decommissioning of the Wind Farm or individual Wind Turbines, pursuant to Section 14.1.3 of this Agreement, within twenty-four (24) months after the End of Useful Life of the Wind Farm or individual Wind Turbines, as the case may be, as defined in Section 1.5. For the avoidance of doubt, in no instance shall End of Useful Life for an individual Wind Turbine trigger decommissioning requirements for the entire Wind Farm.

14.1.3. The Owner shall provide a decommissioning plan to the Town no less than three months before decommissioning is to begin. The decommissioning plan shall provide a detailed description of all Wind Farm equipment, facilities or appurtenances proposed to be removed, the process for removal, and the post-removal site conditions. The Town will consider the remaining useful life of any improvement before requiring its removal as part of decommissioning. Approval of the Town, not to be unreasonably withheld, conditioned or delayed, must be received before decommissioning can begin.

14.2 Decommissioning Funding Assurance:

14.2.1. The Owner shall provide a Decommissioning Funding Assurance for the complete decommissioning of the Wind Farm in a form reasonably acceptable to the Town. The Wind Farm will be presumed to be at the End of Useful Life if no electricity is generated from the Wind Farm for a continuous period of twenty-four (24) months, and as defined in Section
1.5.

14.2.2. Before commencement of construction of the Wind Farm, the Owner shall provide Decommissioning Funding Assurance in an amount equal to the greater of the Site-specific Decommissioning Estimate plus twenty-five percent (25%) or $200,000. The Owner shall adjust the amount of Decommissioning Funding Assurance to reflect the updated decommissioning costs and salvage value after each update of the decommissioning estimate, in accordance with Section 14.1.1.

14.2.3. Decommissioning Funding Assurance in the amount described in Section 14.2.2 shall be provided by posting a decommissioning bond, letter of credit, or other financial mechanism that provides for an irrevocable guarantee to cover the reasonably anticipated costs of complying with Owner's decommissioning obligations. Any decommissioning bond, letter of credit or other financial mechanism must be issued or made by an entity having and maintaining a minimum credit rating of "BBB" from Standard and Poor's, or "Baa2" from Moody's, each as defined on the Effective Date, or their commercial equivalent.

14.2.4. Funds expended from the Decommissioning Funding Assurance shall only be used for expenses associated with the cost of decommissioning the Wind Farm.

14.2.5. If the Owner fails to complete decommissioning within the period prescribed by this Agreement, the Town may, at its sole discretion, require the expenditure of decommissioning funds from the Decommissioning Funding Assurance on such measures as reasonably necessary to complete decommissioning. In such an event, where the Owner has failed to complete the required decommissioning obligations under this Agreement and the Town expends the funds from the Decommissioning Funding Assurance to effect the decommissioning requirements, the Town shall also have the right to receive the salvage value available from the decommissioned materials in an amount sufficient to reimburse the Town for any out of pocket expenses incurred for performing decommissioning that were in excess of the otherwise available decommissioning funds (e.g. to be "made whole"). Any remaining salvage value for the decommissioned materials shall be paid to the Owner.

See App., Appx. 17a. Following the execution of the Agreement with the Town of Antrim and promulgation of the Committee's amended rules, the Applicant provided a decommissioning plan that was prepared by TRC. App. 33, Appx. 22.

The Applicant also retained Reed & Reed to estimate the costs of decommissioning. App. 33, Appx. 22 Appx. A.; App. 34. Reed & Reed opined the Project's decommissioning costs will be approximately $2,525,000.[24] App. Appx. 22 Appx. A. The Applicant provided the following proposed condition relevant to financial assurances of decommissioning:

> A) Before commencement of construction on the Wind Farm, Antrim Wind Energy LLC ("Owner") shall provide Decommissioning Funding Assurance in an amount equal to $2,775,000 (two million seven hundred seventy five thousand dollars) unless otherwise determined by the New Hampshire Site Evaluation Committee ("SEC"). The Owner shall not cause the Decommissioning Funding Assurance amount to become less than $2,775,000 (two million seven hundred seventy five thousand dollars) at any time throughout the term of the Agreement with the Town of Antrim, dated March 8th, 2012 ("Agreement"). The Owner shall increase the amount of the Decommissioning Funding Assurance, as appropriate, to reflect the updated decommissioning estimate, in accordance with Section 14.1.1 of the Agreement.
>
> B) Decommissioning Funding Assurance shall be in the form of an Irrevocable Letter of Credit ("ILOC") issued by a major financial institution with a credit rating of "BBB" from Standard and Poor's or a "Baa2" rating from Moody's, each as defined on the Effective Date. The ILOC shall be in a form acceptable to the Antrim Select Board as provided by Section 14.2 of the Agreement. The ILOC shall be extended without amendment for successive periods of one (1) year. Forty-five days prior to the extension of the ILOC Owner shall provide documentation to the Town demonstrating that the extension of the ILOC complies with the decommissioning requirements of the Agreement and the SEC for the following annual period. Owner shall provide this documentation to the Town annually, until the Owner has completed its decommissioning obligations

[24] Mr. Kenworthy testified that the decommissioning cost of the Project in accordance with the decommissioning plan that would require the Applicant to remove the underground facilities to a depth of four feet will be approximately $2,775,000. Tr., 09/15/2016, Morning Session, at 57-59.

> in accordance with this Agreement, the Decommissioning Plan as approved by the SEC and any other requirements specified by the Certificate of Site and Facility from the SEC.

App. 39.

(2) Intervenors

The Town of Antrim, in its Post-Hearing Brief, requested that the Subcommittee approve the following condition relative to the decommissioning costs:

> Prior to commencement of construction activities in the Town of Antrim, the Antrim Board of Selectmen shall retain an independent engineer to review the specifications and assumption in the Decommissioning Plan approved by the Committee and used to determine the amount of the Decommissioning Cost Estimate. The specifications and assumptions in the Decommissioning Plan used to determine the Decommissioning Cost Estimate shall be reasonably acceptable to the Antrim Board of Selectmen, subject to review under the provisions of RSA 162-H. The Antrim Board of Selectmen's review shall be completed within sixty (60) days of submission to the Board or as otherwise agreed in writing. In addition, any changes to the form or amount of the Decommissioning Funding Assurance shall be reasonably acceptable to the Antrim Board of Selectmen, subject to review under the provisions of RSA 162-H. Failure to come to a decision within sixty (60) days or as otherwise agreed in writing shall be deemed approval by the Antrim Board of Selectmen. The Decommissioning Plan, Decommissioning Cost Estimate and the Decommissioning Funding Assurance shall comply with the terms and conditions of the certificate issued by the Committee.

See Town of Antrim's Post-Hearing Brief.

b. Subcommittee Deliberations

The Subcommittee finds that a letter of credit from a major financial institution with a credit rating of "BBB" from Standard and Poor's or a "Baa2" rating from Moody's financial institution will provide sufficient assurance of availability of the funds required for the decommissioning of the Project. The Subcommittee notes, however, that the funds required for the decommissioning will adjust over time. It is important to ensure sufficient funds for the

decommissioning of the Project and to amend and adjust the amount of financial assurance over time. Adjustment to the financial assurances may be accomplished by recalculating and updating the estimated funds required for decommissioning of the Project until the decommissioning is completed. Therefore, to ensure sufficient funds for decommissioning of the Project, the Certificate is conditioned upon the Applicant's compliance with the Agreement with the Town of Antrim and the following specific conditions:

> Prior to commencement of construction activities in the Town of Antrim, the Antrim Board of Selectmen shall retain an independent engineer to review the specifications and assumption in the Decommissioning Plan approved by the Committee and used to determine the amount of the Decommissioning Cost Estimate. The specifications and assumptions in the Decommissioning Plan used to determine the Decommissioning Cost Estimate shall be reasonably acceptable to the Antrim Board of Selectmen, subject to review under the provisions of RSA 162-H. The Antrim Board of Selectmen's review shall be completed within sixty (60) days of submission to the Board or as otherwise agreed in writing. In addition, any changes to the form or amount of the Decommissioning Funding Assurance shall be reasonably acceptable to the Antrim Board of Selectmen, subject to review under the provisions of RSA 162-H. Failure to come to a decision within sixty (60) days or as otherwise agreed in writing shall be deemed approval by the Antrim Board of Selectmen. The Decommissioning Plan, Decommissioning Cost Estimate and the Decommissioning Funding Assurance shall comply with the terms and conditions of the certificate issued by the Committee.
>
> Before commencement of construction on the Wind Farm, Antrim Wind Energy LLC ("Owner") shall provide Decommissioning Funding Assurance in an amount equal to $2,775,000 (two million seven hundred seventy five thousand dollars) unless otherwise determined by the New Hampshire Site Evaluation Committee ("SEC"). The Owner shall not cause the Decommissioning Funding Assurance amount to become less than $2,775,000 (two million seven hundred seventy five thousand dollars) at any time throughout the term of the Agreement with the Town of Antrim, dated March 8th, 2012 ("Agreement"). The Owner shall increase the amount of the Decommissioning Funding Assurance, as appropriate, to reflect the updated decommissioning estimate, in accordance with Section 14.1.1 of the Agreement.

> Decommissioning Funding Assurance shall be in the form of an Irrevocable Letter of Credit ("ILOC") issued by a major financial institution with a credit rating of "BBB" from Standard and Poor's or a "Baa2" rating from Moody's, each as defined on the Effective Date. The ILOC shall be in a form acceptable to the Antrim Select Board as provided by Section 14.2 of the Agreement. The ILOC shall be extended without amendment for successive periods of one (1) year. Forty-five days prior to the extension of the ILOC Owner shall provide documentation to the Town **and the Administrator of the Committee** demonstrating that the extension of the ILOC complies with the decommissioning requirements of the Agreement and the SEC for the following annual period. Owner shall provide this documentation to the Town and the Administrator annually, until the Owner has completed its decommissioning obligations in accordance with this Agreement, the Decommissioning Plan as approved by the SEC and any other requirements specified by the Certificate of Site and Facility from the SEC. **The irrevocable letter of credit shall remain in place until decommissioning is fully implemented and certified as complete.**

Subject to the conditions stated herein, the Subcommittee finds that the Applicant demonstrated that it has sufficient financial capability to ensure decommissioning of the Project. Tr. 12/09/16, Afternoon Session at 92-119.

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

a. Positions of the Parties

(1) Applicant

The Antrim Board of Selectmen supports the construction and operation of the Project. App. 33, at 14. The Applicant acknowledges that the Town's Zoning Ordinance does not allow construction of a large wind energy facility on the site. Tr., 09/29/16, Morning Session, at 25-26. The Applicant further acknowledges that, despite several attempts to amend the Ordinance so that it allows construction and operation of the Project in the rural conservation district, the Ordinance was not amended. Tr., 09/29/16, Morning Session, at 25-32. The Applicant argues

that the Antrim Master Plan contains a section that addresses climate change, energy efficiency and renewable energy and calls for the Planning Board and Planning Department to encourage renewable energy uses. App. 33, at 13; App. Appx. 15. The Applicant also argues that the Antrim's Master Plan "speaks extensively and supportively of the need for renewable energy development." App. 33, at 13. The Applicant asserts that construction and operation of the Project is in compliance with the Southwest Regional Planning Commission's goals because the Commission identified the current lack of local, renewable energy alternatives to conventional energy sources as substantial risk to future growth in the region. App. 33, at 13, App. 33, Appx 16, at 79.

Mr. Kenworthy, on behalf of the Applicant, testified that people in the Town of Antrim support the construction and operation of the Project. Tr., 09/13/2016, Afternoon Session, at 184-185. He stated that it was evidenced by the results of straw polls and surveys conducted by an independent credited third-party survey company, the American Research Group. Tr., 09/13/2016, Afternoon Session, at 185. Mr. Kenworthy testified that the American Research Group sent surveys to the residents of the Town of Antrim that were identified from the voter lists, taxpayer lists, and other source of data. Tr., 09/13/2016, Afternoon Session, at 185. It has received approximately 700 responses. Tr., 09/13/2016, Afternoon Session, at 186. According to Mr. Kenworthy, approximately 77% of the responders indicated their support of the Project. Tr., 09/13/2016, Afternoon Session, at 186; Tr., 09/28/16, Afternoon Session, at 133. Mr. Kenworthy concluded that this independent survey, as well as other straw polls, demonstrate that the people of Antrim support construction and operation of the Project. Tr., 09/13/2016, Afternoon Session, at 184-186; Tr., 09/15/2016, Morning Session, at 12.

The Applicant also argues that it identified sufficient methods for addressing citizens' complaints under the Agreement with the Town of Antrim. Tr., 09/28/16, Afternoon Session, at 177. Specifically, under the Agreement with the Town of Antrim, the Applicant agreed to the following:

> Public Inquiries and Complaints. During construction and operation of the Wind Farm, and continuing through completion of decommissioning of the Wind Farm, the Owner shall identify an individual(s), including phone number, email address, and mailing address, posted at the Town Hall, who will be available for the public to contact with inquiries and complaints. The Owner shall make reasonable efforts to respond to and address the public's inquiries and complaints. This process shall not preclude the Town from acting on a complaint.
>
> Incident Reports. The Owner shall provide the following to the Chairman of the Board of Selectmen or the Chairman's designee as soon as practicable, but not later than thirty days after an incident:
>
> Copies of all reports of environmental incidents or industrial accidents that require a report to U.S. EPA, New Hampshire Department of Environmental Services, OSHA or another federal or state government agency.
>
> Periodic Reports. The Owner shall submit, on an annual basis starting one year after the commencement of commercial operation of the Wind Farm, a report to the Board of Selectmen of the Town of Antrim, providing, at a minimum, the following information:
>
> If applicable, status of any additional construction activities, including schedule for completion;
>
> Details on any calls for emergency, police or fire assistance during the prior year;
>
> Location of all on-site fire suppression equipment; and identity of hazardous materials, including volumes and locations, as reported to state or federal agencies.
>
> Summary of any complaints received from the Town of Antrim residents, and the current status or resolution of such complaints or issues.

App. 33, Appx. 17A, §§5.1, 61, 6.2.

The Applicant further asserts that the on-site personnel will be initially addressing citizens' complaints during business hours. Tr., 09/28/16, Afternoon Session, at 180-181. The Applicant agreed to provide the Committee with reports that it will be providing to the Town of Antrim pursuant to the Agreement with the Town of Antrim. Tr., 09/29/16, Afternoon Session, at 52-53.

(2) Town of Antrim

The Town of Antrim supports the siting, construction, and operation of the Project. Antrim 2, at 2. The Town of Antrim further argues that the people of the Town of Antrim support construction of the Project and that it was evidenced by the following: (i) during an opinion survey conducted in 2010, 84.4% of the Town's residents voted in favor of commercial wind energy and 68.8% voted in favor of construction of wind turbines in the Rural Conservation District; and (ii) during an unofficial ballot in 2011, 63.2% of voters voted in favor of the Project. Antrim 3, at 2-3.

The Town of Antrim entered into the following agreements with the Applicant: (i) Agreement between Town of Antrim and the Applicant dated March 8, 2012; (ii) PILOT Agreement dated June 27, 2013; and (iii) First Amendment to the PILOT Agreement dated November 24, 2014. App. 33, Appx. 17A-17C. The original Agreement between the Town of Antrim and the Applicant addresses a number of issues subject to consideration in this docket, *i.e.* safety, traffic, decommissioning, etc. App. 33, Appx. 17A. The Town of Antrim agrees that a number of sections of the Agreement became moot due to further agreements between the Town and the Applicant (decommissioning and economic benefits). The Town also agrees that some other sections of the Agreement became moot due to the issuance of the Committee's rules

(noise and shadow flicker). The PILOT Agreement and the First Amendment to the PILOT Agreement address economic benefits that the Town of Antrim will receive if the Project is constructed. App. 33, Appx. 17B-17C. According to the Town, considering these Agreements, the Project will benefit the Town, the Contoocook Valley School District, the region and the economy. Antrim 2, at 3. Specifically, the Town identified the following economic benefits of the Project: (i) approximately $324,000 per year in additional property taxes; (ii) funding for improvements of the Gregg Lake boat launch, picnic area and other facilities; (iii) a $5,000 annual payment to the Antrim Scholarship Committee; (iv) conservation of nine hundred eight acres of land through conservation easements; and (v) providing $100,000 for conservation land acquisition to the New England Forestry Foundation. Antrim 2, at 3-5. The Town, in its Post-Hearing Brief, requests the Subcommittee to decide which sections of the Agreement should be used as conditions to the Certificate. The Town also requests the Subcommittee to condition the Certificate upon the following additional requirements:

> Antrim Wind shall comply with the terms and conditions of the Agreement Between Town of Antrim New Hampshire and Antrim Wind Energy, LLC dated March 8, 2012 (Application Exhibit 17a) ("Agreement"). The Town and Antrim Wind may amend the Agreement consistent with the terms and conditions of the certificate of energy facility issued by the Committee. In the event of a conflict between the requirements of the Agreement, as amended, and the requirements of a certificate, the certificate shall control.
>
> Antrim Wind Energy LLC shall participate in meetings to be scheduled jointly by the Antrim Board of Selectmen and Antrim Wind Energy to review and provide information to the public concerning construction activities, construction schedule, use of public highways, blasting and other construction activities. The meetings shall be attended by persons knowledgeable with Antrim Wind Energy LLC's construction plans and responsible for managing construction activities. The meetings shall be public meetings under RSA 91-A, and moderated by the Antrim Board of Selectmen, except as provided by RSA 91-A:3.

> Antrim Wind Energy LLC shall provide the Town with copies of its proposed construction plans, schedule, blasting and other public information (Ref. RSA 91-A:5) to be made available to the public. The construction plans, schedule and other information provided to the Town shall be updated to reflect changes in the project schedule or other changes during construction. Antrim Wind Energy LLC shall provide information concerning complaints during construction, if any, and their resolution, except confidential, personal or financial information (Ref. RSA 91-A:5) regarding the complaint may be redacted.
>
> In the event of significant unanticipated changes or events during construction that may impact the public, the environment, compliance with the terms and conditions of a certificate, public transportation or public safety, Antrim Wind Energy LLC shall notify the Town of Antrim Board of Selectmen or its designee in writing as soon as possible but no later than 7 days after the occurrence. In the event of emergency conditions which may impact public safety, Antrim Wind energy, LLC shall notify the Town and appropriate officials immediately. In addition, during construction, AWE shall copy the Town on any notices provided to the SEC, NHDES or other applicable regulatory agency pursuant to the Certificate or any other permit for the Project.

See Post-Hearing Brief. Ultimately, the Town asserts that, once the Certificate is issued, it will enter into another Agreement with the Applicant that will reflect any and all of the Certificate's conditions. *See* Post-Hearing Brief.

The Town of Antrim Board of Selectmen indicated their willingness to address any and all complaints that may be made by the residents. Tr., 09/29/16, Afternoon Session, at 162. The Selectmen further indicated that, if the Project is approved, they will set forth a specific procedure for collection, verification and reporting complaints. Tr., 09/29/16, Afternoon Session, at 162. Finally, the Selectmen indicated that they will be willing to utilize the Town's website for collecting the complaints regarding construction and operation of the Project. Tr., 09/29/16, Afternoon Session, at 167.

(3) Intervenors

Mr. Levesque argued that, although the Town of Antrim Master Plan encourages the use of alternative energy sources, including geothermal, solar, wood pellets, wind, and water power, it does not contemplate construction of industrial wind energy facilities in the Rural Conservation Zone of the Town of Antrim. LA 3, at 15-17. Mr. Levesque further asserted that the current Zoning Ordinance of the Town of Antrim does not allow construction and operation of the Project in the Rural Conservation Zone and in the Highway Business District of the Town of Highway. LA 3, at 21-25.

Richard Block, Charles Levesque, Barbara and Bruce Berwick, Brenda Schaefer, Mark Schaefer, Nathan Schaefer, and Annie Law and Robert Cleland argued that the people of Antrim do not support construction and operation of the Project. AB 14, at 3-4; LA 3, at 26-27; AB 8, at 4; AB 9, at 2; Pre-Filed Testimony, Brenda Schaefer, Mark Schaefer, and Nathan Schaefer, at 1-2; AB 24, at 4. They argued that the people of Antrim indicated their opposition to the Project by: (i) unanimously adopting an Open Space Conservation Plan that identifies the land where the Applicant seeks to construct the Project as desirable for permanent conservation; and (ii) voting against the industrial wind Ordinance. LA 3, at 26-27; AB 8, at 4; Antrim 9, at 2; Pre-Filed Testimony, Brenda Schaefer, Mark Schaefer, and Nathan Schaefer, at 1-2; AB 24, at 4.

Mr. Enman opined that residents of Antrim support construction and operation of Project. Tr., 10/18/16, Morning Session, at 32. He testified that straw polls and opinions expressed by the residents of the Town are indicative of that fact. Tr., 10/18/16, Morning Session, at 32.

The Intervenors raised concerns about resolution of any and all complaints associated with the operation of the Project. Specifically, the Intervenors brought to the Subcommittee's attention instances when citizens submitted two noise complaints with the Town of Lempster and

no noise measurements could be conducted by Lempster because the facility was not in operation at the time the assessor attempted to measure levels of noise. Tr., 09/28/16, Afternoon Session, at 55, 56-57. Mr. Thurber, a former Lempster Selectman, testified that there was "nothing conclusive with the decimeter" used to record the noise and Lempster disregarded results of the readings. Tr., 09/28/16, Afternoon Session, at 56. Mr. Thurber further testified that the Town of Lempster cannot use its decibel meter because it does not have properly trained personnel who would know how to use it. Tr., 09/28/16, Afternoon Session, at 56-57.

Ms. Longgood and Ms. Berwick expressed their concerns about impartiality of the Board of Selectmen and their ability to resolve residents' complaints in an efficient and adequate manner. Tr., 10/18/16, Morning Session, at 168.

b. Subcommittee Deliberations

The Selectmen of the Town of Antrim expressed strong support for the Project. There is conflicting evidence as to whether residents of Antrim support or oppose the Project. Five elected legislators expressed their support of the Project, but two newly elected legislators indicated their opposition to the Project. It is undisputed, however, that the Zoning Ordinance of the Town of Antrim does not allow for construction and operation of large energy facility on the Site that is located in the Rural Conservation District. The Town's Master Plan promotes construction of renewable energy projects, but also encourages preservation of open spaces, rural character of the Town and prevention of fragmentation. An Open Space Conservation Plan identifies the Site as desirable for permanent conservation. The Southwest Regional Planning Commission identifies the lack of local, renewable energy as a substantial risk to future growth in the region, but urges the Subcommittee to carefully consider the impact of the Project on wildlife habitat, noise levels, views and conservation land. The Town of Deering expressed its

concerns about the impact of the Project on its views. The Stoddard Conservation Commission expressed its strong opposition to the Project. The Stoddard Selectmen urged the Subcommittee to consider the negative impacts of the Project on Stoddard's quality of life.

The Subcommittee recognizes the strong support for the Project by the Board of Selectmen for the Town for the last seven years. It further notes that, although the residents of the Town are divided in their opinions about the Project, they consistently have been electing the Selectmen who express their support of the Project. It is further noted that construction of renewable energy facilities is encouraged under the Town's Master Plan and the Project will promote conservation goals expressed in the Zoning Ordinance by conserving nine hundred eight acres of land with valuable habitat. Furthermore, to address any concerns of the residents regarding the Project's impact on the orderly development of the Town, the Certificate is conditioned upon the Applicant's compliance with the following conditions:

> Antrim Wind shall comply with the terms and conditions of the Agreement Between Town of Antrim New Hampshire and Antrim Wind Energy, LLC dated March 8, 2012 (Application Exhibit 17a) ("Agreement"). The Town and Antrim Wind may amend the Agreement consistent with the terms and conditions of the certificate of energy facility issued by the Committee. In the event of a conflict between the requirements of the Agreement, as amended, and the requirements of a certificate, the certificate shall control.
>
> Antrim Wind Energy LLC shall participate in meetings to be scheduled jointly by the Antrim Board of Selectmen and Antrim Wind Energy to review and provide information to the public concerning construction activities, construction schedule, use of public highways, blasting and other construction activities. The meetings shall be attended by persons knowledgeable with Antrim Wind Energy LLC's construction plans and responsible for managing construction activities. The meetings shall be public meetings under RSA 91-A, moderated by the Antrim Board of Selectmen, except as provided by RSA 91-A:3.

> Antrim Wind Energy LLC shall provide the Town **and Administrator of the Committee** with copies of its proposed construction plans, schedule, blasting and other public information (Ref. RSA 91-A:5) to be made available to the public. The construction plans, schedule and other information provided to the Town **and Administrator of the Committee** shall be updated to reflect changes in the project schedule or other changes during construction. Antrim Wind Energy LLC shall provide information concerning complaints during construction, if any, and their resolution, except that confidential, personal or financial information (Ref. RSA 91-A:5) regarding the complaint may be redacted.
>
> In the event of significant unanticipated changes or events during construction that may impact the public, the environment, compliance with the terms and conditions of a certificate, public transportation or public safety, Antrim Wind Energy LLC shall notify the Town of Antrim Board of Selectmen or its designee **and Administrator of the Committee** in writing as soon as possible but no later than 7 days after the occurrence. In the event of emergency conditions which may impact public safety, Antrim Wind Energy, LLC shall notify the Town, appropriate officials **and Administrator of the Committee** immediately. In addition, during construction Antrim Wind Energy, LLC shall copy the Town on any notices provided to the Committee, NHDES or other applicable regulatory agency pursuant to the Certificate or any other permit for the Project.

Subject to the conditions set forth in this Decision and Order and Certificate, the Subcommittee finds that the Project will not unduly interfere with orderly development of the region. Tr. 12/12/16, Morning Session at 14-21.

F. Adverse Effects

Under New Hampshire law, the Subcommittee may only issue a Certificate of Site and Facility if it finds that the Project will not have an unreasonable adverse effect on: (1) aesthetics; (2) historic sites; (3) air and water quality; (4) the natural environment; and (5) public health and safety. *See* RSA 162-H:16, IV(c). The Subcommittee must consider each of the issues set forth in RSA 162-H:16, IV(c). If the Subcommittee finds that the proposed Project will have an

unreasonable adverse effect on any one of the statutory criteria, the Subcommittee must deny a Certificate of Site and Facility.

1. Aesthetics

In determining whether the Project will have an unreasonable adverse effect on aesthetics, the Subcommittee is required to consider the following factors:

(1) the existing character of the area of potential visual impact;

(2) the significance of affected scenic resources and their distance from the proposed facility;

(3) the extent, nature, and duration of public uses of affected scenic resources;

(4) the scope and scale of the change in the landscape visible from affected scenic resources;

(5) the evaluation of the overall daytime and nighttime visual impacts of the facility as described in the visual impact assessment submitted by the applicant and other relevant evidence submitted pursuant to Site 202.24;

(6) the extent to which the proposed facility would be a dominant and prominent feature within a natural or cultural landscape of high scenic quality or as viewed from scenic resources of high value or sensitivity; and

(7) the effectiveness of the measures proposed by the applicant to avoid, minimize, or mitigate unreasonable adverse effects on aesthetics, and the extent to which such measures represent best practical measures.

See N.H. CODE ADMIN. RULES, Site 301.14 (a)(1)-(7).

The Subcommittee is also required to consider the potential impacts of combined observation, successive observation, and sequential observation of the Project by the viewer. *See* N.H. CODE ADMIN RULES, Site 301.14 (g).

Site 102.45 defines "scenic resources" as resources to which the public has a legal right of access that are:

> (a) Designated pursuant to applicable statutory authority by national, state, or municipal authorities for their scenic quality;
> (b) Conservation lands or easement areas that possess a scenic quality;
> (c) Lakes, ponds, rivers, parks, scenic drives and rides, and other tourism destinations that possess a scenic quality;
> (d) Recreational trails, parks, or areas established, protected or maintained in whole or in part with public funds;
> (e) Historic sites that possess a scenic quality; or
> (f) Town and village centers that possess a scenic quality.

"Area of potential visual impact" is defined as "a geographic area from which a proposed facility would be visible, and would result in potential visual impacts, subject to the areal limitations specified in Site 301.05(b)(4)." *See* N.H. CODE ADMIN. RULES, Site 102.10. Site 301.05(b)(4) further requires the computer-based visibility analysis to determine the area of potential visual impact for proposed wind energy systems to extend to a minimum of a 10-mile radius from each wind turbine.

a. Positions of the Parties

(1) Applicant

The Applicant claims that the Project will not have an unreasonable adverse effect on the aesthetics of the region. The Applicant filed a Visual Impact Assessment (VIA) prepared by LandWorks. App. 33, Appx. 9A; App. 34[25]. The Applicant also filed the pre-filed testimony (original and supplemental) of David Raphael, a licensed landscape architect and planner. App. 9; App. 23.

Mr. Raphael acknowledged that the methodology used to ascertain visual impacts of the Project had some unique features developed in response to the requirements of the Committee's

[25] Supplemented on February 19, 2016.

administrative rules. Tr., 09/28/16, Morning Session, at 57. He testified, however, that the methodology he used, generally, is the same methodology that is used universally in visual assessments for assessing Projects of this nature. Tr., 09/23/16, Afternoon Session at 83; Tr., 09/28/16, Morning Session, at 57-58.

The VIA analyzed visual impacts of the Project within the study area that was defined as a ten-mile radius from each of the wind turbines. App. 33, at 74. The VIA assessed the impact of the Project on aesthetics of national, state, and local recreational and scenic resources that are readily accessible to the public. App. 33, at 74. Public scenic resources were identified by reviewing available Geographical Information System data, published maps and guidebooks, online research, and town and regional plans. App. 33, at 74. As a result of this review, it was determined that there were no National Natural Landmarks, National Wild and Scenic Rivers, National Scenic Trails or other highly revered scenic resources within the 10-mile study area (of the 290 reviewed scenic resources). App. 33, 74-75. Mr. Raphael specifically testified that he did not analyze the impact of the Project on properties such as White Birch Point and the amphitheater located at Black Pond because they are private. Tr., 09/28/16, Morning Session, at 71-74, 129.

Mr. Raphael determined that, out of two hundred ninety identified scenic resources within the study area, thirty have the potential for visibility of the Project. App. 33, at 75; App. 9, at 7.

Mr. Raphael ascertained the visual sensitivity of the identified scenic resources by determining their: (i) cultural designation – consideration of how resources have been evaluated by the public through official designation indicated by formal designation, ownership or inclusion in a current or recent community or official planning document; and (ii) scenic quality

– the character and features of a resource that is determined through review of the Bureau of Land Management Scenic Inventory and Evaluation Chart which considers landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. App. 33, at 75; Tr., 09/23/16, Afternoon Session, at 87. As a result of the study of visual sensitivity, ten of the scenic resources with potential for visibility were ranked as "moderate-high" or "high" and were considered as sensitive. App. 33, at 75; App. 9, at 10.

The visual effect of the Project on the ten selected sensitive scenic resources was determined by considering: (i) the number of turbines visible; (ii) percent of visibility (the percent of the resource that has visibility of the turbines' hubs); (iii) the proximity or distance to the nearest visible hub; (iv) angle of view (the total possible field of view occupied by the Project); (v) visual dominance; and (vi) visual clutter/landscape coherence. App. 33, at 76; Tr., 09/23/16, Afternoon Session at 120. While ascertaining the visibility of the Project, Mr. Raphael relied on, as described by him, common understanding that the primary focal point of a turbine for visibility purposes is the nacelle. Tr., 09/23/16, Morning Session, at 85-86; Tr., 09/23/16, Afternoon Session, at 116-118. Therefore, the visual effect was analyzed from the stand-point of visibility of the "hub" of the turbines. Tr., 09/23/16, Morning Session, at 85-86; Tr., 09/23/16, Afternoon Session, at 116-118. Mr. Raphael also assumed that the blades, even if moving, are not predominant for assessing visibility. Tr., 09/23/16, Morning Session at 85-86; Tr., 09/28/16, Morning Session, at 91-92.

Mr. Raphael acknowledged that a Project with a lower number of turbines will always receive a lower rating for the "number of turbines visible" criteria. Tr., 09/23/16, Afternoon Session at 119. Mr. Raphael acknowledged that, when it comes to addressing the visibility of the turbines, only resources with visibility of eight to fifteen turbines would be ranked as moderate

impact and sixteen or more turbines would be considered as high impact. Tr., 09/22/16, Afternoon Session, at 156-157. He also acknowledged that, considering the Project will consist of nine turbines, none of the analyzed scenic resource could be ranked as having a high impact under his analysis. Tr., 09/22/16, Afternoon Session, at 157-158. Mr. Raphael argued, however, that the number of turbines is only one of the factors that was used to rate the impact of the Project on scenic resources. Tr., 09/22/16, Afternoon Session, at 158-160; App. 9, at 13; Tr., 09/28/16, Morning Session at 120-121.

Mr. Raphael further testified that the larger the resource, the lower its rating will be for the "percent of visibility." Tr., 09/23/16, Afternoon Session at 120-121. As to "angle of view", Mr. Raphael testified that the higher the possible field of view of the resource the lower the rating will be for this criteria. Tr., 09/23/16, Afternoon Session at 122-125. Mr. Raphael further testified that the "angle of view" and rankings of the thresholds are based on the 60-degree view and the amount of the view that the Project occupies. Tr., 09/23/16, Afternoon Session at 122; App. 9, at 13; Tr., 09/28/16, Morning Session at 155.

Mr. Raphael also admitted that rating for the "extent of use" is moderate or high if access is quick, obvious and easy. Tr., 09/22/16, Afternoon Session, at 161. At the same time, a high rating for remoteness can be achieved only if access is generally difficult and off the beaten path. Tr., 09/22/16, Afternoon Session, at 161. Mr. Raphael further acknowledged that it is extremely rare when the same Project can achieve a moderate or high rating for extent of use and remoteness at the same time. Tr., 09/22/16, Afternoon Session, at 161-163; Tr., 09/23/16, Afternoon Session at 131.

Mr. Raphael testified that eight turbines and a meteorological tower will be visible from Bald Mountain. Tr., 09/23/16, Afternoon Session at 50-51. He testified that the only place on

Bald Mountain from which the Project will be visible is almost inaccessible and is not comfortable for enjoyment of the views. Tr., 09/23/16, Afternoon Session at 45-47. As to the visibility from Willard Pond, the photo simulations and Mr. Raphael's testimony demonstrate that as many as: (i) four turbines will be visible from the boat launch area of Willard Pond; and (ii) seven turbines will be visible from the northeast corner of Willard Pond. Tr., 09/23/16, Morning Session at 59, 65; Tr., 09/23/16, Afternoon Session at 8. Mr. Raphael further testified that, from some parts of the Pond, paddlers or fishermen will be able to observe up to six turbines and a meteorological tower. Tr., 09/23/16, Morning Session at 68-69; ASNH 7. As a result of considering all the factors, however, only one resource out of ten, Willard Pond, was identified as having "moderate-high" impact. App. 33, at 76; App. 9, at 7.

The effect of the Project on a reasonable person[26] present at Willard Pond was assessed by considering: (i) the primary type of activity users are engaged in at this resource (activity); (ii) the amount of use the resource receives (extent of use); (iii) the extent of exposure to the Project (duration of view); and (iv) the absence of development or primary character or experience of the resource (remoteness). App. 33, at 76. Mr. Raphael testified that he did not conduct a user survey, but relied on other resources such as numerous publications, internet sources, experience and field trips to determine the primary type of activity users are engaged in at Willard Pond and duration of view. Tr., 09/23/16, Afternoon Session, at 132, 144; Tr., 09/28/16, Morning Session, at 42-43. As to presence and dominance, Mr. Raphael testified that the presence of Bald Mountain, the coves at the northern end, the qualities of the shoreline and other recreational attributes of the Pond will reduce the presence and dominance of the Project in the view shed. Tr., 09/23/16, Morning Session at 73. Mr. Raphael further concluded that a typical boater who

[26] Mr. Raphael testified that the terms "typical user" and "reasonable user" are interchangeable for purposes of his analysis. App. 9, at 13; Tr., 09/28/16, Morning Session at 147.

would paddle in a circle following the shoreline of the Pond will be exposed to the views of the turbines, at the most, thirty-five to forty percent of the time. Tr., 09/23/16, Morning Session at 75. As to the primary character of the Pond, Mr. Raphael admitted that Willard Pond is one of the seven undeveloped bodies raised by dam south of Plymouth. Tr., 09/23/16, Afternoon Session at 12-13. He testified that the State does not designate ponds as scenic resources. Tr., 09/23/16, Afternoon Session at 17-18; Tr., 09/28/16, Morning Session at 12-13. He stated that it is indicative for determining the impact of the Project on the Pond that it is not designated by the State as a scenic pond and is not identified as a key destination or resource. Tr., 09/23/16, Afternoon Session at 16-17. He further testified that it is significant that the Pond is not specifically identified as a protected scenic resource in the Town of Antrim's Master Plan. Tr., 09/23/16, Afternoon Session at 19-20; Tr., 09/28/16, Morning Session at 11-12. Mr. Raphael further determined that homes, developments, a utility line, junk cars and other intrusions located on the way to the Pond as context for the Pond, diminish its sensitivity. Tr., 09/23/16, Afternoon Session at 23. Mr. Raphael also determined that, although the Pond has some significant views, it does not have a distinct scenic focal point or wide panoramic views. Tr., 09/23/16, Afternoon Session at 24- 27. He opined that although it represents a wildlife scenic natural setting, it is not as "primitive," remote, unique or highly scenic wilderness location as to render it more sensitive for human built structures. Tr., 09/23/16, Morning Session at 107-109; Tr., 09/23/16, Afternoon Session at 9, 15; Tr., 09/28/16, Morning Session, at 98-99.

Mr. Raphael determined that the Project will have high visual dominance at Willard Pond. Tr., 09/23/16, Morning Session at 53; Tr., 09/28/16, Morning Session, at 27. He concluded, however, that the Project will not be out of scale with Willard Pond's setting. App. 9, at 13; Tr., 09/23/16, Morning Session at 53; Tr., 09/28/16, Morning Session, at 27. Mr. Raphael

asserted that he reached his conclusion based on his experience of the Pond, considering the prevailing use of the Pond, and the fact that the Pond has a 360 degree angle of view. Tr., 09/28/16, Morning Session, at 30-34.

The Applicant argued that the Project, as now presented, includes substantial mitigation measures that did not exist when the Project was previously proposed in 2012.

That mitigation includes:

- Removal of the original turbine 10;
- Reduction of height of turbine 9 from 92.5 meters to 79.5 meters;
- Change of turbine model from Acciona AW3000/116 to the Siemens SWT-3.2-113;
- Landscape plan that will provide visual screening to reduce potential impacts associated with the construction of the substation and operation and maintenance building;
- Commitment to install a radar activated lighting system, "as soon as the FAA approves such systems for wind projects"[27];
- Restoration and revegetation of all road edges, cut and fill slopes, temporary roads, and staging areas and a reduction of the width of all crane paths from 34 to 16 feet. (The Applicant further clarified that it agrees to monitor the regrowth and revegetation result until the restoration is achieved.) Tr., 09/15/16, Morning Session, at 161-162.
- Commitment to permanently conserve approximately nine hundred eight acres of forestlands in the Project area, including 100% of the Project ridgeline;
- One-time payment to the Town of Antrim in the amount of $40,000 "to be used for enhancement of the recreational activities and aesthetic experience of the Gregg Lake Recreational Area" - *See* App. Appx. 10, Att. 10, Gregg Lake Letter Agreement with Town of Antrim;
- Payment in the amount of $100,000.00 to the New England Forestry Foundation to acquire additional conservation lands in the region for the enhancement and maintenance of the region's aesthetic character, wildlife habitat, working landscape and public use and enjoyment – *See* App. Appx. 10, Att. 11, NEFF Land Conservation Funding Agreement;
- Annual gift of $5,000 to the Scholarship Committee budget starting from the first year of commercial operation of the Project and until the Project ceases operations – *See* App. Appx. 10, Att. 12, Antrim Scholarship Committee funding Agreement Letter to the Trustees of Trust Fund.

[27] The Applicant's witness, Mr. Kenworthy, testified that, pursuant to its commitments, the Applicant has already filed with the FAA an application for the aircraft lighting detective system with the vendor whose technology was approved by FAA, Laufer Wind. Tr., 09/13/2016, Afternoon Session, at 199.

App. 33, Appx. 10; App. 9, at 10-11.

Ultimately, Mr. Raphael determined that the Project was reasonably scaled, that the topography of the area, mature vegetation and alignment of the roads and trails will diminish the visibility and overall presence in the landscape of the Project, the effect of the night lighting will be limited, identified scenic resources will have a limited view of the Project, and proposed mitigation measures will reduce the impact of the Project on aesthetics. App. 33, at 77. As a result, Mr. Raphael argued that the Project will have a limited effect on local resources and will not have an unreasonable adverse effect on aesthetics of the region. App. 33, at 77-78; App. 9, at 23-24.

In his supplemental pre-filed testimony, Mr. Raphael addressed the VIA report prepared by CFP's expert, Kellie Anne Connelly, and argued that Ms. Connelly's report is "completely unreliable." App. 23, at 2. In support, Mr. Raphael argued that Ms. Connelly failed to state why the effect of the Project on aesthetics will be "unreasonably adverse." App. 23, at 2-3. Mr. Raphael further argued that Ms. Connelly used flawed methodology where she applied methods that are not utilized in the discipline, *i.e.* panel of evaluators, and that she failed to conduct a full and complete evaluation of all scenic resources in the area. App. 23, at 4-40. The Applicant also argued that, while rating the users' experience from the scenic resource, Ms. Connelly's rating system created the possibility of double counting users that enjoy different aspects of the resource, *i.e.* residential use, recreational use and use by commuters. Tr., 11/07/16, Morning Session, at 60-66.

Mr. Raphael further addressed Mr. Block's criticism and asserted that he did not preselect a scenic resource, but evaluated all "scenic resources" as defined by the Subcommittee's rules. App. 23, at 44.

During the adjudicative hearing, Mr. Raphael acknowledged that some of the pictures and visual simulations contained cloud and haze. Tr., 09/22/16, Afternoon Session, at 116-120. He argued, however, that they represented clear weather conditions because the Project is clearly visible. Tr., 09/22/16, Afternoon Session, at 118-120. In his supplemental pre-filed testimony, Mr. Raphael also asserted that "[v]iew shed mapping conducted by LandWorks meets industry standards and is a customary tool used in all visual assessments." App. 23, at 45. In the face of accusations made by Mr. Block, Mr. Raphael testified that LandWorks did not alter the images and simulations provided to the Subcommittee. App. 23, at 47-48; Tr., 09/22/16, Afternoon Session, at 124, 134.

Mr. Raphael also commented on the animation prepared by Mr. Buscher and opined that it distorted reality and is unreliable. App. 23, at 52-53.

(2) Counsel for the Public

CFP filed pre-filed testimony and a Visual Assessment Report (Connelly VIA) that was prepared by its expert, Kellie Anne Connelly. CFP 1. Ms. Connelly analyzed the effect of the Project in a 10-mile radius. CFP 1, Att., at 13. Ms. Connelly did not conduct an independent extensive review of federal, state and regional visually sensitive resources. CFP 1, Att., at 28. Her list of scenic resources was developed by preparing a visually sensitive resources map and supplementing this map with resources that were identified by CFP's prior expert, Jean Vissering, the Applicant's expert and by the Subcommittee in Docket No. 2012-01. CFP 1, Att., at 28-34. As a result of the viewshed analysis and field verification, Ms. Connelly identified fourteen sensitive resource viewpoints that were selected because of their documented importance to the Committee, the broad range of sensitive resources that are represented, and the varying viewing distances of the Project. CFP 1, Att., at 35-39. Visibility of the Project was

assessed from the tips of the blades as opposed to hubs. Tr., 11/01/16, Morning Session, at 14, 23. She further clarified that the spinning nature of the blades makes them more noticeable and can be regarded as odd for the viewer. Tr., 11/01/16, Morning Session, at 16.

Digital visual simulations for these viewpoints were prepared and provided to a rating panel of three registered landscape architects, including herself, who rated the levels of scenic quality and sensitivity within the existing viewpoint conditions and the level of contrast with the proposed Project. CFP 1, Att., at 53-55. While asserting the impact of the Project, the rating panel rated: (i) the scenic quality of the resources; (ii) their sensitivity level; and (iii) contrast. Tr., 11/01/16, Morning Session, at 55-56.

Ms. Connelly conceded that, excluding her, none of the members of the rating panel visited the Site. Tr., 11/01/16, Morning Session, at 17. Ms. Connelly further acknowledged that, while ascertaining the common use of the resources and impact of the Project, the panel of raters did not have any empirical information evidencing the common type of the usage of rated resources. Tr., 11/07/16, Morning Session, at 66. The panel also was required to rate, at minimum, as "1" (as oppose to "0") certain type of usage that was inapplicable to certain resources, *e.g.* commuter usage on the ledge of Bald Peak. Tr., 11/07/16, Morning Session, at 69-81. Ms. Connelly testified, however, that it is standard practice for the members of the rating panel not to visit the sites where their primary role is to act as "check and balance" to the primary rater who visited the sites - Ms. Connelly. Tr., 11/01/16, Morning Session, at 19.

Ultimately, Ms. Connelly determined that the Project will have a "high" visual impact on the following six sensitive resources: (i) Willard Pond; (ii) the Meadow Marsh Preserve; (iii) the White Birch Point Historic District, Gregg Lake; (iv) Bald Mountain; (v) Goodhue Hill (Trail); and (vi) Black Pond. CFP 1, Att., at 56, Table 6; CFP 1, at 6. Based on a "high" impact on these

resources by the Project, Ms. Connelly opined that the Project will have an unreasonable adverse effect on aesthetics. Tr., 11/01/16, Morning Session, at 57.

Ms. Connelly disagreed with Mr. Raphael's description of Willard Pond and opined that it has scenic attributes in its land form topography, glacial erratics (boulders), the quality of the water opportunity that is present, the secluded nature, and its moderate use. Tr., 11/01/16, Morning Session, at 16-17.

Ms. Connelly conceded that the rating panel was not provided with information about the Marsh's surroundings, *i.e.* Gregg Lake Road, power lines, and public beach area. Tr., 11/07/16, Morning Session, at 40-41. She further acknowledged that the panel was not advised of the area surrounding Goodhue Hill. Tr., 11/07/16, Morning Session, at 42. She testified, however, that this information is irrelevant to ascertaining the impact of the Project on the scenic resources. Tr., 11/07/16, Morning Session, at 40-41.

Regarding Bald Mountain, Ms. Connelly testified that she disagreed with Mr. Raphael's opinion on accessibility of the scenic view and stated that, personally, she found the site accessible and pleasant. Tr., 11/01/16, Morning Session, at 10-13.

Ms. Connelly testified that the roads associated with the Project will be visible from Bald Mountain. Tr., 11/01/16, Morning Session, at 13-14.

As to the impact on Goodhue Hill, Ms. Connelly disagreed with Mr. Raphael's determination that the Project will not be visible from the Hill. Tr., 11/01/16, Morning Session, at 43.

Ms. Connelly admitted that White Birch Point is a private property. Tr., 11/01/16, Morning Session, at 141. She further opined, however, that she rated this resource as a part of Gregg Lake and, considering the historic importance and frequent usage of White Birch Point,

Mr. Raphael should have ascertained the impact of the Project on this resources as part of his VA. Tr., 11/01/16, Morning Session, at 45-46; Tr., 11/07/16, Afternoon Session, at 28-29.

Ms. Connelly opined that the Project's effect on aesthetics cannot be mitigated by conserving land or providing monetary funds. Tr., 11/01/16, Morning Session, at 41. Ms. Connelly concluded that the only means to reduce or mitigate the potential visual impacts on these resources is to relocate the Project. CFP 1, Att., at 67; CFP 1, at 6.

As to the sequential and successive observation, Ms. Connelly opined that "there is no cumulative visual impact; combined, sequential or successive, that result from the Antrim Wind power project." CFP 1, Att., at 67.

Ms. Connelly concludes that the Project will have an unreasonable adverse effect on the aesthetics of the region.

(3) Intervenors

The Town of Antrim asserted that the Project will not have an unreasonable adverse effect on aesthetics of the region. *See* Town of Antrim's Post-Hearing Mem.

Richard Block and Ms. Voelcker argued that the removal of turbine 10 did not significantly change the overall footprint of the Project. AB 12, at 3. Mr. Block also argued that shortening turbine 9 did not significantly change the effect of the Project where it will be at 91% of the height of the original proposal, will be one hundred seventy feet taller than the tallest building in the state, and will be the tallest wind turbine in operation in the State. AB 12, at 4; AB 14, at 1-2. Mr. Block also asserted that the height reduction by thirty-eight inches of other turbines is "infinitesimal and would have no measurable effect on their aesthetic impact across the region." Pre-Filed Testimony, Richard Block, at 4. Mr. Block further argued that the change

in turbine models from the Acciona AW 116/3000 to the Siemens SWT-3.2-113 results in almost no alteration of the visual effect on the landscape. AB 14, at 2.

Mr. Block further opined that Mr. Raphael's Visual Assessment is unreliable. AB 12, at 4. Specifically, Mr. Bock argued that Mr. Raphael should have considered all scenic resources within a ten mile radius. AB 12, at 4. Instead, while conducting his evaluation, Mr. Raphael considered only resources that "have a scenic value or purpose associated with them and where public access is established." AB 12, at 4. Mr. Block further asserted that, by applying and using inaccurate and misleading viewshed mapping, Mr. Raphael decreased the number of identified scenic resources from two hundred ninety to thirty. AB 12, at 4-5, 7-9. Mr. Block also argued that Mr. Raphael further minimized the effect of the Project on identified resources by setting forth unreasonable and almost unachievable requirements for the establishment of "high" impact. AB 12, at 5-6. Mr. Block argued that Mr. Raphael's decision to analyze the impact of the turbines' hubs and rotors, as opposed to the blades, undermine his conclusions of the Project's effect on aesthetics. AB 12, at 7-8. Mr. Block also asserted that photo simulations prepared by Mr. Raphael do not accurately reflect the effect of the Project on aesthetics, where none of the photo simulations reflect the Project in clear weather conditions and at a time of day that provides optimal clarity and contrast. AB 12, at 10-11. Mr. Block also testified that Mr. Raphael minimized the scenic qualities of Willard Pond and inaccurately described the predominate activities associated with the Pond. Tr., 10/18/16, Afternoon Session, at 150-152. In conclusion, Mr. Block opined that Mr. Raphael intentionally used the methodology and reporting mechanisms that would minimize the effect of the Project on aesthetics in the region. AB 12, at 18-19.

Ms. Voelcker also opined that the visual simulations of the Project "were purposely designed to fade the wind towers into the haze." Pre-Filed Testimony, Elsa Voelcker, at 1. Ms. Voelcker, Mr. Block and Ms. Longgood argued that the towers and lighting associated with the towers will be visible from multiple points in the Town of Antrim, including their property, and will have a substantial adverse effect on aesthetics of the region. Pre-Filed Testimony, Elsa Voelcker, at 1; AB 12; Tr., 10/18/16, Morning Session, at 166, 172-173.

The Blocks argued that the Project is "grossly out of scale" and is "totally inappropriate for the region." AB 11, at 2; Tr., 10/18/16, Morning Session, at 173. Ms. Block also testified about the aesthetic and environmental significance of the North Branch River Corridor, Willard Pond, Loveren Mill Cedar Swamp and Gregg Lake. AB 11, at 3-6. Ms. Block requested the Subcommittee to consider the unique nature and importance of these resources while ascertaining the Project's impact on aesthetics. AB 11, at 3-6. Ms. Block further asserted that, although the Applicant promised to install an aircraft detecting lighting system, it failed to communicate with the FAA and failed to implement any measures required for its installation. AB 11, at 6-7. Finally, Ms. Block argued that the Project will have an adverse effect on views from her house because five of the Project's turbines will be visible from her property. AB 11, at 7.

Dr. Ward, on behalf of the Meteorologist Group of Intervenors, argued that it is impossible to determine the effect of the Project on aesthetics from visual simulations because the Project will consist of various parts and will not be stagnant. MI 1, at 4-5.

Ms. Berwick expressed her concerns about the effect of the Project on the views and value of her property and urged the Subcommittee to deny the Application. AB 8, at 2. In the alternative, Ms. Berwick requested the Subcommittee to order the Applicant to purchase real

estate that will be affected by the Project. A B 8, at 2. She also asserted that Willard Pond represents a natural resource with unique scenic qualities. Tr., 10/18/16, Afternoon Session, at 9-11.

Mr. Enman opined that, similar to the Lempster facility, the Project may affect some scenic views without making them unpleasant. Pre-Filed Testimony, Wesley Enman. Mr. Enman further testified that he and Mr. Pratt interviewed twenty-six individual visitors at Willard Pond and only three out of twenty-six objected to "the visual aspect of the turbines." Tr., 10/18/16, Morning Session, at 14; Supplemental Pre-Filed Testimony, Wesley Enman, at 1.

b. Subcommittee Deliberations

The evidence and testimony presented demonstrated that the area of the Project's potential visual impact is rural in character. This area is subject to a number of initiatives directed to preservation and conservation of the rural and undisturbed character of the region. As to the significance of affected resources, the Subcommittee notes the disagreement between CFP and the Applicant's experts as to identification of the resources and their significance. Specifically, the reports and testimony presented demonstrated that Ms. Connelly believed that Mr. Raphael failed to identify all scenic resources, *i.e.* Black Pond and White Birch Point, and undermined the value of identified resources. Mr. Raphael, however, asserted that he identified all "scenic resources" as defined by the Subcommittee's rules and objectively determined their aesthetic value. The Subcommittee notes that the rules define "scenic resources" as "resources to which the public has a legal right of access." *See* N.H. CODE ADMIN. RULES, Site 102.45. It is undisputed that the public does not have access to White Birch Point. Therefore, this resource does not constitute a "scenic resource" for purposes of determining the effect of the Project on aesthetics. As to Black Pond, the Subcommittee received evidence and heard testimony

indicating that the public may gain access to viewpoints presented to the Subcommittee for a certain fee. The Subcommittee finds, however, that the viewpoint associated with Black Pond is situated on private property. Without paying the fee, the general public cannot access and does not have a legal right of access to this viewpoint. Therefore, the viewpoint from Black Pond is not a "scenic resource" as defined by the Committee's rules and shall not be considered while ascertaining the impact of the Project on aesthetics.

The Subcommittee finds that the identified scenic resources are used for recreational purposes such as fishing, swimming, hiking, biking, canoeing, etc. The extent and duration of the uses depend on the activity enjoyed. It is noted, however, that its use is generally limited in time with regard to each individual user.

The Subcommittee notes that the Applicant agreed to install an automatic radar detection lighting system on six turbines. Installation of such systems will effectively minimize the nighttime impact of the Project while ensuring its safe operation.

The Subcommittee was presented with starkly different opinions amongst the visual experts with regard to the visual impact of the Project on scenic resources. As a result, the Subcommittee individually analyzed every photo-simulation prepared by each expert. After conducting that analysis, the Subcommittee concluded that the Project will not have an unreasonable adverse effect on the aesthetics of the region. Tr. 12/07/16 Afternoon Session at 18-144.

The following is a summary of the analysis conducted by the Subcommittee regarding the photo-simulations.

Bald Mountain

The Subcommittee notes that photo-simulations of the Project, as viewed from Bald Mountain, represent both "leaf on" and "leaf off" conditions. The closest turbine to the viewpoint is depicted as being 1.62 miles away and the furthest is 3.05 miles. The simulations indicate that some nacelles, top of the blades and meteorological tower will be visible from this location. The simulations also indicate that the Project will be seen as clustered in the left corner of the view. Although clustered, the Subcommittee finds that the impact of the Project on the aesthetics of the view shed will not be unreasonable.

Franklin Pierce Lake

The Committee received photo simulations from Franklin Pierce Lake. The simulations demonstrate that the closest turbine will be 4.1 miles away and the furthest turbine will be 5.87 miles away from the viewpoint. The Subcommittee notes that although the simulations demonstrate that the turbines will be visible from this point of view and may be prominent, the turbines will not be a dominant feature from this point of view and will not create an unreasonable adverse impact.

Gregg Lake

As to the viewpoint from Gregg Lake, the Subcommittee notes that the turbines, as depicted on the simulations, appeared to be closer (1.71 miles to the closest and 1.83 miles to the furthest turbines) as compared to the views from Franklin Pierce Lake. In the simulations, the turbines present as more prominent and dominant to the surrounding landscape. The Subcommittee finds, however, that the impact of the Project on aesthetics in this location will not be unreasonably adverse.

Island Pond, Pitcher Mountain and Crotched Mountain

The visual simulations depicting the view from Island Pond in Stoddard, Pitcher Mountain, and Crotchet Mountain demonstrate that the Project will not be prominent or dominant in the view shed from those locations. The Subcommittee finds that the Project will not have an unreasonable adverse effect on aesthetics in those locations.

Willard Pond

The Subcommittee also reviewed simulations of the Project's view as seen from the boat ramp at Willard Pond and as seen from the boat that was located at the Pond. The closest turbine to the boat ramp will be located 3.01 miles from the ramp and the furthest turbine will be 3.23 miles from the ramp. The turbines will be clearly visible from the boat ramp. The Subcommittee finds, however, the turbines will not be prominent or dominant as considered from this location. As to the view from the Pond, the Subcommittee notes that the Project will be more dominant and prominent as compared to all other locations. The Subcommittee finds, however, that the Project's impact on aesthetics in this location does not rise to the level of being unreasonably adverse.

Meadow Marsh

Four turbines will be visible from Meadow Marsh, with two being particularly visible. The Subcommittee finds that the Project will have increased dominance and prominence in this location but impact on aesthetics in this area will not be unreasonable.

Goodhue Hill

Nine turbines will be visible from Goodhue Hill. The impact of the turbines from this location is more industrial than the present view. The turbines also appear to be very prominent

in this location as compared to any other location addressed in photo simulations. Nevertheless, the simulation demonstrates that the turbines will not be the dominant factor and will not have an unreasonable adverse effect on aesthetics at this location.

After individual review of all of the photo simulations provided by the parties and the evidence submitted, the Subcommittee concluded that while the Project may have adverse visual impacts, the Project will not have an unreasonable adverse visual impact on any of the scenic resources. The Subcommittee also considered the Project's overall visual impacts and determined that those impacts would not have an unreasonable adverse effect on the aesthetics of the region. Tr., 12/12/16, Morning Session, at 18, 42-45; 12/12/16, Afternoon Session, at 157.

Aesthetic Mitigation

The Subcommittee also considered the aesthetic mitigation measures offered by the Applicant.

The Subcommittee finds that, considering the nature and magnitude of the Project, its effect on aesthetics cannot be easily mitigated by commonly used mitigating measures, *i.e.* fencing, painting, camouflaging, etc. However, additional measures offered by the Applicant sufficiently mitigate, minimize and avoid impacts of the Project on aesthetics. The radar activated system will minimize the impact of the Project at night. Eliminating turbine 10 and lowering turbine 9 mitigated the Project's impact on the aesthetics of Willard Pond as compared to the prior Project. Conservation of 989 acres of land, although not directly, will mitigate the effect of the Project on aesthetics ensuring that, except for limited construction in accordance with conservation easements, no construction and development will be conducted on conserved land thus preserving rural and forested views on such conserved lands.

After considering the Project's impact on scenic resources and mitigating measures offered by the Applicant, the Subcommittee finds that the Project will not have an unreasonable adverse effect on aesthetics of the region.

2. Historic Sites

In determining whether a proposed energy facility will have an unreasonable adverse effect on aesthetics, the Subcommittee is required to consider the following factors:

> (1) all of the historic sites and archaeological resources potentially affected by the proposed facility and any anticipated potential adverse effects on such sites and resources;
>
> (2) the number and significance of any adversely affected historic sites and archeological resources, taking into consideration the size, scale, and nature of the proposed facility;
>
> (3) the extent, nature, and duration of the potential adverse effects on historic sites and archeological resources;
>
> (4) findings and determinations by the New Hampshire Division of Historical Resources of the Department of Cultural Resources and, if applicable, the lead federal agency, of the proposed facility's effects on historic sites as determined under Section 106 of the National Historic Preservation Act, 54 U.S.C. §306108, or RSA 227-C:9; and
>
> (5) the effectiveness of the measures proposed by the applicant to avoid, minimize, or mitigate unreasonable adverse effects on historic sites and archaeological resources, and the extent to which such measures represent best practical measures.

See N.H. Code Admin. Rules, Site 301.14 (b)(1)-(5).

a. Positions of the Parties

(1) Applicant

The Applicant asserts that the Project will not have an unreasonable adverse effect on archaeological sites and historic resources. App. 33, at 79; App. 5, at 12. The Applicant conducted and provided to DHR results of the Phase IA study and Phase IB archeological

walkover survey within a 10 km radius of the Project. App. 33, Appx. 9B; App. 5, at 6. On January 6, 2012, DHR determined that there are no known properties of archaeological significance within the area of the Project's potential impact and no further identification or evaluative studies were recommended. App. 33, Appx. 9C.

As to above ground resources, the Applicant admitted that the Project may have an indirect effect through visual impacts. App. 33, at 79. The Applicant retained A.D. Marble & Company to assist it with identification and determining the effect of the Project on aboveground historic resources. App. 33, at 79. Within a 3-mile radius of the Project, the Applicant identified one property that was previously listed in the National Register (Flint Estate) and five properties that are eligible for the National Register listing: (i) the Lower Hillsborough Village Historic District; (ii) the Village of Antrim Center; (iii) the Dodge Family Farm; (iv) Pine Haven; and (v) White Birch Point. App. 33, at 80; App. 33, Appx. 9E; App. 5, at 9-10. After considering the Project's visibility to these resources and the presence of previously introduced modern elements, the Applicant determined that the Project will not effect: (i) the Lower Hillsborough Village Historic District; (ii) the Village of Antrim Center; (iii) the Dodge Family Farm; and (iv) Pine Haven. App. 33, at 80; App. 5, at 11. It was determined, however, that the Project will have an adverse effect on White Birch Point. App. 33, at 80. By letter dated July 28, 2016, DHR agreed with the Applicant's determination and recommended mitigation measures that were identified in Section V, C, 4, above. Correspondence from DHR, 07/28/2016.

(2) Intervenors

A number of Intervenors argued that the mitigation measures recommended by DHR are not adequate where they were negotiated and agreed upon between the Applicant and DHR without participation of residents of White Birch Point. The Subcommittee also received

numerous public comments from residents of White Birch Point. Those comments unanimously opposed the siting of the Project and objected to the proposed mitigation plan for White Birch Point.

b. Subcommittee Deliberations

The Applicant conducted all required archeological studies and found archeological sites that will not be affected by the Project. There will be no unreasonable adverse effects on archeological resources.

As to above ground historic resources, White Birch Point was identified by DHR as a historic site that will be impacted by the Project due to the Project's visibility from that location. As indicated in Section V, C, 4, above, DHR entered into a Memorandum of Understanding outlining mitigation measures for White Birch Point. The Subcommittee places great weight on the expertise and the conclusions drawn by DHR with regard to White Birch Point. It is also important to recognize that White Birch Point, although historically important for its setting, is nonetheless a cluster of privately owned homes, some of which will have a view of the Project and some that will not. There is no public access to the area where the turbines will be most visible - the White Birch Point beaches. In light of these factors, the Subcommittee finds that the mitigation measures proposed by DHR are reasonable but require more input, if offered by the residents of White Birch Point.

The Subcommittee received an exhibit depicting a sign that was posted at the Searsburg Project in Vermont. WA-30X. It is clear from the review of the sign that a lack of maintenance over time will decrease its effectiveness as a mitigation measure. WA-30X. The Applicant also testified that neither the DHR final determination nor the Memorandum of Understanding requires the Applicant to maintain the sign that may be installed. Tr., 09/29/16, Morning

Session, at 74-77. The Applicant agreed, however, subject to verification of property rights, to maintain the sign during existence of the Project. Tr., 09/29/16, Afternoon Session, at 46-47. As indicated in Section V, C, 4, above, the Applicant is required to comply with mitigation measures recommended by DHR in order to minimize the effect of the Project on historic features of White Birch Point. The effect of the Project on White Birch Point will continue throughout the existence of the Project. Therefore, any mitigation measures addressing the impact of the Project should continue to be in existence and should be effective throughout the existence of the Project. To ensure that mitigation measures recommended by DHR will continue to be in existence during operation of the Project, the Certificate is contingent upon the following condition: at its own expense, the Applicant shall maintain the kiosk, website, or other instrument that will result from the implementation of the Memorandum of Understanding.

The Subcommittee also notes that the Memorandum of Understanding between the Applicant and DHR was negotiated and executed without the participation of residents of the White Birch Association. It is reasonable to require the Applicant to consider the views of the residents while selecting the exact mitigation measures in accordance with the Memorandum. Therefore, the Applicant shall consult with the White Birch Historic Association regarding implementation of the Memorandum of Understanding. Subject to those conditions, the Subcommittee finds that construction and operation of the Project will not have unreasonable adverse effect on historic resources. Tr. 12/07/16, Morning Session at 82-118.

3. Air and Water Quality

a. Air Quality

While determining whether the Project will have an unreasonable adverse effect on air quality, the Subcommittee is required to consider the determinations of DES with respect to

applications or permits required for the construction and operation of the Project, and other relevant evidence submitted and accepted by the Subcommittee. *See* N.H. CODE ADMIN. RULES, Site 301.14 (c).

(1) Positions of the Parties

The Applicant asserts that the Project will produce no air emissions and will have a positive effect on air quality by reducing reliance on fossil fuel generation plants. App. 33, at 81. The Intervenors asserted that the Project may have some negative impacts on mining activities. Tr., 10/18/16, Morning Session, at 157-159.

(2) Subcommittee Deliberations

Once constructed, the Project will not emit pollutants into the air. The Project will also contribute to carbon dioxide reduction and a reduction in the "greenhouse effect." As to the construction phase of the Project, the Subcommittee finds that impacts of traffic and blasting on air quality will be insignificant. The Subcommittee received some testimony on the indirect effect of the Project on mining activities. Tr., 10/18/16, Morning Session, at 157-159. Such testimony, however, was not corroborated and/or quantified. The Subcommittee finds that the Applicant demonstrated, by a preponderance of the evidence, that the Project will not have an unreasonable adverse effect on air quality.

b. Water Quality

In determining whether the Project will have an unreasonable adverse effect on water quality, the Subcommittee is required to consider the determinations of DES, the United States Army Corps of Engineers, and other state or federal agencies having permitting or other regulatory authority, under state or federal law, to regulate any aspect of the construction or operation of the Project with respect to applications and permits required for the construction and

operation of the Project and other relevant evidence submitted and accepted by the Subcommittee. *See* N.H. CODE ADMIN. RULES, Site 301.14 (d).

(1) Positions of the Parties

The Applicant presented evidence that the Project will not have a permanent unreasonable adverse impact on water quality because there will be no water withdrawal or discharge associated with the operation of the Project. App. 33, at 81; App. 8, at 7. The Applicant admits, however, that potential impacts to water quality include blasting, erosion, sedimentation and storm water runoff during construction of the Project. App. 33, at 81. The Applicant argues that these effects will be addressed through compliance with conditions set forth in the Standard Dredge and Fill Permit, Alteration of Terrain Permit, and the Section 401 Water Quality Certification, each of which is administered by DES. App. 33, at 81; App. 8, at 8. The Applicant also asserts that effects of the Project on water will be addressed through the implementation of: (i) erosion and sedimentation control procedures; (ii) blasting best management practices; and (iii) storm water management protocols. App. 33, at 82-83. As to the erosion and sedimentation control, the Applicant argues that it will utilize best management practices that will include temporary and permanent measures, *i.e.* mulch berms, silt fence, straw bale barriers, stone check dams, slope drains, rock stabilization of channels, seeding and mulching, erosion control matting and temporary sediment traps. App. 33, at 82; App. 8, at 9. The Applicant further asserts that it will develop a blasting plan that will include blasting best management practices recommended by DES. App. 33, at 82; Tr., 09/13/2016, Afternoon Session, at 202. The Applicant asserts that it will comply with design requirements for storm water runoff quality controls included in Chapters 2 and 4 of the New Hampshire Storm Water Manual. App. 33, at 83; App. 8, at 8.

The Applicant also admits that the Project may have a negative impact on unidentified streams and its construction will result in approximately 0.22 acres of wetlands impact. App. 33, at 83; App. 8, at 8. The Applicant argues, however, that this will not be unreasonable. App. 33, at 83; App. 8, at 10.

Ms. Berwick, as a proposed condition, requested that the Subcommittee require an independent agency or company to monitor the Project for oil leaks to protect the watershed area. *See* Ms. Berwick's Post-Hearing Memorandum, ¶6.

(2) Subcommittee Deliberations

The Subcommittee received Final Decisions from DES allowing the Wetlands Permit, Alteration of Terrain Permit and a Permit for an Individual Sewage Disposal System. These permits and conditions associated with said permits are addressed in Sections V, C, 1, 2, 3, above.

The Subcommittee notes, however, that DES did not require the Applicant to conduct well monitoring. Considering that the Applicant's witnesses testified that construction of the Project will involve substantial blasting, it is reasonable to require the Applicant to conduct well monitoring to ensure that no unreasonable adverse impact to water quality will be caused by the Project. Prior to any blasting, the Applicant shall identify drinking water wells located within 2,000-feet of the proposed blasting activities and develop a groundwater quality sampling program to monitor for nitrates and nitrites, either in the drinking water supply wells or in other wells that are representative of the drinking water supply wells in the area. The program shall include pre-blasting and post-blasting water quality monitoring to be approved by DES prior to commencing blasting. The groundwater sampling program shall be implemented by the Applicant once approved by DES. DES is authorized to monitor the implementation and

enforcement of the groundwater quality sampling program to ensure that terms and conditions of the program and the Certificate are met. However, any actions to enforce the provisions of the Certificate must be brought before Committee. DES is authorized to specify the use of any appropriate technique, methodology, practice or procedure, as may be necessary, to effectuate this condition of the Certificate or to carry out the requirements of the groundwater quality sampling program.

As to the concerns about spill prevention, the Subcommittee finds that these concerns were adequately addressed by DES by requiring the Applicant to prepare and submit a Spill Prevention, Control and Countermeasures Plan in accordance with federal regulations (40 CFR § 112). In addition, DES, will inspect the Project during construction to ensure that the Applicant complies with all applicable permits and conditions.

Considering the findings and recommendations of DES, and testimony and evidence submitted in this docket, subject to the conditions set forth above, the Subcommittee finds that the Project will not have an unreasonable adverse effect on water quality. Tr., 12/07/16 Morning Session at 121-127.

4. Natural Environment

When determining whether the construction and operation of the Project will have an unreasonable adverse effect on the natural environment, the Subcommittee is required to consider the Project's effect on wildlife species, rare plants, rare natural communities, and other exemplary natural communities. The N.H. CODE ADMIN. RULES, Site 301.14 (e), requires that Subcommittee also must consider the following:

> (1) the significance of the affected resident and migratory fish and wildlife species, rare plants, rare natural communities, and other exemplary natural communities, including the size,

prevalence, dispersal, migration, and viability of the populations in or using the area;

(2) the nature, extent, and duration of the potential effects on the affected resident and migratory fish and wildlife species, rare plants, rare natural communities, and other exemplary natural communities;

(3) the nature, extent, and duration of the potential fragmentation or other alteration of terrestrial or aquatic significant habitat resources or migration corridors;

(4) the analyses and recommendations, if any, of the Department of Fish and Game, the Natural Heritage Bureau, the United States Fish and Wildlife Service, and other agencies authorized to identify and manage significant wildlife species, rare plants, rare natural communities, and other exemplary natural communities;

(5) the effectiveness of measures undertaken or planned to avoid, minimize, or mitigate potential adverse effects on the affected wildlife species, rare plants, rare natural communities, and other exemplary natural communities, and the extent to which such measures represent best practical measures;

(6) the effectiveness of measures undertaken or planned to avoid, minimize, or mitigate potential adverse effects on terrestrial or aquatic significant habitat resources, and the extent to which such measures represent best practical measures; and

(7) whether conditions should be included in the certificate for post-construction monitoring and reporting and for adaptive management to address potential adverse effects that cannot reliably be predicted at the time of application.

a. Positions of the Parties

(1) Applicant

The Applicant asserts that the Project will not have an unreasonable adverse effect on the natural environment of the region. The Applicant performed a natural community survey in June, 2011. App. 33, at 83; App. 33, Appx. 11A. The following natural communities were identified as a result of this survey: (i) Hemlock-Beech-Oak-Pine Forest (155.3 acres); (ii)

Hemlock-Oak-Northern Hardwood Forest (24.9 acres); (iii) Hemlock-Spruce-Northern Hardwood Forest (93.7 acres); (iv) Northern Hardwood-Spruce-Fir Forest (34.54 acres); (v) Red Oak-Pine Rocky Ridge (33.7 acres); (vi) Red Maple-Cinnamon Fern Swamp (0.6 acres); (vi) Red Maple-Sensitive Fern Swamp (1 acre); (vii) Red Maple-Sphagnum Basin Swamp (3.2 acres); (viii) Rich Red Oak Rocky Woods (1 acre); (ix) Semi-Rich Oak-Sugar Maple Forest (35.8 acres); (x) Sugar Maple-Beech-Yellow Birch Forest (57.1 acres); (xi) Temperate Acidic Cliff (0.9 acres); (xii) existing roads (4.6 acres); (xiii) clear-cut/cleared field (9.3 acres); and (xiv) right-of-way clearing (6.4 acres). App. 33, at 86, Table 1.5.a. The Applicant asserts that the survey did not identify any significant natural communities. App. 33, at 84; App. 33, Appx. 11A; App. 7, at 23. On August 2, 2012, the New Hampshire Natural Heritage Bureau advised the Committee that it "has determined that it is unlikely that the proposed wind facility will impact . . . exemplary communities . . . ." App. 33, Appx. 11A-1. In October 2014, a field biologist visited the site and determined that conditions of the Site remained unchanged since the 2011-2012 study periods. App. 33, at 84. In a letter dated June 26, 2015, the New Hampshire Natural Heritage Bureau stated that it "does not find it likely that the [exemplary] natural communities . . . would be found on the property." App. 33, Appx. 11A-2.

The Applicant conducted a survey for rare plants in August, 2011. App. 33, at 86. As a result of the survey, the Applicant determined that no rare plants or species of concerns are present at the Site. App. 33, at 86; App. 33, at 86, Appx. 11B; App. 7, at 23. Furthermore, by letter dated August 2, 2012, the New Hampshire Natural Heritage Bureau confirmed that "it is unlikely that the proposed wind facility will impact rare plant species . . . ." App. 33, Appx. 11A-1. Finally, in a letter dated June 26, 2015, the New Hampshire Natural Heritage Bureau found that it is unlikely that rare plants would be found on the property. App. 33, Appx. 11A-2.

The Applicant agreed to implement an Invasive Species Management Plan. *See* App. 7, Att. 2. The Plan contains: (i) an invasive species monitoring program; and (ii) an invasive species control program. *See* App. 7, Att. 2. According to the invasive species monitoring program, in the first full calendar year following completion of the construction and for two additional years, the Applicant will retain a qualified botanist or ecologist who will conduct field surveys of the Project area to determine whether invasive species are present and will provide recommendations concerning control options. *See* App. 7, Att. 2, §5.2. For each invasive species occurrence, monitors will: (i) complete invasive species monitoring data forms; (ii) take photographs of the species and the surrounding landscape; and (iii) record the location of the invasive species using a Global Positioning System receiver. *See* App. 7, Att. 2, §5.2. The results of the survey will be included in annual monitoring reports that will be provided to the New Hampshire Fish and Game Department (NHFG) and DES by January 31 of the year following the year in which the monitoring was conducted. *See* App. 7, Att. 2, §5.3. As a part of the control program, the Applicant agreed to implement invasive species controls in the first full calendar year following the completion of construction of the Project. *See* App. 7, Att. 2, at 7. It also agreed, based on the results of the monitoring, to schedule invasive species control efforts annually, as soon as practicable after the field monitoring recommendations are received. *See* App. 7, Att. 2, at 7-8.

The Applicant conducted: (i) a wetland surveys in the summer and fall of 2011 and the summer of 2012; and (ii) a vernal pool survey in May and September of 2011. App. 33, at 87, 93, 95. The Applicant explains that results of these surveys remain current because a field biologist visited the Site in October 2014 and confirmed that conditions of the Site remained unchanged. App. 33, at 87. As a result of the wetland surveys, the Applicant identified thirty

four wetlands and eight streams within the Site. App. 33, at 93; App. 33, Appx. 11C. The Applicant determined that the Project will have a permanent impact on approximately .22[28] acres of wetlands. App. 33, at 83. As a result of vernal pool surveys, the Applicant identified: (i) five natural[29] vernal pools; (ii) one potential[30] vernal pool; and (iii) one non-jurisdictional[31] amphibian breeding area. App. 33, at 95; App. 33, Appx. 11D; App. 7, at 19-20. Potential vernal pools were visited in May 2015 when the potential vernal pool was confirmed to be a natural vernal pool. App. 33, at 97. It was determined that the Project will not impact the identified vernal pools. App. 33, at 97; App. 7, at 20.

The Applicant conducted the following wildlife surveys: (i) breeding bird surveys in June and July of 2011 (App. 33, Appx. 12A); (ii) diurnal raptor migration surveys in the spring and fall of 2011 (App. 33, Appx. 12B); (iii) nocturnal radar surveys for avian migration in the spring and fall of 2011 (App. 33, Appx. 12C); (iv) a rare raptor nesting survey in 2011 (App. 33, Appx. 12D); (v) acoustic bat monitoring between April 7 and October 23, 2011 (App. 33, Appx. 12C); and (vi) a bat mist netting survey in the summer of 2011 (App. 33, Appx. 12E). App. 33, at 99-109; App. 33, Appx. 12A-E. In 2015, NHFG and the U.S. Fish and Wildlife Service (USFWS) reviewed surveys that had already been performed by the Applicant and did not recommend any additional pre-construction surveys. App. 33, at 99.

As a result of the breeding bird surveys, the Applicant recorded thirty-nine bird species in the Project vicinity. App. at 100. Common nighthawks were observed outside of the Project area in the vicinity of Willard Mountain and Tuttle Hill. App. 33, at 100.

[28] .21 acres of wetlands. App. 33, at 97; Table 1.5.b(c); App. 7, at 18.
[29] Vernal pools that meet the criteria provided in state rules. App. at 95.
[30] Vernal pools identified outside of the indicator species breeding season. App. at 95.
[31] All other areas where amphibian breeding was documented but did not meet the state and federal definition of a vernal pool. App. at 95.

As a result of diurnal raptor migration surveys, the Applicant recorded a total of one thousand four hundred nine raptors representing eleven species: (i) accipiter (twenty-four raptors); (ii) American kestrel (one raptor); (iii) bald eagles (fourteen raptors); (iv) broad-winged hawk (seven hundred sixty six raptors); (v) buteo (fifty-two raptors); (vi) cooper's hawk (eighteen raptors); (vii) falcon (two raptors); (viii) golden eagle (three raptors); (ix) merlin (three raptors); (x) northern goshawk (one raptor); (xi) northern harrier (five raptors); (xii) osprey (ten raptors); (xiii) peregrine falcon (one raptor); (xiv) raptor (sixty-one raptors); (xv) red-shouldered hawk (one raptor); red-tailed hawk (one hundred thirty five raptors); (xvi) sharp-shinned hawk (twenty-one raptors) and (xvii) turkey vulture (three hundred raptors). App. 33, at 103, Table 1.5.c(b). Out of the four hundred forty one species, two hundred sixteen birds passed in the area of potential development. App. 33, at 104. Out of these two hundred sixteen, one hundred two were judged to have flown within the 50-500-foot above ground average, including one hundred sixty eight broad-winged hawks. App. at 104. The following listed Rare, Threatened and Endangered raptor species were observed: (i) fourteen bald eagles (seven within the site); (ii) three golden eagles (two within the site); and (iii) peregrine falcons (not within the site). App. 33, at 104.

Rare raptor nesting surveys concentrated on identification of bald eagle nesting within a 10-mile radius of the Project. App. at 106. Bald eagle nesting, including one adult bald eagle and at least two chicks, were observed at Nubanusit Lake, approximately 3.4 miles from proposed turbine 9. App. 33, at 107.

As a result of nocturnal avian migration surveys, the Applicant recorded: (i) the overall mean passage rate of 223 ± 23 targets per kilometer per hour (spring) and 138 ± 9 targets per

kilometer per hour (fall); and (ii) a seasonal mean flight height of 305 ± 1 meters above the radar site (spring) and 203 ± 1 meters above the radar site (fall). App. 33, at 105-106.

During spring acoustic bat monitoring surveys, a total of one thousand four hundred eighty five bat calls were detected consisting of: (i) *Myotis* (32% of detected call sequences); (ii) big brown bat/silver-haired bat guild (31% of detected call sequences); (iii) hoary bats (12% of detected call sequences); (iv) the eastern red bat/tri-colored bat guild (1% of detected call sequences); and (v) unknown (24% of detected call sequences). App. at 108. During the summer/fall acoustic bat monitoring surveys, a total of thirty five thousand four hundred fifty bat calls were detected consisting of: (i) big brown bat/silver-haired bat guild (48% of detected call sequences); (ii) the eastern red bat/tri-colored bat guild (15% of detected call sequences); (iii) *Myotis* (12% of detected call sequences); (iv) hoary bats (5% of detected call sequences); and (v) unknown (20% of detected call sequences). App. 33, at 109.

As a result of the bat mist netting survey, during forty-one hours among four various survey sites, only one big brown bat was captured down the slope from the meteorological tower in Tuttle Hill. App. 33, at 110.

The Applicant asserts that "[b]ased on observations at operational wind projects in the region, bird collisions at the Antrim Wind Energy Project are expected to occur at a low frequency." App. 33, Appx. 12F, at 40. The Applicant concludes that "[i]mpacts are not expected to occur at a degree which would adversely affect populations." App. 33, Appx. 12F, at 40.

As to specific impacts of the Project on bald eagles, the Applicant asserts that bald eagles exhibit a high rate of avoidance of operational wind turbines (no mortalities have been documented at wind farms in New England) and the Project's location does not present a good

habitat for bald eagles. App. 33, Appx. 12F, at 40. The Applicant concludes that there is a low probability that bald eagles foraging in the vicinity of the Project and high probability, if it happens, that they are likely to successfully avoid contact with the turbines. App. 33, Appx. 12F, at 40-41.

As to bats, the Applicant relied on an unpublished report (Stantec, 2014) and asserts that the total bat fatality recorded between 2006 and 2013 of post-construction studies at twenty-six wind farms in New England and New York was two thousand fifty three. App. 33, Appx. 12F, at 42. The Applicant further asserts that the same report demonstrates that, in Maine and New Hampshire, bat fatalities range from 0.17 to 6.78 bats per turbine per study period. App. 33, Appx. 12F, at 42. According to the Applicant, a number of studies also demonstrated that curtailment of turbines at low wind speeds may reduce bat fatalities. App. 33, Appx. 12F, at 42. Therefore, although the Applicant asserts that bat mortality at the Project is expected to be low, it agrees to assess an operational curtailment strategy to minimize bat fatality at the Project "should actual fatalities materialize and mitigation is deemed appropriate." App. 33, Appx. 12F, at 43.

The Applicant asserts that it will mitigate the impact of the Project on bats and birds by preserving approximately nine hundred eight acres of land and by implementing a Bird and Bat Conservation Strategy (BBCS). App. 33, at 111. The Applicant asserts that impacts associated with fragmentation will not be addressed because no species of habitat fragmentation concern is known to occur on the Site and the Project has a "compact" footprint. App. 33, Appx. 12F, at 38. The Applicant also asserts that displacement and turbine avoidance issues will be minimal due to the small footprint of the Project. App. 33, Appx. 12F, at 38. Therefore, the BBCS addresses only direct impacts of the Project associated with collision and barotrauma. App. 33, Appx. 12F, at 38.

The BBCS identifies methods and techniques for conducting post-construction bat and bird mortality studies, an acoustic bat monitoring study, a curtailment study, a wildlife monitoring program, immediate alert procedures and a consultation process. App. 33, Appx. 12F.

According to the BBCS, the post-construction bird and bat mortality monitoring efforts will be performed for three years and will include: (i) standardized searches for birds and bats from April 15 through October 15 each year; (ii) common nighthawk nesting surveys, performed concurrent with standardized searches; (iii) searcher efficiency trials to estimate the percentage of carcasses found by searches; and (iv) carcass removal trials to estimate the length of time that carcasses remain in the field for possible detection. App. 33, Appx. 12F, at 53. The Applicant asserts that a detailed study protocol will be developed in consultation with NHFG and USFWS. App. 33, Appx. 12F, at 53. During each of the first three years of operation, mortality and injury will be entered in an electronic database, summarized and provided to the USFWS and NHFG by January 30 of the year following the monitoring. App. 33, Appx. 12F, at 54.

The Applicant will conduct post-construction acoustic bat surveys between May 1 and October 15. App. 33, Appx. 12F, at 54. Data received as a result of the surveys will be analyzed by detector, detector night, and for the spring, summer and fall seasons. App. 33, Appx. 12F, at 54.

During the first year of the Project's operation, the Applicant will conduct a curtailment study on five (5) out of nine (9) Project's turbines to determine its effectiveness as a method of reducing impacts to bats. App. 33, Appx. 12F, at 55; App. 7, at 12. The study will include the following:

- Higher Cut-In Speed – Cut-in speed will be raised to 5.0 meters/second (m/s) at turbine hub height. The remaining turbines will be allowed to operate at a normal

cut-in speed (approximately 3.5 m/s) without curtailment or operational modifications.

- Timing - Operational control limitations will be applicable from July 15th through September 30th during nighttime hours (approximately ½ hour after sunset until sunrise).

App. 33, Appx. 12F, at 55-56. The results and recommendations of the study will be subject to the phased consultation process described below. App. 33, Appx. 12F, at 56. The Applicant claims to reserve the right to propose alteration or suspension of the curtailment regime if "bat mortality at the Project is found to be very low during the implementation period, and [if] operational controls are not making significant contributions to lowering mortality." App. 33, Appx. 12F, at 63.

Following completion of formal monitoring, the Applicant agreed to implement a Wildlife Monitoring Program for all Project Site personnel. App. 33, Appx. 12F, at 66. The program will be described in a stand-alone document that will describe the actions that should be taken upon discovery of any dead or injured birds or bats at the Project, and will include a list of experts who may be called upon to aid in resolving various issues. App. 33, Appx. 12F, at 66-67. All appropriate personnel will be trained in the identification, handling and reporting of dead or injured bird or bat species. App. 33, Appx. 12F, at 66. All injuries and mortalities discovered at the Project will be documented in an electronic database and will be compiled into an annual summary report that will be provided to the USFWS and NHFG by January 30 of each year. App. 33, Appx. 12F, at 67. Finally, the Wildlife Monitoring Program will include an Immediate Alert Program that will require the Applicant to inform regulatory agencies of biologically significant incidents[32] within 48 hours of their discovery. App. 33, Appx. 12F, at 67-69.

[32] Biologically significant incidents are defined as incidents that involve the individual injury or death of a listed species or an eagle, or the large scale injury or death of any bird or bat species or groups. App. Appx. 12F, at 69.

The BBCS also sets forth a phased consultation process with USFWS and NHFG that will be initiated if there is a report of biologically significant incidents or as a result of annual reporting to these agencies. App. 33, Appx. 12F, at 70-73.

As to the impact of the Project on glacial erratics (boulders), and the associated natural environment, the Applicant agreed to the following condition being included in the Certificate:

> The Applicant shall use commercially reasonable efforts to relocate any boulders located inside the limits of disturbance for the construction of the Project rather than demolish them.

App. 43; Tr., 10/18/16, Afternoon Session, at 160.

The Applicant concludes that construction and operation of the Project will not "significantly alter any wildlife populations in the region." App. 33, at 112; App. 33, Appx. 12G.

(2) Intervenors

Mr. Jones, on behalf of the Stoddard Conservation Commission, argued that construction and operation of the Project will have a "profound" impact on the interconnected conservation lands and adjacent conservation lands in Stoddard. He testified that the Project will fragment important high elevation habitat, and will splinter wildlife corridors. SCC Exhibit C, at 5; Tr., 10/19/16, Morning Session, at 49-50. Mr. Jones asserted that development of Tuttle Hill and surrounding lands will result in habitat loss and will make the area vulnerable for invasion of invasive plants and pests. SCC Exhibit C, at 5-6. Mr. Jones, acknowledged, however, that the Applicant's Invasive Species Measurement Plan is "as good as it can be." Tr., 10/19/16, Morning Session, at 154.

Mr. Jones also testified about his visits to the Site and observations of the presence of deer and bears. Tr., 10/19/16, Morning Session, at 33-36. Mr. Jones testified about a study that

confirmed the presence of bobcats at the Site. Tr., 10/19/16, Morning Session, at 36-38. Mr. Jones expressed surprise because the Applicant did not conduct studies addressing large mammal habitats and the Project's impacts on such habitat. Tr., 10/19/16, Morning Session, at 38.

Ms. Foss, on behalf of ASNH, opined that roads associated with construction and operation of the Project will fragment the landscape and will expose the forest floor adjacent to the road opening to increased light, wind, dry soil, and will change habitat conditions for forest floor plants and invertebrates. ASNH 3, at 5-6. This, in turn, may reduce food sources for ground-foraging birds and small mammals. ASNH 3, at 6. Ms. Foss further opined that cut and fill slopes associated with road construction will change soil hydrology and may impact small mammals, reptiles, and amphibian's ability to move across the landscape. ASNH 3, at 6; Tr., 10/03/16, Afternoon Session, at 62. Ms. Foss testified that the Project will not impact large mammal wildlife populations. Tr., 10/03/16, Afternoon Session, at 96. Ms. Foss also argued that construction of the Project will require destruction of substantial glacial boulder piles that provide denning areas for mammals and wintering areas for snakes on the south slope of Tuttle Hill and the slopes of Willard Mountain. ASNH 3, at 6; Tr., 10/03/16, Afternoon Session, at 62. Although Ms. Foss originally raised her concerns about management of invasive species, she indicated that the Invasive Species Monitoring Plan submitted by the Applicant adequately addresses this issue. ASNH 3, at 6; Tr., 10/03/16, Afternoon Session, at 134.

Ms. Foss testified that as of July 22, 2016, three Common Nighthawk fatalities were recorded at the Lempster Wind facility. ASNH 4, at 1. Common Nighthawks are a state-listed endangered species whose breeding population decreased to approximately nine known pairs as of the 2016 breeding season. ASNH 4, at 1-2. Ms. Foss asserted that Common Nighthawks were observed in the vicinity of the Project during pre-construction surveys. ASNH 4, at 1-2.

To ensure the preservation and safety of Common Nighthawks, Ms. Foss, proposed to supplement the BBCS proposed by the Applicant (Appx. 12F). Following the submission of Ms. Foss's testimony, however, the Applicant and ASNH entered into a Memorandum of Understanding agreeing to modify the BBCS so that it provides additional safeguards for protecting Common Nighthawks. *See* App. 26. Specifically, relative to the Common Nighthawks nest surveys, the Applicant agreed to the following:

> At least thirty (30) days prior to the commencement of construction of the Project, Antrim Wind shall amend the BBCS to include the following provisions:
>
> 1. Section 7 .1 .1 identifies that common nighthawk nest surveys shall occur during the first three years in concurrence with standardized searches. This shall be amended to clarify that such nighthawk surveys shall occur as follows:
> a. There shall be three surveys per year, one in each of the periods June 1-15, June 16-30, and July 1-15.
> b. The surveys shall occur not less than 14 days apart.
> c. The surveys shall occur either between the hours of 8:00-9:30 PM or 3:30-5:00 AM.
> d. Surveys shall occur during times when wind speeds are 10 MPH or less and when there is no rain.
>
> 2. Section 9.1 of the BBCS discusses the Wildlife Mortality Monitoring Program ("WMMP").
> a. This section shall be amended to clarify that trained A WE operations staff shall continue to perform the nighthawk surveys during each year of the Project's operational life in accordance with the same survey protocols as outlined in Paragraph 1 (a) - 1 (d) above.

See App. 25, Att. 2, at 1-2.

Ms. Foss indicated that the Memorandum of Understanding eliminates the concerns ASNH had about the impact of the Project on Common Nighthawks. Tr., 10/03/16, Afternoon Session, at 142-143.

Mr. Block opined that construction of the Project will cause distraction of currently present boulders and associated habitat. AB 14, at 4-5.

Ms. Voelcker opined that construction of the Project and associated blasting will have a substantial adverse effect on the natural environment in general and animal species specifically. Pre-Filed Testimony, Elsa Voelcker, at 1.

b. Subcommittee Deliberations

Based on the evidence received, correspondence from the New Hampshire Heritage Bureau, and proposed mitigation measures, the Subcommittee finds that the Project will not have an unreasonable adverse effect on plant communities and exemplary natural communities. To ensure the minimization of the impact of the Project on the natural environment, the Subcommittee conditions the Certificate upon the Applicant's compliance with: (i) the BBCS (App. 33, Appx. 12F); (ii) an Invasive Species Management Plan; and (iii) the Memorandum of Understanding between the Applicant, NHFG, and ASNH. Copies of any and all reports that will be provided to NHFG, USFWS and/or DES shall be provided to the Administrator of the Committee.

In order to ensure that construction and operation of the Project will not have an unreasonable adverse effect on wood turtles, the Subcommittee authorizes NHFG to monitor the Applicant's actions as they relate to protection of wood turtles during construction of the Project in the laydown and staging areas identified in the July 1, 2016, letter from NHFG to the Applicant. However, any actions to enforce this provision of the Certificate must be brought before the Committee. NHFG is authorized to specify the use of any appropriate technique, methodology, practice or procedure approved by the Subcommittee within the Certificate, as may be necessary, to effectuate this condition of the Certificate. The Applicant shall consult

with and receive approval from NHFG, regarding methods for providing protections for wood turtles during Project construction activities in the laydown and staging areas identified in the July 1, 2016 letter. The final plan, as approved by NHFG, shall be submitted to the Administrator of the Committee.

The Subcommittee received extensive evidence and testimony about the effect of the Project on boulders located within the Site. The Subcommittee finds the impact of construction of the Project on glacial erratics should be minimized in order to avoid unreasonable impact on the environment. The Subcommittee further finds, however, that requiring the Applicant to use "commercially reasonable efforts to relocate" the boulders will not provide proper mitigation. It is unclear, which measures are considered to be "commercially reasonable." In addition, relocation of the boulders can cause additional disturbance and effect on the environment, making such relocation detrimental to the natural environment. In light of aforementioned findings, the Subcommittee finds that, in order to minimize and mitigate the effect of construction of the Project on boulders that were identified by the parties during these proceedings, the Applicant shall, to the extent practicable, use all reasonable efforts to avoid, rather than demolish, any boulders identified during these proceedings that are located on Tuttle Hill within the limits of the disturbance area in the construction zone. All reasonable efforts to avoid the boulders shall be within the scope of state and federal permits pertaining to the Project.

The Subcommittee finds that there will be some wildlife habitat fragmentation associated with construction and operations of the Project. However, considering the limited size of the Project, lack of concerns associated with fragmentation expressed by state agencies, mitigation measures in the form of preservation of conservation land, and the adaptive nature of the natural

environment, the Subcommittee finds that the effect on the natural environment associated with fragmentation will not be unreasonable.

Subject to the Applicant's compliance with aforementioned conditions, the Subcommittee finds that the Project will not have unreasonable adverse effect on the natural environment. Tr., 12/09/16, Morning Session at 21-74; Tr. 12/12/16, Morning Session at 82-88.

5. Public Health and Safety

In determining whether the Project will have an unreasonable adverse effect on public health and safety, the Subcommittee must consider: (i) the potential adverse effects of construction and operation of the Project on public health and safety; (ii) the effectiveness of measures undertaken or planned to avoid, minimize, or mitigate such potential adverse effects; and (iii) the extent to which such measures represent best practical measures. *See* N.H. CODE ADMIN. RULES, Site 301.14 (f)(1). In addition, when considering wind energy systems, the Subcommittee must apply the following standards:

a. With respect to sound standards, the A-weighted equivalent sound levels produced by the applicant's energy facility during operations shall not exceed the greater of 45 dBA or 5 dBA above background levels, measured at the L-90 sound level, between the hours of 8:00 a.m. and 8:00 p.m. each day, and the greater of 40 dBA or 5 dBA above background levels, measured at the L-90 sound level, at all other times during each day, as measured using microphone placement at least 7.5 meters from any surface where reflections may influence measured sound pressure levels, on property that is used in whole or in part for permanent or temporary residential purposes, at a location between the nearest building on the property used for such purposes and the closest wind turbine; and

b. With respect to shadow flicker, the shadow flicker created by the applicant's energy facility during operation shall not occur more than 8 hours per year at or within any residence, learning space, workplace, health care setting, outdoor or indoor public gathering area, or other occupied building. *See* N.H. Code Admin. Rules, Site 301.14 (f)(2).

For wind energy systems, the Subcommittee is also required to consider the following: (i) the proximity and use of buildings, property lines, public roads, and overhead and underground energy infrastructure and energy transmission pipelines; (ii) the risks of ice throw, blade shear, tower collapse, and other potential adverse effects of facility operation; (iii) the effectiveness of measures undertaken or planned to avoid, minimize, or mitigate such potential adverse effects; and (iv) the extent to which such measures represent best practical measures. *See* N.H. CODE ADMIN. RULES, Site 301.14 (f)(3).

a. Sound

(1) Positions of the Parties

(a) Applicant

The Applicant asserted that the Project will not produce sound that will adversely affect residents or the general public. App. 33, at 112. The Applicant submitted a Sound Level Assessment Report prepared by Robert O'Neal. App. 34, Appx. 9. Mr. O'Neal also provided original and supplemental pre-filed testimony. App. 34, Appx. 9, 10. Mr. O'Neal measured sound levels currently present and modeled sound levels for three hundred forty four potentially sound-sensitive structures within a 2-mile radius of each wind turbine using a height of 1.5 meters above ground level (AGL) to mimic the ears of a typical standing observer. App. 34, Appx. 9; App. 13, at 4. Thereafter, Mr. O'Neal modeled the post-construction sound levels assuming that all turbines will operate at maximum capacity at all times and using the ISO 9613

standard. Tr., 09/22/16, Afternoon Session, at 32-33. As a result of the modeling, Mr. O'Neal concluded that, once the Project is operational, its sound levels are expected to be less than 40 dBA at all non-participating residences. App. 34, Appx. 9; App. 13, at 9; Tr., 09/22/16, Morning Session, at 67.

The Applicant presented evidence that the Noise Reduction Operation Mode will allow the Applicant to decrease noise associated with any turbine in one-decibel increments up to five decibels, if needed for compliance with the Certificate. Tr., 09/29/16, Morning Session, at 48. The Applicant stated its understanding and willingness to comply with the Subcommittee's rules requiring it to conduct the post construction noise compliance monitoring. *See* N.H. CODE ADMIN. RULES, Site 301.18(e)-(h); Tr., 09/29/16, Morning Session, at 52.

To ensure compliance with the rules, the Applicant agreed to provide a sound meter to the Town of Antrim, to ensure that the meter is calibrated and to instruct the Town's personnel on how to use the meter on a three-year basis. Tr., 09/29/16, Afternoon Session, at 51.

As to the participating residences, the Applicant asserted that these property owners knowingly and voluntary waived their right to require the Applicant to comply with Subcommittee's rules and, therefore, the Applicant should not be required to ensure that noise levels are within the limits set forth by the Rules as applied to these property owners. Tr., 09/29/16, Morning Session, at 129-130.

Mr. O'Neal confirmed that, in his modeling, he used 0.5 as a G Factor[33] ("mixed ground"). Tr., 09/22/16, Morning Session, at 70. He testified that mixed ground was the appropriate choice for the model. Tr., 09/22/16, Morning Session, at 71-72. Mr. O'Neal acknowledged that application of a "0" G factor would result in a 3 dBA increase in the results of

[33] "Ground attenuation is mainly the result of sound reflected by the ground surface interfering with the sound propagation directly from the source to the receiver." Tr., 09/22/16, Morning Session, at 70.

the modeling and, ultimately, would result in an estimated 41 dBA noise level associated with the Project. Tr., 09/22/16, Morning Session, at 71-72. Mr. O'Neal further testified that the uncertainty factor (F Factor) that was used in the modeling was provided by the manufacture of the turbines and was equal to 1.5 dBA. Tr., 09/22/16, Morning Session, at 73-74. Mr. O'Neal further asserted that the modeling he used contains an "accuracy limitation of the method" that equals to +/-3dBA. Tr., 09/22/16, Morning Session, at 75-76. Mr. O'Neal opined however, that the accuracy limitation factor should not be applied to the Project because the Project falls outside the height limit and distance limits set forth by the model, *i.e.* the source of the noise generated by the Project is higher than 30 meters from the ground. Tr., 09/22/16, Morning Session, at 76-78. He further opined that numerous studies demonstrated that application of a 3 dBA accuracy limitation to the wind turbines resulted in overestimation of sound level by 3dBA. Tr., 09/22/16, Morning Session, at 78-79.

Mr. O'Neal further stated that the model that he used does not consider and provide adjustment for atmospheric conditions, *i.e.* wind and temperature gradients, stability and turbulence. Tr., 09/22/16, Morning Session, at 94. Mr. O'Neal opined, however, that sound level testing prepared for the model was conducted under various meteorological conditions and, therefore, the results of the modeling that were based on these sound levels inherently addressed meteorological conditions common for the region. Tr., 09/22/16, Morning Session, at 96.

Mr. O'Neal testified about a Massachusetts Clean Energy Center's Report entitled "Massachusetts Study of Wind Turbine Acoustics." Tr., 09/22/16, Morning Session, at 98-114; Ex. WA-12. The study addressed the correlation between modeled and actual sound levels is comparable to the Project in this docket. Tr., 09/22/16, Morning Session, at 98-114; Ex. WA-12. Mr. O'Neal acknowledged that the model analyzed in the report applied a similar G Factor and K

Factor provided by the manufacturer. Tr., 09/22/16, Morning Session, at 107. He also agreed that many sound levels associated with the shut off and turn off of the turbines that were recorded post-construction exceeded the modeled levels. Tr., 09/22/16, Morning Session, at 109-111. He testified, however, that the shut downs of the turbines were conducted pursuant to the request of researchers and were abrupt and sudden. Tr., 09/22/16, Afternoon Session, at 36. He opined that such shut downs will not occur during the ordinary operation of the Project. Tr., 09/22/16, Afternoon Session, at 37.

Mr. O'Neal acknowledged that post-construction measurements conducted in Stetson, Maine, indicated that, without using an accuracy limitation factor, some modeled sound levels were actually underestimated. Tr., 09/22/16, Morning Session, at 118-119.

Mr. O'Neal further acknowledged that he did not analyze the Project's noise levels for the structures owned by participating landowners.[34] Tr., 09/22/16, Morning Session, at 129-131. He also testified that he was well aware that the noise study report prepared in the prior docket estimated that sound levels at Mr. Courier's hunting camp may be as high as 39.8 dBA. Tr., 09/22/16, Morning Session, at 132. He testified, however, that he did not model sound levels for Mr. Courier's hunting camp due to its "dilapidated" condition. Tr., 09/22/16, Morning Session, at 130-131.

In response to questions from Ms. Berwick, Mr. O'Neal stated that he had no doubts about the accuracy of the equipment used. Tr., 09/20/16, Afternoon Session, at 74-45. Mr. O'Neal recognized that the post-construction night sound level at Ms. Berwick's residence may increase as much as ten times. Tr., 09/20/16, Afternoon Session, at 83-84. He explained, however, that this increase assumes "dead calm" weather conditions. Tr., 09/20/16, Afternoon Session, at 84.

[34] Landowners that entered into agreements with the Applicant. Tr., 09/22/16, Morning Session, at 130-131.

Mr. O'Neal opined that sound associated with operation of the Project will not have an unreasonable adverse effect on health and public safety and will comport with N.H. CODE ADMIN. RULES, Site 301.14(f)(2). App. 13, at 9.

(b) Intervenors

Ms. Linowes argued that Mr. O'Neal's report does not comply with rules of the Committee because: (i) it does not contain property lines (Site 301.18(b)(1)); (ii) it includes unneeded, extraneous figures as maximum, median and average figures that are not required by the rules; (iii) it does not specify how winds above 2 m/s or other more turbulent atmospheric conditions could cause an increase in the Project's noise; (iv) it does not contain predictions for all properties within two miles of the Project; and (v) it does not contain a separate model for predicted sound emissions from the substation. WA-01, at 6-7.

Richard R. James testified as an expert for the Abutting Landowner's Group of Intervenors. He opined that Mr. O'Neal: (i) used locations for the test instruments and testing protocols that do not satisfy the requirements of the Committee's Rules; (ii) used propagation modeling that underestimated the sound levels that will be received on properties and at homes adjacent to the Project; and (iii) used sound power data that does not represent the noise produced by wind turbines during weather and operating conditions that are commonly associated with sleep disturbance and annoyance. AB 20, at 3-4. Mr. James also opined that the Town of Antrim presents a unique community with low sound levels. AB 20, at 7-8. According to Mr. James, introduction of the Project and associated noise from 35 to 40 dBA may have a negative effect on the region and may decrease the listening radius and peoples' ability to hear sounds from great distances to 500-1000 feet. AB 20, at 8-9. Mr. James testified that the sound generated by the turbines cannot and will not always be masked by the sounds generated by

winds. AB 20, at 9-10. Mr. James also argued that Mr. O'Neal should have added 3 dBA to the predicted values at all receptors independent of any corrections for measurement tolerance. AB 20, at 10-11; Tr., 10/19/16, Afternoon Session, at 52-58. Mr. James concluded that, if Mr. O'Neal had applied the correct factors, he would determine that the Project will operate above permitted 40 dBA nighttime levels. AB 20, at 11. Mr. James also opined that, based on his experience, weather conditions not accounted for in the model presented by Mr. O'Neal can increase the mean/average/Leq sound levels by 5 dBA or more. AB 20, at 14; Tr., 10/20/16, Morning Session, at 62-65. Mr. James also argued that Mr. O'Neal improperly used ground factors where the turbines will be located at high elevation and no ground absorption will occur. AB 20, at 17; Tr., 10/19/16, Afternoon Session, at 31-32. Mr. James also testified that decrease in sound by 0.9 dB due to the change in model of the turbines is insignificant. AB 20, at 16-17. Mr. James concluded that, considering the ISO tolerance of +/- 3dBA and weather correction factor of 5 dBA, all of the receptors will experience sound levels at or above 40 dBA and eighteen homes are likely to be at 43 dBA. AB 20, at 18; Tr., 10/19/16, Afternoon Session, at 80-81; Tr., 10/20/16, Morning Session, at 33-35. Mr. James opined that Mr. O'Neal's model does not represent the worst case scenario where it was not conducted under the worst circumstances that may be present. Tr., 10/19/16, Afternoon Session, at 41-42. Ultimately, Mr. James urged the Subcommittee not to give any weight and reject Mr. O'Neal's report. AB 20, at 14.

Mr. James further opined that although Noise Reduction Operation Mode can reduce levels of noise associated with the Project, it also will decrease the Project's capacity and, consequently, will have a negative effect on the Applicant's financial capacity to operate the Project. Tr., 10/19/16, Afternoon Session, at 66-67.

Mr. James also testified about the study of the effect of impact of windmills on health conducted by Health Canada. Tr., 10/20/16, Morning Session, at 14-15. He stated that it was determined, as a result of the study, that people living at a mile and a quarter away from the nearest wind turbine had almost double the rates of migraines, dizziness and tinnitus as compared to the general population. Tr., 10/20/16, Morning Session, at 14-15. Mr. James further testified, however, that results of this study were just released and some errors and inaccuracies have been reported. Tr., 10/20/16, Morning Session, at 79-82.

Ms. Berwick testified that sound recordings that were conducted at her property by Mr. O'Neal's personnel failed to account for construction and ice clearing activities that were conducted at the time of the recording. AB 8, at 2. She further testified that Mr. O'Neal's report inaccurately described the weather conditions and wind sounds at the time of recording. AB 8, at 2-3; Tr., 10/18/16, Morning Session, at 119-123. She further testified that Mr. O'Neal's measurements do not accurately describe the sound levels at her property where the anemometer was installed approximately 70-feet from sound-level equipment. Tr., 10/18/16, Morning Session, at 124.

Janice Longgood, Clark Craig, Barbara Berwick, and Elsa Voelcker argued that the Project's noise will have an adverse effect on their health and enjoyment of their property. AB 1, at 1-2; Pre-Filed Testimony, Clark Craig, Jr., at 1; AB 8, at 1-2; Pre-Filed Testimony, Elsa Voelcker, at 1.

Ms. Block argued that the Project will have direct negative effects on she and her family because they will be exposed to noise associated with the Project. AB 11, at 7.

Ms. Berwick and Ms. Longgood also testified that some portion of their properties will be exposed to up to 45 decibels associated with the Project. Tr., 10/18/16, Morning Session, at 111,

168. They opined that the Applicant should be required to ensure that the Project's noise should be below 40 dBa, not just at their residences, but at all real estate owned by them. Tr., 10/18/16, Morning Session, at 111-114.

Mr. Berwick asserted that he reviewed a number of sources about the effect of the turbines on health and argued that the Project and associated noise may have an adverse effect on human health. AB 9, at 1. Similarly, Annie Law and Robert Cleland expressed their concerns about the effect of the Project on health. AB 24, at 1.

Ms. Berwick testified that she purchased her real estate, in part, so that she can enjoy the quiet environment without high or even moderate levels of noise. Tr., 10/18/16, Morning Session, at 152-154. She expressed her concerns that noise associated with the Project may deprive her of the enjoyment of her property. Tr., 10/18/16, Morning Session, at 152-154. She further opined that Project's noise will increase over time due to the aging of the turbines and associated equipment. Tr., 10/18/16, Morning Session, at 155-156.

Ms. Berwick requested that the Subcommittee require the Applicant to provide a way for homeowners that may be affected by Project's noise to monitor it at their homes. *See* Post-Hearing Memorandum, ¶2. She further requested that the Subcommittee issue an Order that would require the post-construction noise studies to be conducted by an independent agency without prior notice to the Applicant. *See* Post-Hearing Memorandum, ¶2. She opined that the Applicant should be required to fund such studies by depositing required funds into the Committee's account. *See* Post-Hearing Memorandum, ¶2. Finally, she requested the Subcommittee to order the Applicant to provide financial reimbursement to the owners of real estate that will have more than 40 dBA at night or over 45 dBA during the day. *See* Post-Hearing Memorandum, ¶8.

Mr. Enman testified that when he visited the Lempster Project, he did not hear unreasonable noise. Tr., 10/18/16, Morning Session, at 29.

(2) Subcommittee Deliberations

The Subcommittee finds that the Sound Assessment report prepared by Mr. O'Neal was prepared in accordance with professional standards and our administrative rules. The Subcommittee notes that the Applicant guaranteed that noise levels associated with the Project will not exceed the requirements set forth in N.H. CODE ADMIN. RULES, Site 301.14 (f)(2)(a), *i.e.* the greater of 45 dBA or 5 dBA above background levels, measured at the L-90 sound level, between the hours of 8:00 a.m. and 8:00 p.m. each day, and the greater of 40 dBA or 5 dBA above background levels, measured at the L-90 sound level, at all other times during each day. *See* N.H. CODE ADMIN. RULES, Site 301.14 (f)(2)(a). In addition, the Noise Reduction Operation feature of the turbine will allow the Applicant to reduce sounds emitted by the turbines when necessary.

The Subcommittee finds that so long as the Project complies with the noise level requirements set forth in the rules, that it will not have an unreasonable adverse effect on health and safety. The Applicant demonstrated that it has the technical capacity to decrease the Project's noise by curtailment or implementation of the Noise Reduction Operation Mode. The Subcommittee conditions the Certificate and requires the Applicant to retain a third-party noise expert, as approved by the Administrator of the Committee, to assist the Town of Antrim and the Administrator in taking field measurements in order to evaluate and validate noise complaints.

While the Subcommittee heard some testimony about the effects of turbine noise on health, there is no basis to find that turbine operation at the proposed site will adversely affect human health.

Considering the evidence and testimony presented as well as condition set forth above, the Subcommittee finds that the Project's sound will not have unreasonable adverse effect on human health and safety. Tr. 12/09/16, Morning Session at 75-107.

b. Lighting

(1) Position of the Parties

The Applicant argued that lighting associated with the Project will not have an adverse effect on health and safety. App. 33, at 116-117. The Federal Aviation Administration (FAA) has issued a Determination of No Hazard to Air Navigation for all turbines, and the Applicant will comply with the FAA's requirements for the lighting of all structures. App. 33, at 116.

In addition, the Applicant agreed to utilize a radar activated lighting control system, Aircraft Detection Lighting System, (ADLS), once approved by the FAA. App. 17. Specifically, under the Agreement with the Appalachian Mountain Club, the Applicant agreed to the following:

> B. Radar Activated Obstruction Lights: AWE hereby agrees that it shall seek, as part of its application filed with the SEC in Docket 2012-1, approval from the SEC of facilities needed to install a radar activated lighting control system such as the Harrier Radar system designed by DeTect, Inc. (the "Radar System"). Furthermore, AWE agrees that depending on the status of the issuance of a revised FAA Advisory Circular detailing the requirements of the Radar System (the "Advisory Circular"), it shall take the following steps:
>
> i. If the FAA has issued the Advisory Circular 60 days or more before the commencement of construction of the Project that allows for the Radar System to be operated, then AWE shall install and operate the Radar System simultaneously with the commissioning of the Project.
>
> ii. If the FAA has not issued the Advisory Circular at least sixty (60) days before the commencement of construction, but issues the Advisory Circular at any time during the commercial operation of the Project, then AWE shall be required to implement and operate

the Radar System within one year of the issuance of the Advisory Circular.

iii. At its sole option, as an alternative to (b) above, AWE may install the Radar System simultaneously with the remainder of the construction of the facilities in the Project. In this scenario, in the event that the Advisory Circular is issued later than 60 days prior to the commencement of construction, then AWE will commence with operation of the Radar System as soon as commercially reasonable but no longer than one year of the issuance of the Advisory Circular.

App. 33, Appx. 11, ¶B.

The Applicant provided information demonstrating that the circular was issued by the FAA and the Applicant submitted an Application with the FAA that follows recommended requirements for installation of ADLS. Tr., 09/15/16, Afternoon Session, at 67-68.

Although ADLS has never been used on wind turbines before, it has been used on transmission lines and was vigorously tested by the FAA. Tr., 09/28/16, Afternoon Session, at 160.

Janice Longgood, Clark Craig, Barbara Berwick, and Elsa Voelcker argued that the Project's lighting will have an adverse effect on their health and enjoyment of their property. AB 1, at 1-2; Pre-Filed Testimony, Clark Craig, Jr., at 1; AB 8, at 1-2; Pre-Filed Testimony, Elsa Voelcker, at 1.

Ms. Block argued that the Project will have a direct negative effect on her and her family where five turbines and associated lighting will be visible from her house. AB 11, at 7.

Mr. Berwick argued that the Project and associated lighting may have an adverse effect on human health and cause migraines and seizures. AB 9, at 1.

(2) Subcommittee Deliberations

The Subcommittee finds that the light associated with operation of the Project will not have an unreasonable adverse effect on health and safety if the Project will be equipped with the ADLS. In reaching this conclusion, the Subcommittee considered that the Project's lights will be radar operated, to secure their safe operation, and the Applicant will have to receive prior approval from the FAA for the installation of the ADLS. The Subcommittee also considered that it did not receive any reports, or scientific evidence that would verify that the Project's lighting will have an unreasonable adverse effect on human health. The Subcommittee finds that the ADLS shall be installed prior to the operation of the Project. Furthermore, the Applicant is required to file, with the Administrator of the Committee, the FAA determination of no hazard pertaining to ADLS upon its receipt. Subject to the aforementioned conditions, the Subcommittee finds that the Project's lighting will not have an unreasonable adverse effect on health, safety or aesthetics of the region. Tr. 12/07/16, Afternoon Session at 52-54; 12/12/16, Morning Session at 88-90.

c. Ice Shedding

(1) Positions of the Parties

The Applicant argues that potential risk to the public associated with ice shedding is minimal due to the fact that the Siemens turbines include safety features designed to prevent ice shedding. App. 33, at 112. If the wind vane or anemometer is affected by ice, the wind turbine controller system will automatically shut down the turbine and an error message will be logged. App. 33, at 113; App. 10, at 17; Tr., 09/13/2016, Afternoon Session, at 171-172. In addition, if the turbine condition monitoring system detects an increase in vibration levels due to ice build-up, the turbine controller system will automatically either reduce rotor speed and power or shut

down the turbine until the icing subsides. App. 33, at 113; Tr., 09/13/2016, Afternoon Session, at 171-172.

In order to decrease the possibility of adverse effects on health due to ice shedding, the Applicant will secure the access roads with a locked gate, will place warning signs on access roads not less than 750-feet from each turbine tower base and on informal roads and trails in the vicinity of the Project at no less than 500 from each tower base. App. 33, at 113.

Finally, the Applicant agreed with the Town of Antrim to maintain a setback of a minimum of three times the turbine height from any non-participating landowner's existing occupied building, and at least 1.5 times the turbine height from the nearest public road right-of-way. App. 33, at 113; App. 33, Appx. 17.

The Applicant stated that the furthest distance of the ice throws is estimated as 820-feet. Tr., 09/13/2016, Afternoon Session, at 172; Tr., 09/15/2016, Morning Session, at 81. The Applicant agreed that some ice shard may land on the properties that are within 820 feet of the turbines. Tr., 09/15/2016, Morning Session, at 81. The Applicant acknowledges that the setback will be less than 1.5 times for two non-participating properties within vicinity of the Project, including a property that will be located 589-feet from turbine 4. App. 33, at 113; 09/15/2016, Morning Session, at 81; Tr., 09/28/16, Afternoon Session, at 167. However, the Applicant and the landowners have signed a setback waiver. App. 33, at 113; App. 14, at 29. The property that will be located 589 feet from the Project, will have a setback equal to 1.1 times the blade tip height. App. at 113. The Applicant explained that this property is a woodlot with no home on it. App. 33, at 113; App. 14, at 28; Tr., 09/29/16, Morning Session, at 99. In addition, according to the Applicant, such a setback is within the requirements implemented in the industry. App. 14, at 28-29.

Although not a physicist, Ms. Berwick opined that ice throw associated with the Project may be up to one thousand six hundred feet. Tr., 10/18/16, Morning Session, at 118. Ms. Berwick requested that the Subcommittee require the Applicant to provide fencing that would be "sufficient to cover ice throw." *See* Post-Hearing Memorandum, ¶4.

(2) <u>Subcommittee Deliberations</u>

The Subcommittee received some differing testimony regarding the potential distance of ice throw associated with wind turbines. The information provided by the Applicant is the most credible evidence received on the issue. The Subcommittee also considered the Applicant's expert testimony on the various technical measures and safety features that the turbines will be equipped with to minimize the possibility of ice throws. Considering the distance of the turbines to the residences, technology that the turbines will be equipped with, and signs and warnings that the Applicant agreed to install, the Subcommittee finds that the risk of ice throw that would injure a person or damage structures is low. The Subcommittee finds that the ice throws that may be caused or associated with the Project will not have an unreasonable adverse effect on public health and safety. Tr. 12/09/16, Afternoon Session at 62-75.

d. Tower Collapse/Blade Throw

(1) Positions of the Parties

(a) Applicant

The Applicant argues that design and manufacturing security measures will decrease the risk of tower collapse or blade throw because: (i) each turbine is designed in accordance with international engineering standards; (ii) each turbine will have a state-of-the-art braking system, pitch control, sensors and speed control; (iii) the turbine condition monitoring system will monitor sensors that will be located throughout the turbine and, in case severe vibration levels

deviate from normal operations, the turbine will cease operation; and (iv) the blades will be built in one piece using a closed process which will provide strength and resistance. App. 33, at 113.

The Applicant further asserts that in the event of tower collapse or blade throw, operations will cease and emergency protocols will be followed. App. 33, at 113-114.

(b) Intervenors

Ms. Linowes argued that the Project is not safe as it may catch on fire and throw detached blades or ice. Pre-Filed Testimony, Lisa Linowes, at 9-14. Ms. Linowes argued that her concerns are particularly valid considering that turbine 4 will be located approximately 540-feet from the nearest property line, turbine 1 will be approximately 990 feet from two property lines, and turbine 3 will be approximately 1,100 feet from the adjacent property line. WA-01, at 9.

Mr. Craig asserted that he owns the land abutting the Project and his back property line will be approximately 1,000-feet from turbine 3 and his side property line will be approximately 990 feet from turbine 2. Pre-Filed Testimony, Clark Craig, Jr., at 1. Considering the proximity of the turbines, Mr. Craig expressed his concerns about the safety of his family and friends. Pre-Filed Testimony, Clark Craig, Jr., at 1.

Mr. Berwick asserted that it is well-documented that wind turbines may throw blades and requested that the Subcommittee require the Applicant to provide fencing that would be "sufficient to cover" blade throw. *See* Post-Hearing Memorandum, ¶4.

(2) Subcommittee Deliberations

The Subcommittee did not receive any scientific credible evidence indicating that tower collapses or blade throws will present a significant risk. The Subcommittee did receive testimony indicating that the setbacks between the turbines and closest residences are sufficient to prevent impacts associated with throwing blades and tower collapses to the property owners.

The Subcommittee finds that the risk of blade throws or tower collapses is low. The Project will not have a substantial adverse effect on public health and safety. Tr. 12/09/16, Afternoon Session at 62-67.

e. Shadow Flicker

(1) Positions of the Parties

(a) Applicant

Shadow flicker is "the alternating change in light intensity that can occur when the rotating blades of a wind turbine are back lit by the sun and cast shadows on the ground or on structures." *See* N.H. CODE ADMIN. RULES, Site 102.48.

The Applicant filed an Amended Shadow Flicker Analysis prepared by Robert O'Neal. App. 34, Appx. 6. According to this report, within one mile of the Project, out of one hundred fifty identified sensitive receptors, seventy-three locations are predicted to experience the following shadow flicker effects: (i) twenty-four locations – between eight hours and thirteen hours forty-eight minutes of shadow flicker per years and (ii) 49 locations – between zero and eight hours of shadow flicker per year. App. 34, Appx. 6; App. 21, at 13; Tr., 09/20/16, Afternoon Session, at 70. Mr. O'Neal testified that the Applicant will use a shadow control protocol provided by Siemens to ensure that the shadow flicker at the affected properties will not exceed a total of eight hours per year. App. 13, at 13-14. The Applicant admitted that the Siemens shadow flicker control that the Applicant seeks to utilize has never been used in the United States. Tr., 09/28/16, Afternoon Session, at 160. The Applicant asserted, however, that this control system will ensure that none of the residential locations that will surround the Project will experience more than 8 hours per year of shadow flicker. App. 13, at 14; Tr., 09/28/16, Afternoon Session, at 160. The Applicant also agreed to provide annual reports to the

Subcommittee and the Town of Antrim identifying the amount of shadow flicker at the locations with predicted shadow flicker above 8 hours per year. The report will also detail the amount of time the turbines have to curtail to meet the requirement. Tr., 09/28/16, Afternoon Session, at 146; Tr., 09/29/16, Afternoon Session, at 11. The reporting requirement will not include new residences or buildings that will be constructed in the future. Tr., 09/28/16, Afternoon Session, at 146. The Applicant also acknowledged that the accuracy of the report at receptors cannot be verified by measuring actual flicker that will be received by receptors. Tr., 09/29/16, Afternoon Session, at 11-13.

During the hearing, Mr. O'Neal agreed that some structures outside of the one mile studied area may be affected by shadow flicker if there is a line of sight. Tr., 09/22/16, Afternoon Session, at 13-14. He opined, however, that the rules of the Committee do not require the Applicant to conduct shadow flicker analyses outside a one mile radius of the Project. Tr., 09/22/16, Afternoon Session, at 10-14.

During the adjudicative hearing, Mr. O'Neal addressed Ms. Berwick's argument that he failed to account for the maximum possible sunlight. Tr., 09/20/16, Afternoon Session, at 59-60. Mr. O'Neal explained that the average amount of sunshine (clear skies or partially cloudy skies) is calculated by a computer program that considers meteorological data provided by the National Climatic Data Center. Tr., 09/20/16, Afternoon Session, at 61-62; Tr., 09/22/16, Morning Session, at 14-15, 23-24. He clarified that estimated shadow flicker is based on the calculated amount of sunshine as oppose to possible sunlight. Tr., 09/20/16, Afternoon Session, at 67-68.

Mr. O'Neal also addressed Dr. Ward's criticism of the modeling program used for the shadow flicker analysis. Tr., 09/20/16, Afternoon Session, at 146-157. Specifically, Mr. O'Neal confirmed that the program does not analyze and does not use hour-by-hour percent of

cloudiness, but averages the data available on a monthly basis. Tr., 09/20/16, Afternoon Session, at 146-157. Mr. O'Neal further affirmed that he did not analyze a shadow flicker effect on Route 9 and people driving on it. Tr., 09/22/16, Morning Session, at 45-46. He stated, however, that, due to the distance to the Project, it is highly unlikely that drivers on Route 9 will experience any shadow flicker from the Project. Tr., 09/22/16, Morning Session, at 454-45.

(b) Intervenors

Ms. Linowes argued that Mr. O'Neal's shadow flicker analysis is deficient because the supplemental report does not address the effect on all originally addressed properties. She claimed that the report uses a definition of "astronomical maximum" that does not comport with definitions set forth in the Committee's rules. WA-01, at 7-9. Ms. Linowes also complains that the one mile zone of shadow flicker impact is the minimum requirement and the Applicants should have provided an additional study beyond one mile. WA-01, at 7-9.

Ms. Berwick argued that the Applicant failed to calculate the worst case scenario and failed to account for all sunlight that potentially can cause a shadow flicker effect. AB 8, at 3-4. Ms. Berwick requested that the Subcommittee require the Applicant to provide a way for homeowners that may be affected by shadow flicker associated with the Project to monitor it at their homes. *See* Post-Hearing Memorandum, ¶2. She further requested that the Subcommittee issue an order that would require the post-construction shadow flicker studies to be conducted by an independent agency without prior notice to the Applicant. *See* Post-Hearing Memorandum, ¶2. She opined that the Applicant should be required to fund such studies by depositing required funds into the Committee's account. *See* Post-Hearing Memorandum, ¶2. Finally, she requested the Subcommittee to order the Applicant to provide financial reimbursement to the owners of

real estate that will have more than eight hours of shadow flicker per year caused by the Project. *See* Post-Hearing Memorandum, ¶8.

Janice Longgood, Clark Craig, Barbara Berwick, and Elsa Voelcker argued that shadow flicker will have an adverse effect on their health and enjoyment of their property. AB 1, at 1-2; Pre-Filed Testimony, Clark Craig, Jr., at 1; AB 8, at 1-2; Pre-Filed Testimony, Elsa Voelcker, at 1.

Dr. Ward opined that the Applicant underestimated the shadow flicker that will be caused by the Project. Tr., 10/20/16, Afternoon Session, at 202-208. Dr. Ward asserted that the underestimation is caused by the Applicant's failure to account for the days with meteorological conditions that may cause shadow flicker without having one hundred percent clear skies. Tr., 10/20/16, Afternoon Session, at 202-208. Dr. Ward also testified that additional shadow flicker may be caused as a result of reflection from the water and/or moisture that can accumulate on the blades. Tr., 10/20/16, Afternoon Session, at 190-192. Dr. Ward also expressed his concern about the effect of the shadow flicker associated with the Project on drivers on Route 9. Tr., 09/22/16, Morning Session, at 14-15, 45-46.

Mr. Enman testified that he did not notice unreasonable shadow flicker when he visited the Lempster Project. Tr., 10/18/16, Morning Session, at 29.

(2) Subcommittee Deliberations

The shadow flicker analysis provided by the Applicant replicates a worst-case scenario. The Applicant acknowledged that, at 24 receptors within a mile of the Project, the shadow flicker will be over eight hours per year. The Subcommittee further notes that the Committee's Rule set forth the standard for shadow flicker not to exceed "eight hours per year at or within any residence, learning space, workplace, health care setting, outdoor or indoor public gathering area,

or other occupied building." *See* N.H. CODE ADMIN. RULES, Site 301.14 (f)(2)(b). The Applicant acknowledged this standard and testified that it will employ a shadow flicker control mechanism that will limit shadow flicker to comply with our administrative rules. The Subcommittee finds that the Project will not have an unreasonable effect on public health and safety if it produces less than eight hours per year of shadow flicker within any residence, learning space, workplace, health care setting, outdoor or indoor public gathering area, or other occupied building. The Subcommittee notes concerns raised about accuracy of the modeling due to its alleged failure to account various meteorological conditions. The Subcommittee also notes testimony about the control mechanism and its alleged failure to perform adequate shadow flicker controls. To address these concerns and to ensure the Applicant's compliance with shadow flicker requirements as set forth in N.H. CODE ADMIN. RULES, Site 301.14 (f)(2)b., the Subcommittee conditions the Certificate upon the following condition: on a semi-annual basis, the Applicant shall submit to the Administrator of the Committee and to the Town of Antrim, an electronic copy and one hard copy of the report generated from the SCADA System that shows the amount of shadow flicker for each residence, learning space, workplace, health care setting, outdoor or indoor public gathering area, other occupied building, and roadway, identified by property address and/or tax identification number, within a minimum distance of one mile from any turbine.

Subject to the Applicant's compliance with the aforementioned conditions, the Subcommittee finds that the shadow flicker associated with the Project will not have an unreasonable adverse effect on human health and safety. Tr. 12/09/16, Afternoon Session at 5-42.

f. The Effect of Shadow Flicker and Noise on Future Structures and Participating Homeowners

(1) Positions of the Parties

The Applicant argued that the Committee's rules do not require it to comply with the shadow flicker and noise limits as applied to future owners of impacted properties or new structures that will be located within the zone of potential impact. Tr., 09/28/16, Afternoon Session, at 175-176.

Ms. Berwick and Ms. Longgood opined that the Applicant should be required to ensure that the Project's noise and shadow flicker complies with the Committee's Rules as applied to any future structure they decide to construct on their properties. Tr., 10/18/16, Morning Session, at 111-114.

In the spirit of cooperation, the Applicant agreed to comply with the following conditions:

- Antrim Wind Energy or its successors ("AWE") shall provide the Town of Antrim with paper and electronic copies of its Post-Construction Sound Monitoring Reports required by the Site Evaluation Committee (Ref. Site 301.18 e & f) which shall include a map or diagram showing: (1) Layout of the project area, including topography, project boundary lines, and property lines; (2) locations of the sound measurement points; and (3) distance between any sound measurement point and the nearest wind turbine.

- The Town shall maintain a paper and electronic copy of AWE's Post-Construction Sound Monitoring Reports available at the Town Hall for all potential owners and/or developers ("Applicants") applying for either a (1) building permit to construct a new residential structure or (2) planning board approval for the subdivision of land for residential use, within one mile of any Wind Turbine associated with Project (either a "New Development"). In addition to making such copy available at the Town Hall, the Town shall make available AWE's Post-construction Sound Monitoring Reports to all Applicants on its web site, in person, or by regular mail, provided that such in-person or mailed reports shall require a nominal fee for postage or photocopying.

- In addition to a copy of the Post-Construction Sound Monitoring Report, the Town of Antrim shall inform any Applicant for any New Development that, it has

the right to obtain from Antrim Wind Energy LLC or its successors ("AWE"), upon request via email to _____, [35]additional information regarding expected maximum sound power levels and shadow flicker associated with the Project and within the above referenced one mile radius. Such a request to AWE shall include the proposed location of the New Development, and the name and address of the property owner and the Applicant (if different than the property owner) pertaining to the New Development (collectively, as applicable, the "Property Owner").

- Within fourteen days after receiving such request from an Applicant, AWE shall provide to the Property Owner and the Town the following information:
  - The expected maximum sound power level at the location of the New Development; and
  - The expected amount of shadow flicker at the location of the New Development

- Following such Property Owner's receipt of the above-referenced forecasts for expected maximum sound power level and expected amount of shadow flicker, AWE shall cooperate with and provide reasonable assistance to the Property Owner in evaluating potential mitigation measures, if requested by the Property Owner.

See Correspondence to the Subcommittee (November 8, 2016).

Lisa Linowes, in her Post-Hearing Brief, did not object to Sections 1 and 3 of the proposed conditions. She argued, however, that the term "residential use" in the second section should be modified so that it states "property that is used in whole or in part for permanent or temporary residential purposes" to be consistent with N.H. CODE ADMIN. RULES, Site 301.14 (f)(2). She further argued that, for shadow flicker, the wording should incorporate "any residence, learning space, workplace, health care setting, outdoor or indoor public gathering area, or other occupied building." As to Section 4, Ms. Linowes asserted that notifications to the property owners should include information about the standards that the Project should not violate for noise and shadow flicker. Finally, she argued that Section 5 is not warranted where the Subcommittee's Rules include enforcement measures.

[35] To be provided by the Applicant.

(2) Subcommittee Deliberations

N.H. CODE ADMIN. RULES, SITE 301.14 (f)(2) provides as follows:

> a. With respect to sound standards, the A-weighted equivalent sound levels produced by the applicant's energy facility during operations shall not exceed the greater of 45 dBA or 5 dBA above background levels, measured at the L-90 sound level, between the hours of 8:00 a.m. and 8:00 p.m. each day, and the greater of 40 dBA or 5 dBA above background levels, measured at the L-90 sound level, at all other times during each day, as measured using microphone placement at least 7.5 meters from any surface where reflections may influence measured sound pressure levels, on property that is used in whole or in part for permanent or temporary residential purposes, at a location between the nearest building on the property used for such purposes and the closest wind turbine; and
>
> b. With respect to shadow flicker, the shadow flicker created by the applicant's energy facility during operation shall not occur more than 8 hours per year at or within any residence, learning space, workplace, health care setting, outdoor or indoor public gathering area, or other occupied building.

The Subcommittee notes that the plain language of N.H. CODE ADMIN. RULES, Site 301.14 (f)(2) does not differentiate between current and future structures. Without knowing anything about future structures and the Project's effect on them, the Subcommittee cannot determine whether the Project will have an unreasonable adverse effect on future structures. The Subcommittee finds, however, that to ensure that the Project will have no unreasonable adverse effect on health and safety, it is reasonable to require the Applicant to comply with the following conditions:

- Antrim Wind Energy or its successors ("AWE") shall provide the Town of Antrim **and Administrator of the Committee** with paper and electronic copies of its Post-Construction Sound Monitoring Reports required by the Site Evaluation Committee (Ref. Site 301.18 e & f) which shall include a map or diagram showing: (1) layout of the project area, including topography, project boundary lines, and property lines; (2) locations of the sound measurement points;

and (3) distance between any sound measurement point and the nearest wind turbine.

- AWE shall request the Town to maintain a paper and electronic copy of AWE's Post-construction Sound Monitoring Reports available at the Town Hall for all potential owners and/or developers ("Applicants") applying for either a: (1) building permit to construct a new residential structure or (2) planning board approval for the subdivision of land for residential use, within one mile of any Wind Turbine associated with Project (either a "New Development"). In addition to making such copy available at the Town Hall, the Town shall make available AWE's Post-Construction Sound Monitoring Reports to all Applicants on its web site, in person, or by regular mail, provided that such in-person or mailed reports shall require a nominal fee for postage or photocopying.

- In addition to a copy of the Post-Construction Sound Monitoring Report, the Town of Antrim shall inform any Applicant for any New Development that it has the right to obtain from Antrim Wind Energy LLC or its successors ("AWE"), upon request via email to _____,[36] additional information regarding expected maximum sound power levels and shadow flicker associated with the Project and within the above referenced one mile radius. Such a request to AWE shall include the proposed location of the New Development, and the name and address of the property owner and the Applicant (if different than the property owner) pertaining to the New Development (collectively, as applicable, the "Property Owner").

- Within 14 days after receiving such request from an Applicant, AWE shall provide to the Property Owner and the Town the following information:
  - The expected maximum sound power level at the location of the New Development; and
  - The expected amount of shadow flicker at the location of the New Development

- Following such Property Owner's receipt of the above-referenced forecasts for expected maximum sound power level and expected amount of shadow flicker, **AWE shall cooperate with and take such mitigation measures, if requested by the property owner, to comply with applicable rules.**

The Subcommittee also finds that the rules do not differentiate between participating and non-participating landowners. The Subcommittee finds, however, that the landowners have a right to voluntarily agree to subject themselves to different environments. Therefore, to the extent it is necessary, the Subcommittee waives noise and shadow flicker restrictions set forth in

[36] To be provided by the Applicant.

N.H. CODE ADMIN. RULES, Site 301.14 (f)(2)a. and b., as applied to participating landowners. Tr. 12/12/16, Afternoon Session at 65-66.

g. Lightning Strikes, Blasting and Fire

(1) Positions of the Parties

(a) Applicant

The Applicant argued that the Project will not have an unreasonable adverse effect on public health and safety that can be associated with lightning strikes, blasting or fire. App. 33, at 115-118.

The Applicant presented evidence that the effects of lightning will be minimized because each blade will have a lightning receptor system that will be integrated into the nacelle bedplate and will be connected to the tower through a series of brushes and cabling. App. 33, at 115; App. 3, at 17. In case of a lightning strike, this system will conduct the lightning from the blade to the tower to the ground via a grounding system. App. 33, at 115; App. 3, at 17. In addition, an error code will be logged and the operations and maintenance staff will inspect the turbine. App. 33, at 115.

The Applicant reports that blasting will be conducted by an experienced licensed contractor who will operate in strict compliance with a Project blasting plan, which will be provided to the Town of Antrim and reviewed and approved by the New Hampshire Department of Safety. App. 8, at 10.

As to risks associated with fire, the Applicant asserted that the design of the turbine's equipment will minimize such risks. App. 33, at 115. Specifically, each turbine will have a fire detection system that will be connected to the main control unit and the SCADA. App. 33, at 115; App. 3, at 16. Smoke detectors will be placed in all important electrical panels and will be

connected to individual digital inputs on the wind turbine control system. App. 33, at 115; App. 3, at 16. The control system will monitor the smoke detectors and will activate all alarm systems if a fire is detected. App. 33, at 115; App. 3, at 17. The turbine will be stopped and the cooling fans in all cubicles will be switched off in order to reduce the admission of air to a possible fire. App. 33, at 115. Each turbine and all maintenance vehicles will also be equipped with manually operated fire extinguishers. App. 33, at 116; App. 3, at 17. Furthermore, the Applicant will install active fire suppression systems in the nacelles in each turbine. App. 33, at 116; App. 10, at 18; Tr., 09/20/16, Morning Session, at 51. The operations and maintenance building will be designed and constructed in compliance with all applicable local and state fire codes. App. 33, at 115.

The Applicant agreed, in consultation with the State Fire Marshal and the Antrim Fire Department, to prepare an Emergency Response Plan prior to commencement of construction of the Project. App. 33, at 117; App. 33, Appx. 17. The plan will address and include the following:

- Duties and responsibilities for owners, plant managers, staff, and technicians;
- Procedures for notifications in the event of emergencies;
- Details of emergency equipment to be kept on-site;
- Protocols for routine inspections of emergency response equipment;
- Protocols for routine drills;
- Appropriate documentation;
- Emergency contact lists;
- Procedures for reviewing and updating the plan;
- Emergency Response Procedures;

- Plant Evacuation Procedures;
- Fire Response Procedures;
- Oil/Chemical Spill Procedures;
- Safety protocols for hazardous weather conditions; and
- Training and record keeping requirements.

App. 33, at 117-118.

The Applicant's witness, Mr. Martin, testified that some of the roads situated within the Project will be constructed at a 12-13 percent grade. Tr., 09/20/16, Morning Session, at 64. He further testified that the grade will not prevent the emergency vehicles from accessing the Project is case of emergency. Tr., 09/20/16, Morning Session, at 69. He stated that his conclusion is supported by the fact that the Town of Antrim Fire Department reviewed the Project's plans and raised no concerns. Tr., 09/20/16, Morning Session, at 70.

(b) Intervenors

Janice Longgood, Clark Craig, Barbara Berwick, and Elsa Voelcker argued that blasting associated with the Project will have an adverse effect on their health and enjoyment of their property. AB 1, at 1-2; Pre-Filed Testimony, Clark Craig, Jr., at 1; AB 8, at 1-2; Pre-Filed Testimony, Elsa Voelcker, at 1.

Mr. Berwick requested that the Subcommittee require the Applicant to bear "all financial costs for firefighting and home replacements cost," if the turbines cause the fire. *See* Post-Hearing Memorandum, ¶5.

(2) Subcommittee Deliberations

The Project will be equipped with fire detection and suppression systems that will be reviewed and approved by the State Fire Marshal and the Town's Fire Department. Under the

Agreement with the Town of Antrim, the Project will also have an Emergency Response Plan that will be developed and approved by the State Fire Marshal and the Town prior to the commencement of construction of the Project. The Project will be sufficiently gated to prevent intrusion and minimize the risk that trespassers may start a fire. Finally, the Subcommittee finds that the Agreement with the Town of Antrim sufficiently addresses measures and precautions that will be undertaken by the Applicant to minimize the effect of fire associated with the Project.

The Subcommittee notes that prior to blasting, the Applicant is required to develop a blasting plan that will be approved by the State. The blasting will be conducted by an experienced company. In addition, prior to blasting, the Applicant will notify the Town and the adjacent landowners of anticipated blasting activities. Finally, the effect, if any, of blasting on wells will be addressed through implementation of condition set forth in Section V, F, b, (2), above. Any blasting on site will be well regulated. The risk of a fire is low.

Neither blasting nor the risk of fire will have an unreasonable adverse impact on public health and safety. Tr. 12/09/16, Afternoon Session at 118-124.

h. Interference with Weather and Doppler Radar

The Applicant filed a report indicating that the Project will not interfere with any local or government weather and Doppler radars. The Subcommittee did not receive any testimony or exhibits that would contradict the Applicant's conclusions. The Subcommittee finds that the Project will not interfere with local or governmental radars and will not have an unreasonable adverse impact on health and safety associated with such interferences. Tr. 12/09/16, Afternoon Session at 90.

i. Decommissioning

Under N.H. CODE ADMIN. RULES, Site 301.08 (a)(7), the Applicant is required to submit "a decommissioning plan prepared by an independent, qualified person with demonstrated knowledge and experience in wind generation projects and cost estimates, which plan shall provide for removal of all structures and restoration of the facility site." The N.H. CODE ADMIN. RULES, Site 301.08 (a)(8), requires that the decommissioning plan submitted by the Applicant to include the following:

> a. A description of sufficient and secure funding to implement the plan, which shall not account for the anticipated salvage value of facility components or materials;
>
> b. The provision of financial assurance in the form of an irrevocable standby letter of credit, performance bond, surety bond, or unconditional payment guaranty executed by a parent company of the facility owner maintaining at all times an investment grade credit rating;
>
> c. All turbines, including the blades, nacelles and towers, shall be disassembled and transported off-site;
>
> d. All transformers shall be transported off-site;
>
> e. The overhead power collection conductors and the power poles shall be removed from the site;
>
> f. All underground infrastructure at depths less than four feet below grade shall be removed from the site and all underground infrastructure at depths greater than four feet below finished grade shall be abandoned in place; and
>
> g. Areas where subsurface components are removed shall be filled, graded to match adjacent contours, reseeded, stabilized with an appropriate seed and allowed to re-vegetate naturally.

The Subcommittee is required to consider and analyze the decommissioning plan and its effect on health and safety pursuant to the N.H. CODE ADMIN. RULES, Site 301.14 (f)(1).

(1) Positions of the Parties

(a) Applicant

The Applicant provided a decommissioning plan. The plan was prepared by TRC as Appendix 22 of the Application. App. 33, Appx. 22. The decommissioning plan includes the following decommissioning tasks: (i) vegetation clearing, as necessary, to provide for access and mobility of equipment necessary to complete the decommissioning tasks; (ii) road maintenance and modification as necessary to deliver the necessary equipment to the Site to complete decommissioning and remove the facilities; (iii) removal of nacelles, blades, towers and pad mount transformers; (iv) removal of foundation components and certain underground collector system components at a depth of four feet, when possible[37]; (v) removal of all aboveground collector system structures; (vi) removal of the collector substation; (vii) removal of the operations and maintenance building; (viii) removal of the met tower; (ix) removal of storm water features associated with the roads beyond the property line; and (x) scarification and restorative seeding of all Project roads, shoulders and removed storm water features beyond the property line. App. 33, Appx. 22, at 1-2.

The Applicant's witnesses, Mr. Kenworthy and Mr. Cavanagh, testified that the removal of the foundation components will not include removal of the concrete rubble that will be generated as a result of disassembling the foundations and removal of the steel components of the foundation. Tr., 09/15/2016, Morning Session, at 66-70; Tr., 09/15/2016, Afternoon Session, at 17-18. According to these witnesses, concrete rubble will be processed on-site and used as fill, where needed, and the remainder will be buried on the site. Tr., 09/15/2016, Morning

[37] It is noted that the Applicant's witness, Mr. Kenworthy, explained during his testimony that under this provision of the decommissioning plan that the Applicant agrees to remove "all underground facilities down to a depth of 4 feet" and will request the Committee to waive this requirement if removal is not possible. Tr., 09/15/2016, Morning Session, at 55-57.

Session, at 66-70; Tr., 09/15/2016, Afternoon Session, at 17-18. Mr. Kenworthy and Mr. Cavanagh further testified that this is a standard practice that was used in a number of construction projects. Tr., 09/15/2016, Morning Session, at 66-70; Tr., 09/15/2016, Afternoon Session, at 17-18, 21.

(b) Intervenors

Ms. Linowes argued that the decommissioning plan proposed by the Applicant does not comply with the Committee's Rules. WA-01, at 3-4. Specifically, she asserted that the decommissioning plan does not provide for removal of all underground structures at a depth less than four feet below, does not account for the removal of concrete rubble generated as a result of demolition of foundations, and does not contain a cost estimate for removal of debris. WA-01, at 3-4; Tr., 09/15/2016, Morning Session, at 66-70.

Ms. Berwick and Ms. Linowes requested the Subcommittee to condition the Certificate and require the Applicant to remove all construction debris as a part of decommissioning of the Project. *See* Post-Hearing Memorandums.

(2) Subcommittee Deliberations

The Applicant has sufficient financial capability to ensure decommissioning of the Project in accordance with the Certificate. *See* Section V, E, 3, b, above.

The Applicant's decommissioning plan provides for removal of all components of the Project and revegetation of disturbed site. The parties disagreed about the treatment of concrete rubble. The Applicant intends to process the concrete rubble on-site and use it for fill. Excess processed concrete rubble will be buried on-site.

The Subcommittee was informed that DES does not require the removal of pulverized concrete from similar sites. The Subcommittee recognizes that removal of the concrete will

require the Applicant to import other materials to establish the same grade. Bringing in foreign materials may have a negative impact on the natural environment as compared to the use of pulverized concrete already on-site. Removal of processed concrete generated as a result of demolition of the sites is in compliance with, the Best Management Practice, approved by DES. Considering that the usage of demolished concrete for fill purposes is considered to be a Best Management Practice, and the fact that concrete provides the best available alternative for fill purposes, the Subcommittee finds that reuse of processed concrete for fill purposes will not cause an unreasonable adverse effect on human health and safety.

The Subcommittee finds that the Decommissioning Plan proposed by the Applicant, subject to the condition identified in Section V, E, 3, b above, will not cause an unreasonable adverse effect on human health and safety. Tr. 12/09/16, Afternoon Session at 91-94.

j. Cumulative Impacts

The Subcommittee must consider the cumulative impacts of or from multiple projects or multiple towers, or both, to public health and safety, natural, wildlife, habitat, scenic, recreational, historic and cultural resources, including aesthetic impacts and sound impacts. *See* N.H. CODE ADMIN. RULES, Site 301.03(h)(6). "Cumulative impacts" are defined as "the totality of effects resulting from a proposed wind energy facility, all existing wind energy facilities, all wind energy facilities for which a certificate of site and facility has been granted, and all proposed wind energy facilities for which an application has been accepted." *See* N.H. CODE ADMIN. RULES, Site 102.18.

(1) Positions of the Parties

The Applicant asserts that site is approximately thirteen miles southeast of the Lempster project, forty-seven miles south of the Groton project and over 100 miles southwest of Granite

Reliable and Jericho Mountain. App. 34, Appx. 1, at 1. The Applicant argues that, considering the distance of other projects in the state, the cumulative environmental impact from the Project will be very low. App. 34, Appx. 1, at 2.

The Applicant reports that the "population level impacts to birds, bats and other wildlife are not expected to be discernable, and there will be no discernable cumulative effect of water resources." App. 34, Appx. 1, at 2-3. The Applicant asserts that, considering that only three diurnal raptor fatalities associated with operation of wind energy facilities in New Hampshire, Vermont, and Maine were recorded, it is expected that there will be little cumulative impact to raptor populations resulting from operational fatalities. App. 34, Appx. 1, at 3. The Applicant also argues that it is expected that there will not be any discernable cumulative effects on passerine population levels. App. 34, Appx. 1, at 4. As to the cumulative impact on bats, the Applicant admits that the Project will cause some level of mortality. App. 34, Appx. 1, at 4. The Applicant argues, however, that the Bird and Bat Conservation Strategy that will be implemented during and following construction of the Project will minimize these impacts. App. 34, Appx. 1, at 4. As to the impact on large mammals, the Applicant asserts that there are no known rare mammals present at the Project and there is an abundance of similar habitat in the surrounding area. App. 34, Appx. 1, at 5. The Applicant concludes that it is unlikely that any avoidance of the Project by large mammals will result in population level effects. App. 34, Appx. 1, at 5. The Applicant acknowledges that there will be some loss of existing habitat during construction of the Project. App. 34, Appx. 1, at 6. Considering, however, that other facilities are located between 13 and 100 miles away and that the site was previously used for logging, the Applicant asserts that such loss will not be significant. App. 34, Appx. 1, at 5. The Applicant also asserts that the Project will not have cumulative effects on rare plant and exemplary natural

communities because none were discovered within the Site. App. 34, Appx. 1, at 5. Finally, as to the effects of the Project associated with fragmentation, the Applicant asserts that such effects will be minimal considering the limited footprint of the Project and that there was no species known to be "particularly sensitive" to habitat fragmentation documented at the Site. App. 34, Appx. 1, at 5.

The Applicant further argues that there will be no material cumulative impacts in the Project viewshed affecting aesthetics because: (i) due to the topography and vegetation, there will not be sequential or successive views of the Project and the Lempster project from the roadway, scenic and recreation resources of the area; and (ii) as to the high point where both projects may be visible, neither project will be seen in the same viewing arc and the distance from the Project will diminish any combined impacts. App. 34, Appx. 2, at 2.

As to the impact on archeaological and above ground historic resources, the Applicant asserts that the Project will not have cumulative impacts on such resources where: (i) no archeaological resources were discovered within the site; and (ii) none of the identified above ground resources will have a view of other wind projects. App. 34, Appx. 3, at 1.

(2) Subcommittee Deliberations

The Subcommittee finds that construction and operation of the Project will not result in unreasonable adverse cumulative effects on aesthetics. The Subcommittee notes that both experts, Mr. Raphael and Ms. Connelly, support this conclusion. The Subcommittee also finds that existing wind energy projects are located a significant distance from the Site. Considering these facts, the Subcommittee finds that the Project will not have an unreasonable adverse cumulative effects on aesthetics of the region.

The Project will not have an unreasonable adverse effect on the natural environment due to cumulative impacts. Tr. 12/12/16, Morning Session at43-44.

G. Public Interest

The Subcommittee may issue a Certificate only if it finds that issuance of a certificate will serve the public interest. *See* RSA 162-H, IV(e). While determining whether the issuance of a certificate will serve the public interest, the Subcommittee is required to consider the following:

(a) The welfare of the population;
(b) Private property;
(c) The location and growth of industry;
(d) The overall economic growth of the state;
(e) The environment of the state;
(f) Historic sites;
(g) Aesthetics;
(h) Air and water quality;
(i) The use of natural resources; and
(j) Public health and safety.

See N.H. CODE ADMIN. RULES, Site 301.16 (a)-(j).

1. Positions of the Parties

a. Applicant

The Applicant asserts that the Project is in the public interest because it will provide clean energy and fuel diversity benefits to the State. App. 10, at 20. The Applicant will also permanently conserve 908 acres of valuable forestland and habitat and will provide $100,000.00 to the New England Forestry Foundation to acquire additional conservation lands in the region. Appx. 10, at 20-21. The Applicant also asserts that the Project will be in the public interest because it will provide wind lease revenues to private landowners and will provide a significant economic benefit to the Town of Antrim and the region. Appx. 10, at 21.

b. Intervenors

Ms. Linowes opined that the Project is not in the public interest because the State of New Hampshire has a sufficient supply of renewable energy. Tr., 11/07/16, Evening Session, at 46.

Ms. Foss, on behalf of ASNH, opined that the Project is not in the public interest. ASNH 3, at 7. Specifically, she stated that the amount of energy that will be produced by the Project will be outweighed by the Project's impacts on the natural environment and aesthetics. Tr., 10/03/16, Afternoon Session, at 129, 133.

Ms. Allen opined that construction and operation of the Project is not in the public interest because it will allegedly negate 50 years of efforts of various groups and landowners to preserve and conserve the natural environment and lands surrounding the Project. LA 1, at 8-9.

Brenda Schaefer, Mark Schaefer, and Nathan Schaefer asserted that construction and operation of the Project is not in the public interest where the windmills do not present the most efficient form of generating facilities, and New Hampshire does not have a present need for additional electricity. Pre-Filed Testimony, Brenda Schaefer, Mark Schaefer, and Nathan Schaefer, at 1.

Stephen Berwick argued that the Project is not a "green" energy project. AB 10, at 1.

Dr. Ward opined that operation of all wind turbines in the State of New Hampshire at their maximum capacity may cause an overload of the grid and is not in the best interest of the public. MI 1, at 2-4.

Mr. Jones opined that, although he agrees with the need for renewable energy facility, the Project will cause more damage to the natural environment than the benefits it will bring. Tr., 10/19/16, Morning Session, at 88. Specifically, Mr. Jones stated that construction and operation of the Project will be detrimental to the natural environment because the Project will be

constructed on high-ranking habitat in the middle of 40,000 acres of contiguously protected land. Tr., 10/19/16, Morning Session, at 88.

2. Subcommittee Deliberations

Having considered the criteria contained in the N.H. CODE ADMIN. RULES, Site 301.16, the Subcommittee finds that the siting, construction and operation of the Project, subject to conditions contained in this decision and accompanying order and certificate, will be in the public interest. We have addressed issues pertaining to historic sites, aesthetics, air and water quality, the natural environment and public health and safety elsewhere in this decision and considering those issues, find that the Project is in the public interest.

There was considerable dispute in this docket over economic issues, particularly the effect of wind projects on surrounding property values and the orderly development of the region and economic growth of the State. As indicated in Section V, E, 2, b, above, we do not find that the Project will have an unreasonable adverse effect on property values.

The Project represents clean renewable energy that will contribute to better air quality. In addition, construction and operation of the Project will provide economic benefits to the region and the State. The Applicant and the Town of Antrim have entered into a PILOT Agreement and an agreement concerning various operational aspects of the Project. Based on these factors, we find the Project to be in the public interest. Tr. 12/12/16, Afternoon Session at 155.

VI. CONCLUSION

For the reasons set forth herein, the Application for a Certificate of Site and Facility is approved, subject to the conditions contained herein and in the Order and Certificate of Site and Facility issued contemporaneously herewith.

SO ORDERED this seventeenth day of March, 2017.

Robert R. Scott, Presiding Officer
Site Evaluation Committee
Commissioner
Public Utilities Commission

Eugene Forbes, Designee
Director, Dept. of Environmental Services,
Water Division

John Clifford, Designee
Hearings Examiner
Public Utilities Commission

Jeffrey J. Rose, Commissioner
Dept. of Resources & Economic Dev.

Patricia M. Weathersby
Public Member

25 March 2017

Mr. Robert R. Scott, Presiding Officer
Site Evaluation Committee
Public Utilities Commission
21 South Fruit Street
Concord, NH 03301-2429

Dear Commissioner Scott:

The Meteorological Intervenors submit their appeal of your Order of 17 March 2017 in the matter of SEC 2015-02, Antrim Wind.

Motion to Rehear

Site 202.29 (d) states "A motion for a rehearing shall (1) Identify each error of fact, error of reasoning, or error of law". However, the category of the most frequent and egregious Committee errors in the SEC 2015-02 Order is a new category which includes all of the above, errors of Omission of evidence. The Committee ignored these orphan issues in spite of the Rules requiring their consideration. Therefore, this appeal is on the multiple bases of the Omission of Key Facts, Failure to follow the Law and Failure to determine whether each AWE proposition (RSA 541:4) "is unlawful or unreasonable". These multiple failures will be stated simply as Omissions, leaving it to the Committee to select an appropriate LAW, FACT or UNREASONABLE category.

More importantly, the outcome of an error of omission is, in itself, dispositive evidence that the Committee violated a more fundamental rule, Site 202.19 (a) and (b), the Burden of Proof requirement. If certain evidence was never considered, as the many noted below, there was no way that the Committee could have determined whether, or not, the "party (AWE) asserting a proposition shall (did) bear the burden of proving the proposition by a preponderance of the evidence". There were many "propositions" asserted by AWE during the course of these proceedings for which the Committee could not claim AWE had shown a preponderance of evidence, because the Committee never acknowledged, discussed, or ultimately judged these propositions, or weighed the evidence pro and con.

This abnegation of responsibility by the Committee was most egregious in the matters covering the technical issues of astronomy, meteorology and topography. AWE did NOT meet the standards specified in 202.19 (a) and (b), by ignoring many obvious meteorological problems arising from its proposed facility, misdirecting and misinforming the SEC, and finally omitting information that was prejudicial to approval. Site 202.19 (a) requires the applicant to "bear the burden of proving the proposition by a preponderance of the evidence". And Site 202.19 (b) requires that the applicant "shall bear the burden of proving facts sufficient for the committee.....". In the proceedings and report, the members of the SEC ignored these serious omissions.

When the Committee totally omits any discussion of evidence to support a particular AWE assertion, it is dispositive proof that the Committee never attempted to determine the preponderance of evidence. These failures by AWE to demonstrate a "preponderance of evidence", and the failures by the Committee to debate and determine whether AWE demonstrated a "preponderance of evidence", make a mockery of this adjudicative process. Any one of these failures would meet the standard for requiring a rehearing. The wide range and deadly seriousness of these failures cannot be corrected without a broad and penetrating rehearing. This criticism that both AWE and the Committee ignored the

"preponderance of evidence" issue applies, to a greater or lesser extent, to many of the issues discussed below.

These omissions, and the resultant failures of both AWE and the Committee to understand serious technical issues, negates the statements #2, 3, and 5 on page 2 of the Order, and the futility of fulfilling conditions #1 and #6 on page 10 and condition #1 on page 11 of the Order. In addition, the AWE proposals to monitor and mitigate post-construction noise and shadow flicker are simply not technically possible as proposed by AWE/Siemens, and may be impossible under any circumstances.

List of Errors, discussed in detail below:

1 Preponderance of Evidence.....
2 Pre-Construction Noise .....
3 The G Factor .....
4 Post-Construction Noise .....
5 Ducting .....
6 Pre-Construction Shadow Flicker.....
7 Post-Construction Shadow Flicker.....
8 Solar Enlargement and Shadow Flicker...
9 AWE Response 29 September 2016.....
10 AWE Response 7 November 2016.....
11 Meteorological Correlations.....
12 Shadows and Reflections.....
13 Worst Case.....
14 Mitigation and Efficiency.....
15 Flicker-caused Vehicle Accidents.....
16 Ice Throw.....
17 Nighttime Lighting and Radar.....
18 Misdirection of Visual Impact .....
19 Ignoring Nighttime Visual Impact .....
20 Tipping the Scales of Justice .....

1 Preponderance of Evidence

Error of Law

The Committee never determined whether AWE had presented the preponderance of evidence required by 202.19 (a) and (b), to show they met the criteria for noise and shadow flicker, both pre- and post-construction.

Unlawful Order

With no determination that AWE presented the preponderance of evidence, the Committee could not lawfully approve the AWE application.

Proposed Legal Conclusion

The Committee was required to deny the AWE application.

Extended Argument

The Committee did not follow Site 202.19 (a) that requires "The party asserting a proposition (e. g. not exceeding noise or shadow limits) shall bear the burden of proving the proposition(s) by a preponderance of the evidence". The Committee never weighed the evidence presented by Ward against the evidence presented by AWE, nor discussed or deliberated whether AWE had met the 202.19 (a) standard. Black's Law Dictionary defines "preponderance of evidence" as "the greater weight of the evidence". Any determination of "greater weight" requires a prior determination of the individual

weights, followed by a comparison of these weights. Nowhere in the Committee's three days of deliberations did the Committee weigh Ward's testimony, evidence, or criticisms of O'Neal against O'Neal's testimony or evidence. There is also no such weighing or comparison made in the AWE post-hearing brief. This oversight(?) is carried through in the final Order.

There are two very critical and fundamental meteorological questions addressed by AWE to which this "preponderance of evidence" question applies. Will the proposed facility produce "worst case noise" over the prescribed limits, and, to what extent will the facility exceed the 8-hour limits for shadow flicker? While there are many other meteorological issues to which such a question applies, these two are fundamental to the determination by the committee as to whether the proposed facility belongs in a residential neighborhood in Antrim.

In the determination of the weights of the evidence presented on the issues of noise and flicker, the evidence is overwhelming that the Committee NEVER weighed the testimony and evidence by Ward, and therefore was unable to determine its weight in comparison to the competing evidence presented by O'Neal. Whether the Committee overlooked their responsibility to make such a comparison because they finally realized that they did not have the evidence required to make it, or whether the Committee never understood that they were required to make such a weighing is unknown. Either way, the transcripts, and the final Order, demonstrate that no comparison was ever made, and no comparative weighing was ever performed. The Committee approval of the AWE application is illegal.

2 Pre-Construction Noise

Error of Omission

No recognition, discussion or evaluation by the Committee in their deliberations, of the serious technical limitations in the pre-construction AWE Cadna/A model (built on ISO 9613-2) of noise, and their complete omission (until their final brief) of any discussion of the requirement of Site 301.18 (c) (3) to determine the "worst case wind turbine sound emissions". The Committee ignored the stated limitation of ISO9613-2 (p13) to "moderate downwind conditions ..... limits the effect of variable meteorological conditions on attenuation to reasonable values", and other serious limitations clearly stated in ISO 9613-2. These limitations mock the AWE claim of "worst case".

Unlawful Order

By not determining whether the application met the SEC "do not exceed" limits, the Committee unlawfully decided that the AWE Application met the 40 and 45 Db criteria as specified in the Rules.

Proposed Factual Reasoning

By correcting for the meteorological limitations of ISO 9613-2, and recognizing the added requirement of Site 310.18 (c) (3), the Committee had to decide that the AWE application failed to show that it would meet the noise levels criteria, requiring the Committee to deny the application.

Extended Argument

In DD2, AM, p81 and following, member Clifford stated "under 301.08 we need to talk about the sound impact assessment". However, 301.08 says "as specified in Site 301.18". Member Clifford said (DD2A, p82) "They (O'Neal) did assume worst case directions, wind speeds". But there was no evidence presented by AWE (O'Neal) that spoke to the "worst case" noise. Moreover, lacking an objection by any other member, that view must have represented their MISunderstanding too. The only remark in the Committee's Deliberations that even suggested that there were problems with O'Neal's data was a single sentence about the testimony of Ward (DD2, AM, p84), and a single reference to the testimony of James (DD2, AM, p82). These were weighted against numerous references to O'Neal and Kenworthy. On DD2, AM, p90,91, member Forbes stated his conclusion, and his only mention of disagreement with O'Neal was "the challenges to that model are somewhat, I think the word would be,

not unimportant but ineffectual". Did he mean "otiose"?

After a very serious misrepresentation by member Weathersby of the G factor used by O'Neal, the G factor was tossed in the waste bin too. Member Weathersby adds a suggestion to retest at the Berwick property, despite there being no agreed testing method, and without specifying a G factor, OR A SEASON OF THE YEAR. Member Clifford then added some comments about sound testing which is completely irrelevant to the question as to whether the pre-construction noise modeling met the "worst case" requirement of 301.18 (c) (3). On p98, member Rose states "the G factor of .5 seemed to be reasonable, without ever understanding that there will be a world of difference between the G factor in summer (5 months) and winter (7 months). Member Clifford (mis)agreed on p100.

In the SEC Order, V, F, 5, a (Sound), (b), page 149-154, the 137 pages of cross-examination by Ward of the meteorological testimony of Mr. O'Neal is nowhere to be found. This cross-examination refuted almost all of O'Neal's testimony, yet the Committee quoted O'Neal's direct testimony for 3 ½ pages in their Order (pp145-149). This "oversight" could suggest that the Committee was reluctant to hear contradictory evidence.

3 The G Factor

Error of Fact

A most revealing fact, ignored by the Committee, was the extreme difference between the G factor in summer vs winter in Antrim, and its effect on the discussions of the "worst case" sound emissions. On the occasions when the G factor was discussed, the comments of the Committee revealed that they did not understand this fact, rendering all such discussions either irrelevant, or factually misrepresented.

Unlawful Order

The result of this gross lack of understanding is to substantially underestimate the "worst cases" of radiation of sound waves to the neighbors, make mitigation impossible, and require a denial of the application.

Proposed Factual Reasoning

The winter calculation of sound emissions must use "winter" vegetation and assume "winter" surfaces in the calculation of sound levels. Winter sound measurements at an operating IWF need to be taken and analyzed under the criteria in 301.18 (c) (3). This alternative calculation of noise levels would have led the Committee to deny the application.

Extended Argument

The ground surface in Antrim for many months of winter, will be covered with bright, white snow, often with a smooth ice surface which is highly reflective of sound. In addition, the ground cover surrounding the Antrim site is substantially deciduous, without foliage for seven months of the year. As can be seen in a satellite picture from space, or as would be seen by an observer atop Tuttle Hill or Willard Mountain, this view shows very limited obstructions to either light or sound waves. Mr. O'Neal mischaracterizes this view as composed of absorbent material for both light and sound waves, selecting a G factor of 0.5 for all seasons of the year, including winter. On many nights of winter the G factor would be close to zero. These would also be the candidates for "worst case noise". Ward (Prefiled testimony, 21 May 2016) explained this difference to the Committee but there is not a single reference to it in the Deliberations, in spite of the many references to the G factor. A view from Rte 9 in Stoddard shows mostly brown cover. A driver traveling easterly on Route 9 on a winter afternoon in winter would easily see that the westerly slope of the Tuttle Hill/Willard Mountain ridge is brown, with the underlying snow surface clearly visible, and little obstructed by foliage.

There is an additional consideration in calculating how the ground attenuation of turbine noise applies.

Since the sound is generated 1000' or more above its neighbors, the travel paths of the noise from the turbine to most homes is NOT THROUGH FOLIAGE, but predominantly through clear air, with a G factor of zero, 0.0. That means that the noise reaching its neighbors will be substantially higher than the levels calculated by AWE.

4 Post-Construction Noise

Error of Omission

No recognition, discussion, evaluation or deliberation by the Committee of the serious inconsistencies in, and the lack of technical explanations, in the post-construction AWE proposals for monitoring and mitigating noise. This lack of recognition began with a complete disregard by the applicant and the Committee for determining the meteorological and topographical conditions which would lead to the worst case noises, and the neighboring areas which were most likely to experience it. "Worst case" noise levels will necessarily be of short duration, likely a few hours, requiring a rapid response, and prepared in advance. Without a prior determination of the meteorological factors which are likely to produce the worst case noise levels and the guilty turbines, there is no way to determine the guilty turbine(s), and properly mitigate. There is nothing in the AWE testimony, written or oral, which even suggests that AWE, or the committee, have considered these meteorological and topographic factors.

Unlawful Order

By never questioning the applicant about what meteorological situations which are likely to produce the worst case noise, and which neighbors are likely to be affected, and by which turbines, the Committee wrongly decided that the AWE Application provided a realistic basis for monitoring and mitigating post-construction noise, if indeed there is one.

Proposed Factual Reasoning

The Committee needs to require AWE to determine what meteorological and topographical conditions lead to the worst case noise, which neighbors are likely to experience noise over the prescribed limits, and where to monitor noise most effectively so as to to be able to properly mitigate any excesses, prior to their occurrence, and prior to any approval of the AWE application.

Extended Argument

When the Committee considered Post-Construction Noise, it showed an unfortunate lack of curiosity about the real problems with monitoring this noise. As any competent meteorologist knows, the noise levels and the preferential direction of loudest broadcast will be geographically and topographically dependent, with some areas frequently getting lots of noise, and louder noise, than other areas, and at different times of the day and night. Yet the committee never requested AWE to supply information on this well-expected effect, nor much concern for the neighbors most likely to feel the most, and most frequent, noise effects. In the hearings, there was no discussion of the information from other operating wind facilities, if such is available. There was lots of discussion of who should be responsible for monitoring noise, and what AWE may do, or not do, to mitigate noise problems. From a meteorological perspective, the oft requested, but never produced, data from the met tower would have been extremely helpful. It would likely have shown that the wind speeds and wind shears on the Tuttle ridge were strongly affected by the topography, and the wind direction, with implications for noise generation and propagation, and that the incidences of excessive noises would occur with little warning and require both careful monitoring and rapid mitigation.

One of the more interesting Committee comments was by the Chair (Day 2, AM, p107). "the Applicant to conduct sound studies .... to respond to sound-related complaints". A great ex-post-facto suggestion. Such comments merely highlight the almost insoluble problem of quickly mitigating loud noises in the middle of the night. And after they are mitigated, does everyone return to a "sound" sleep, until the next burst of noise?

5 Ducting

Error of Omission

No recognition, discussion or evaluation by the Committee in their deliberations of the well-known effects of atmospheric ducting, and its effect in enhancing the broadcast of noise far and wide. Worse, when Ward cross-examined O'Neal (Day 3 PM, P125) O'Neal's responses demonstrated that he was only subliminally aware of it, or its importance. Ducting is likely to be a constant problem in the long nights of winter, with a strong temperature inversion, a highly reflective (ice-coated) snow cover and leafless deciduous growth.

Unlawful Order

It is well known that wind turbines make their loudest noises at night. It is also well known to meteorologists that the extreme case for the propagation of turbine noise occurs when there is a strong temperature inversion. Such inversions occur on the long nights of winter with a snow cover acting as a radiator of heat to space. Ignoring the resultant ducting of turbine noise, and failing to determine the extreme noise broadcast when ducting is occurring from actual measurements, allowed the Committee to ignore one of the most important factors in determining whether AWE would meet the noise standard, and whether they had a serious plan for post-construction mitigation. This oversight allowed the Committee to unlawfully approve the AWE application.

Proposed Factual Reasoning

The difficulty O'Neal demonstrated in "understanding" ducting should have led the Committee to disregard most of his testimony, and his conclusions about noise propagation, leading the Committee to deny the AWE application, because their facility will exceed its noise limits on many winter nights. At a minimum, the Committee should require O'Neal to determine the number of nights with significant ducting from actual measurements, and redo his calculations with a realistic value of wintertime G.

Extended Argument

Site 301.14 (f) (2) (a) states "shall not exceed", and Site 301.18 (c) 3 states "Include predictions ..... for the wind speed and operating mode that would result in the worst case wind turbine sound emissions during the hours before 8:00 a.m. and after 8:00 p.m.". In order for that requirement to be fulfilled, AWE would have to have analyzed some real data to determine what meteorological situation would likely produce ducting, and the neighbors most often, and most seriously, affected.

Mr. O'Neal's limited understanding of the common meteorological term "ducting", underlined his aversion to facing the issue of the extreme effects of the common temperature inversions over a snow/ice surface on the long nights of winter in Antrim. He also had an aversion to acknowledging the sound reflecting properties of that underlying snow/ice surface, and the lack of deciduous foliage for sound absorption. These aversions allowed him to substantially (and mistakenly) reduce the area and the intensity of the broadcast of the turbine sounds to the neighbors. Ducting is a commonly known meteorological effect, an extreme case of sound propagation. O'Neal seemed unaware of it.

6 Pre-Construction Shadow Flicker

Error of Omission

Site 301.14 says the flicker analysis should cover all structures "within one mile of a wind energy project". However, in their deliberations the Committee ignored the repeated criticisms by Linowes of O'Neal's decision to deliberately reduce the hours of shadow flicker in his pre-construction model, by arbitrarily limiting his analysis to only those residence/turbine pairs which are within one mile of each other. This limitation, an outrageous perversion of the Rules, ignores the additional, and additive, effects of noise from other turbines. O'Neal's definitional change is obviously contrary to 301.14. The Committee never discussed the effect of, nor the obvious conclusion to be drawn from, O'Neal's

misdirection. In addition, in the SEC Order, V, F, 5, a (Sound), (b), page 149-154, the 137 pages of cross-examination by Ward on the meteorological testimony of Mr. O'Neal is nowhere to be found.

Unlawful Order

O'Neal's unsupported change reduces the number of hours of flicker of homes within one mile of the facility which were predicted to receive 8 hours or more of flicker. It also reduces the number of homes which would get 8 hours or more. It is hard to justify such a "mistake", other than as a deliberate attempt to "cook the books". The deliberate miscalculations should be sufficient to exclude ALL of Mr. O'Neal's testimony, either on the basis of deliberate falsifications, or sheer incompetence. The Committee chose to credit, rather than discard, O'Neal's testimony, and unlawfully approved the Application.

Proposed Factual Reasoning

By correcting the meteorological data, assumptions and calculations, the AWE model would show that the facility would violate the 8-hour limit for many more residences, and add many more hours at those residences which already exceed the limit.

Extended Argument

Site 301.14 (f) (2) (b) states "the shadow flicker created by the applicant's energy facility during operations shall not occur more than 8 hours per year at or within any residence...". There is no stated limit on the proximity of the residence to a turbine or anything else. By contrast, the information submitted to the SEC by AWE/O'Neal is restricted to ONLY those residence/turbine pairs which are within one mile of each other. Given the information in O'Neal's 17 February 2016 submission (e. g. Site 77-77, and others), it is obvious that the contribution to shadow flicker at just under one mile is very significant, demonstrating that his 1-mile cutoff was arbitrary, and that flicker from distances beyond 1-mile will add significantly to the total hours. He chose 1-mile based on no evidence, deliberately and illegally misleading the Committee as to the predicted hours of shadow flicker at residences both inside and outside the 1-mile limit. Such a selection, given the clarity of his own results at 1-mile, suggests a deliberate attempt to deceive the Committee. It is clear that these O'Neal data must be discarded. It might also suggest that his other comments, conclusions and data deserve similar treatment. After these data are discarded, there is no evidence remaining to support AWE's claim that the facility can meet the 8-hour requirement.

In addition to this fatal error, there was no recognition, discussion or evaluation by the Committee in their deliberations of serious internal inconsistencies and limitations in the pre-construction AWE model. These inconsistencies and limitations included, but are not limited to, the use of percent sunshine as a proxy for cloudiness, the error-ridden O'Neal 28 September 2016 response to the 20 September 2016 request by Ward for information on percent sunshine and its use in predicting shadow flicker, the lack of data to verify that the AWE model is even applicable to the calculation of shadow flicker, and the misuse of correlated meteorological data to correct for wind direction and cloudiness. Interestingly, in their post-hearing brief (p59), they repeat their misunderstood comments about percent sunshine which Ward had shown to be in error, and without acknowledging the error. The Order (p160) merely repeats earlier statements and misrepresents the facts. The O'Neal calculations do not yield the hours of shadow flicker. The statement on p161, 3rd line from bottom, represents a wish by someone on the committee. It is not a fact. The statement on p163, 5th line from bottom is also wrong. There was no evidence that it covered the worst case, and the condition imposed does nothing to alleviate it

7 Post-Construction Shadow Flicker

Error of Omission

No discussion or evaluation by the Committee in their deliberations of the serious inconsistencies in, and the lack of technical explanations of, the AWE post-construction proposal, SCADA/SFCS, for

monitoring and mitigating shadow flicker. There is not even an indication in the record of the Committee's deliberations that the Committee ever saw the late-filed (7 November 2016) AWE response to Ward's request of 29 September 2016, explaining the threshhold levels planned for SCADA/SFCS. This late-filed AWE response was the first, and still the only, AWE post-construction plan. The thresholds selected in these programs for solar brightness and shadow depth have apparently never been vetted. The threshold for solar brightness is absurd on its face, set at a level which is many times brighter than the threshold required for twilight vehicle operation without headlights, and the shadow depth threshold is set at a level at which shadows could not be ignored. Both these thresholds appear to have been selected to (erroneously) minimize the hours of shadow flicker.

Unlawful Order

The Committee mistakenly decided that AWE had a realistic proposal for determining, monitoring and mitigating post-construction shadow flicker, when in fact, AWE had none. This lack of understanding that the late-filed proposal was absurd on its face should have led to the denial of the AWE application.

Proposed Factual Reasoning

The monitoring of shadow flicker requires a determination of the threshhold for solar brightness and shadow depth, both of which were set in the 7 November 2016 AWE response, however with little or no technical justification. These thresholds are critical to the measurement and mitigation of shadow flicker and must be required prior to approval of the Application.

Extended Argument

The AWE proposal for post-construction monitoring of Shadow Flicker was unknown until AWE finally responded, on the last day of the hearings, to Ward's second request for the relevant information. As a result, this critical information was never discussed by the Intervenors, nor the Committee, either at a hearing, or during the deliberations by the Committee. This omission should be a sufficient reason for a rehearing, by the Committee. Additionally, the astronomical and meteorological information, which AWE proposes to use in their measurements and calculation of Shadow Flicker is incomplete, and its technical justification is suspect. Worse, the critical parameters appear to be based on an ex-post-facto selection of data designed to produce a pre-determined result.

The occurrence or non-occurrence of shadow flicker depends on two fundamental parameters, sufficient sunlight to create a shadow, and a sufficient diminution of that sunlight by the turbine blades to produce a noticeable shadow. The AWE post-construction monitoring model purports to calculate the reality of shadow flicker, using astronomical, topographical and sunlight/cloudiness measurements at the site. Their model, SFCS, would watch the sunbeams in real time, calculate whether the sun was bright enough to cast (recognizable) shadows, and determine whether the shadows so cast were dark enough to be noticed as "moving shadows". A daunting task, but computationally possible, IF. Two numbers need to be selected for entry into the model, the minimum solar brightness necessary to cast shadows, and the minimum depth of the shadow, to be seen as a shadow. We know of no accepted values for either of these two crucial numbers, and it was on the last day of the hearings that AWE responded to Ward's request for the genesis of these numbers. The AWE response to Wards request was disappointing, and was never recognized in the record, nor discussed by the Committee! THE SELECTION OF THESE NUMBERS COMPLETELY DETERMINES THE NUMBER OF HOURS OF SHADOW FLICKER. ALL OTHER CONSIDERATIONS PALE IN COMPARISON.

The SFCS model was presented in the AWE response of 7 November 2016 (last hearing day) to Ward's request of 29 September 2016, and was never considered by the committee. It defines the two critical parameters. The minimum luminance (sunlight) "is 323 lux, which is approximately the equivalent of low light conditions at sunrise and sunset". The contrast threshhold is the percentage reduction in the light that comes directly from the "shaded" sun. A 10% reduction is assumed to be the minimum required. "Flicker ceases to be provocative at luminance contrasts less than 10%". A luminance of 323

lux is quite bright, many times the luminance level at which car headlights are required. Shadows are easily visible at much lower luminance levels. As to contrast, a single flickering fluorescent in the rear of the PUC hearing room would have a contrast level near 3%, and be very annoying. On the basis of these two observations, the AWE selection of 323 lux and 10% are gross underestimates of the criteria required to "cast moving shadows" (Site 102.48), and lead directly to gross underestimates of the actual hours of Shadow Flicker.

The complete omission of the relevant testimony by the Meteorological Intervenors in the summaries by Mr. Clifford on 9 December 2016, and the total lack of corrections and additions by any member of the Committee, speaks volumes as to the Committee's understanding of these critical issues. Mr. Clifford claimed to summarize ALL the testimony on the turbine noise, shadow flicker, icing, and other meteorological factors which were discussed in detail in the hearings, and which were prominently mentioned in the filings. Instead Mr. Clifford merely repeated the testimony and filings of the AWE expert, which expert demonstrated both in his responses to Ward's questioning, and in his filings, his total ignorance of many meteorological factors. These conflicting factors should have been the subject for further discussion by the members of the Committee, and adjudicated properly. This omission of the disagreements with the O'Neal testimony, completely negates all of the Committee discussions, deliberations and judgments.

There are even more problems with the AWE proposal for post-construction monitoring of shadow flicker. The definition of shadow flicker in Site 102.48 is "alternating changes in light intensity ..... on the ground or on structures". And Site 301.08 (a) (2) states "to be perceived at each residence,,,,". The Site 301.14 (f) (2) (b) referred to by Clifford (D2, p7, deliberations) says "at or within any residence". There is no restriction, expressed or implied, against shadows that have bounced off a reflective surface. In winter in most Antrim homes, the brightest interior light comes from reflections off a bright snow/ice surface, not from direct sunshine. It was agreed in the Committee's discussion of the G factor that an ice surface almost completely reflects sound at low incidence angles. The very same is true for sunlight, which in the case of shadow flicker, is always at low incidence angles. This means that sunlight and shadows bouncing off an snow/ice surface, will also reflect both the sunlight and turbine shadow with little diminution. Such reflected shadow flicker will be equally as noticeable as the direct Shadow Flicker to which the AWE model is confined. It hardly needs stating that the ground surfaces in Antrim are coated with new snow and/or ice on 50-100 days in winter, substantially increasing the hours of Shadow Flicker. Again, when AWE and the Committee had opportunities to question Ward on this effect, they demurred. This omission is strong evidence of agreement, but this tacit agreement is nowhere to be found in the deliberations of the Committee. AWE used their post-hearing brief (p60) for a late response to Ward.

8 Solar Enlargement Shadow Flicker

Error of Omission

No recognition, discussion or evaluation by the Committee in their deliberations of the additional hours of shadow flicker which will result from the effects of high, thin clouds, in enlarging the apparent solar disk. Shadow flicker depends directly on the turbine blades crossing the APPARENT solar disk, making the number of hours of flicker directly proportional to the areal size of this disk. In meteorological conditions with high thin clouds, the sunshine is scattered as it passes through such clouds reducing the total sunlight coming through and scattering more of it among the ice crystals in the cloud. This results in the solar disk being diminished in brightness, but appearing larger in the sky. This enlargement of the solar disk can substantially increase the time it takes for the turbine blade to cross the disk, adding many hours to the total shadowing. High thin clouds are a common occurrence

and cannot be ignored in the computation of hours of flicker.
Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

These added hours will put many, and many more, residences over the 8-hour limit, requiring substantial mitigation and substantially decreased efficiency of the Facility, or denial of the application.

Proposed Factual Reasoning

AWE should have been required to consider, and include, Ward's additional hours of shadow flicker (Day 11, PM, and the MI brief of 18 November 2016) in their calculations. This exclusion should have been sufficient reason for the denial of the application.

Extended Argument

The overall question of shadow flicker was discussed in the testimony of Ward, cited above. In that testimony (not refuted, nor questioned either by AWE of the Committee), Ward stated that the SEC definition of Shadow Flicker will be met on many days when the solar disk is slightly obscured by high thin clouds. On such days, the clouds are sufficient to scatter sunlight, making the solar disk appear much larger, but somewhat diminished in intensity. This enlarged disk will offer the turbine blades substantially more minutes of Shadow Flicker. As Ward stated, this additional disk size, is not an uncommon phenomenon, and appears to have been ignored in the AWE calculation of the hours of shadow flicker. The additional hours of Shadow Flicker, when correctly calculated, will increase the hours of flicker at all the currently considered sites and add more affected sites to the list.
(Pictures of this enlarged solar disk appeared in Astronomy Magazine on page 18 of the February 2017 issue as well as on page 76 of the March 2017 issue of Sky and Telescope magazine)

Even if only peripherally required by the Rules to ensure the health and safety of the community (Deliberations, D2, PM, p7), referencing Site 310.08, the shadow from a gibbous to full moon will be very noticeable in winter, casting noticeable shadows from the turbine blades on all structures and snow surfaces, and causing very noticeable variations in light intensity inside bedrooms at night.

In the event that the Committee is reluctant to rehear these critical issues, and chooses to depend on post-construction monitoring and mitigation, it should require AWE to monitor flicker in real-time, and make available real-time electronic readouts to affected neighbors so that they may compare their real-world, real-time experiencing of moving shadows against the computer-generated data from AWE. The neighbors can choose to make videos, or collect other relevant data, and any such data must be evaluated by an independent, and qualified, third party. If this evaluation shows that the AWE computer-generated results are lower than the results from its neighbors, the facility must be shut down at all times of low solar elevation.

9 ERRORS IN O'NEAL REPLY TO WARD OF 28 September 2016

Error of Omission

There was no recognition, discussion or evaluation in the Committee deliberations of the gross errors in the 28 September 2016 AWE/O'Neal responses to Ward, and enumerated by Ward in his post hearing brief.
Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

The Committee unlawfully decided that the O'Neal testimony of the pre-construction hours of shadow flicker was correct and relevant, when it was neither. It should have denied the AWE application.

Proposed Factual Reasoning

The errors and misunderstandings revealed in the O'Neal testimony and in his response to Ward showed that O'Neal's model results totally miscalculated the frequency of shadow flicker, and should have required the Committee to deny the AWE application.

Extended Explanation

The Meteorological Intervenors requested information on the AWE use of "Percent possible sunshine" on 20 September 2016, receiving the AWE response on 28 September 2016. The AWE response from O'Neal showed that he did not understand what the "percent possible sunshine" measured.

10 ERRORS IN AWE RESPONSE TO WARD OF 7 NOVEMBER 2016

Error of Omission

The Committee accepted, without recognition or discussion, the late AWE response to Ward dated 7 November 2016, which response was the complete AWE proposal for post-construction monitoring of shadow flicker. This AWE response/proposal uses thresholds for the key parameters of solar brightness and shadow depth that are both unsupported, and unsupportable. Realistic thresholds would likely lead to a denial of the application.

Ward's criticism was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

The threshold selection appears to lead to a very serious undercount of the actual number of hours of flicker, appearing to have been selected to give selected results. These miscalculated results should have led the Committee to deny the AWE application.

Proposed Factual Reasoning

The actual thresholds need to be vetted, either by competent experiments or from independent studies, neither of which AWE has supplied. Without such vetting the AWE proposal is irrelevant, and should be denied.

Extended Explanation

Based on the incorrect answer to their request of 20 September 2016, the Meteorological Intervenors propounded an additional question on 29 September 2016, the response to which was received on the final day of the hearings, 7 November 2016. This was the first, and only, time that AWE produced an explanation of the parameters they plan to use in the post-construction monitoring of shadow flicker. AWE defined the threshhold levels for the brightness of the sun and the depth of the shadow necessary to produce a noticeable flicker. THESE THRESHHOLDS ARE UNBELIEVABLE! The solar brightness level and the shadow depth are set to eliminate a large fraction of the days that would qualify for flicker, leading to a gross underestimate of the hours of shadow flicker. It should be noted also that this method for defining shadow flicker is totally unrelated to the O'Neal (pre-construction) method referred to in the 28 September 2016 response to the Meteorological Intervenors. The conclusion to be drawn from these responses is that there is no viable plan for determining the post-construction shadow flicker, and the pre-construction model calculations are a dream, not a reality.

11 AWE Errors from Meteorological Ignorance

Error of Omission

There was no recognition or discussion in the Committee deliberations of the serious meteorological effects arising from the strong correlations between wind directions, wind speeds and other meteorological factors. Ignoring this correlation led to an erroneous increase in the correction (of the astronomical hours of shadow flicker) required to determine the meteorological hours of flicker, and thence to an erroneous decrease in the pre-construction calculation of the hours of shadow flicker.

Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order
The AWE model fails to account for the correlation between the two, and therefore undercounts the hours of flicker, falsely making the data appear to meet the SEC threshhold. The real correction would have led the Committee to deny the AWE application.
Proposed Factual Reasoning
A proper calculation of shadow flicker would put the hours of shadow flicker in many places over acceptable limits, leading to a denial of the AWE application. .
Extended Explanation
In Meteorology 101, students learn that the sun shines through clouds. Even on the cloudiest day, the ground temperature rises from the early morning to midday. This means some solar radiation hits the ground even on the cloudiest days, and more radiation gets through the thinner clouds. One obvious result is that an instrument set to measure sunshine will receive some sun, no matter the clouds, or how much of the sky is cloudy. This means that instruments that measure sunshine will not necessarily agree with instruments that measure cloudiness. The data from one of them cannot be added to the other (as O'Neal did in his 28 September response to Ward). Another Meteorology 101 fact is that the sun shining through thin clouds acquires a hazy outline from the reflections and refractions of the cloud particles. The solar disk spreads out, and the apparent disk size increases. This enlarged solar disk will necessarily allow for more hours of shadow flicker on some days, adding substantially more total hours of shadow flicker.

The second realization of students in Meteorology 101 is that almost all meteorological data are correlated with other meteorological data. This precludes treating such highly correlated data sets as if they were independent, as O'Neal does with the meteorological correction for the astronomically calculated sunshine data, assuming the wind direction and cloudiness are independent.

12 No Accounting for Reflection Shadow Flicker
Error of Omission
No recognition, discussion or evaluation by the Committee in their deliberations of the effects of ground reflections and ground shadows. The AWE model does not account for such reflections and shadows and leads to a serious undercount of the hours of flicker. The ground surface in Antrim for many months of winter, will be covered with bright, white snow, often with a smooth ice surface. In addition, the ground cover surrounding the Antrim site is mostly deciduous, without foliage for seven months of the year. As seen in a satellite picture from space, or as would be seen by an observer atop Tuttle Hill or Willard Mountain, this view shows very limited obstruction to either light or sound waves. The shadow flicker produced by shadows reflecting off bright and reflective surfaces will produce substantial, and very noticeable, and added, flicker.
Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).
Unlawful Order
The result of this gross oversight is to substantially underestimate the shadow flicker to the neighbors, increasing the actual hours of perceived flicker inside homes and with a resultant denial of the AWE application.
Proposed Factual Reasoning
The winter calculation of shadow flicker must use "winter" ground cover and assume "winter" surfaces, including reflections from reflective surfaces.
Extended Explanation
Nowhere in the deliberations did the Committee recognize or discuss the well-known winter effect of reflections from ice and snow. The Antrim area experiences 7 months of winter in the form of bare

deciduous vegetation. Antrim also has about 4 months with snow cover, and many days with an ice-coated snowpack. On some of these days, the shadow flicker will bounce right off this snow/ice coat and into neighbors windows, with little lost brightness. The reflected sunlight cast flashing lights all over the area

13 NO WORST-CASE ANALYSIS OF TURBINE NOISE

Error of Omission

No recognition, discussion or evaluation in the Committee deliberations of the requirements of Site 301.18 (c) (3) and Site 301.14 (f) (2) to conduct a "worst case" analysis of sound levels.
Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

The model noise results (ISO 9613-2) presented by O'Neal were for "moderate downwind conditions". The Committee members never acknowledged, nor did AWE point out, that this limitation excluded the "worst cases". Moreover, Ward (Day 11, PM, p197) pointed this out, and there was no cross-examination by AWE (p 223), and no questions from any member of the Committee (p223). They let stand Ward's assertion that "they (AWE) never did it (determine the worst case)". And Ward (p 197) "worse than that, they (AWE) never acknowledged that they didn't do it, ... or tried to find out what the meteorology was that would produce the worst case noise". This neglect led directly to the statements by member Clifford (Deliberations, Day 2, AM, p82) "they did assume worst case directions, wind speeds", and Clifford (Deliberations, Day 2, AM, p90) "sound assessment was prepared in accordance with professional standards". Both of these statements are at variance with the (silently assented to) statements of Ward, noted above, and totally ignore the blatant omission of the requirement stated in 301.18 (c) (3). There is no way that AWE can mitigate rapidly enough, if at all, without that information, and its omission (assented to by the silence of both AWE and the Committee members) is more than sufficient reason for denying the application.

Proposed Factual Reasoning

The Rules clearly state that a "worst case" analysis or a "shall not exceed" is required. AWE is required to do the proper analysis to demonstrate that they meet these requirements. The silent assent to Ward's testimony, by both the AWE attorney and the members of the Committee, required a denial of the AWE application.

Extended explanation

There are many references to the severe limitations on its application to the question of "not-to-exceed" in ISO 9613-2. A few examples are "the equations given in Clause 7 are the average for meteorological conditions within these limits" on page 3, "These equations also hold ... for average propagation" on page 3, and "Restricting attention to moderate downwind conditions of propagation.....limits the effect of variable meteorological conditions on attenuation to reasonable values" on page 13. Yet at some subliminal level, member Clifford, in his statement on Deliberations Day 2, AM, p82, said "They did assume worst case" acknowledged his MISunderstanding that O'Neal's results were, in fact, "worst case". The lack of any dispute by other members to that remark, showed rheir assent to Clifford's MISunderstanding. The AWE post-hearing brief (p 54) said "it allows for calculation of the theoretical 'worst case'". But the value of that worst case was never presented.

The only information of relevance to the often stated "not to exceed" requirement in the Rules is not the average results, but the extreme results. The worst case is not the average case, it is one of the non-average, or extreme, cases. Since O'Neal only dealt with the average cases, and his results were just short of the SEC limits, many/most of the non-average cases must be well over these limits.
Since these worst case will be of limited duration, and mostly late at night, what is a neighbor's

response when woken up? Does she call and then go back to sleep? The noise will often end by the time anyone at AWE even figures out how to mitigate.

14 NON-RECOGNITION OF MITIGATION ON EFFICIENCY

Error of Omission

There was no recognition, discussion or evaluation by the Committee in their deliberations of the operational effects, and the resulting derogation of the efficiency of the entire project, including its finances, from the proposed AWE mitigation procedures. All mitigation reduces efficiency, and the extended spin-up, spin-down times will be a large factor in their mitigation, and need to be addressed. The entire facility could be turned off, if necessary, so using mitigation as an all-purpose excuse is not sufficient, without an analysis of its frequency and effects. The Committee never asked for the spin-up and spin-down times.

Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

The sum of the derogation of efficiencies due to all the proposed mitigation procedures appears to be substantial. The timing of these mitigations will necessarily be at the times of maximum generation, resulting in measureable decreases in the overall efficiency of the facility. The SEC needs to require an analysis of all the proposed mitigations, and the effect of each, on the overall efficiency of the project, before approving the AWE application.

Proposed Factual Reasoning

The applicant must determine the total losses of output due to mitigation, and the extent to which such derogations of efficiency might lower the project efficiency below a viable level.

Extended Explanation

The Committee agreed to the AWE assertions that each and every possible violation of the "do not exceed" Rules could, and would, be mitigated by a slight modification of the operating procedures. However, these facile responses were never supported by an evaluation of the losses in efficiency from such mitigations. There was no evidence produced by the AWE agreement to idle one or more turbines due to excessive noise, no way to determine which turbine(s) violated its limits, the length of time required for the shutdown, no determination of the frequency of such shutdowns, etc. Moreover, a shutdown of a single turbine involves not just a few minutes, but must include the times for the turbine to spin down and to spin up. The Committee never asked for the relevant data. The net is that AWE presented no data as to the reduction in operating efficiency from all the necessary mitigations. There was also a paucity of data from AWE as to the actual methods to be implemented to track and verify the times for mitigation.

The mitigation processes are very different for flicker than for noise. Since most noise excesses will be of limited duration, mostly a few hours, responses to a "do not exceed", mitigation cannot wait for the excess to develop, it must be implemented on a forecast, but need not completely shut down a facility or a turbine. It can be ended on a forecast too. The mitigation must be ready to go before the noise exceeds its limits and must be implemented very rapidly. Mitigating sound must be immediate, requiring advance notice from an analysis of the expected meteorological worst case(s). Mitigating shadow flicker will require an extended spin-down, spin-up time, during which period the blades will still be flickering the sun.

15 NO CONSIDERATION OF OTHER HAZARDS

Error of Omission

No recognition, discussion or evaluation by the Committee in their deliberations of the effects of

shadow flicker and sun glint on the serious accident potential of drivers on adjacent roads. One of the criteria for acceptance of the AWE application is in 301.16 (j) under "public health and safety". Ward's evidence was undisputed by both the applicant and the Committee members, therefore it constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

The issues of the effects on public safety arise from the coincidence in the timing of shadow flicker, at dawn and sunset, with low sun angles, also at dawn and sunset. This combination would be particularly deadly on the eastbound sunrise traffic on Route 9 in Stoddard. It should require shutdowns during particular months of the year. AWE never acknowledged, nor did the members of the Committee acknowledge, by question or comment, that such a hazard existed. Such an oversight flaunts the requirement of 310,16 (j) and is reason for denial of the AWE application.

Proposed Factual Reasoning

This effect and its consequences must be calculated and evaluated prior to acceptance of the AWE application.

No Extended explanation

16 NO DETERMINATION OF ICE THROW LIMITS

Error of Omission

No objective evaluation by the Committee in their deliberations of the likely distance that ice sheets can be hurled from turbine blades, the tips of which move at 100 meters per second. This means that an ice sheet ejected at the top of the blade, 150 meters above the ground would cross the (250 meter) facility boundary in 2-3 seconds from ejection. The Committee blithely accepted the AWE assurance that no ice has been found beyond 200 meters from the blades. In addition, none of Ward's comments on the subject were considered, or quoted, in the final Order. Absence of evidence is not evidence of absence.

Unlawful Order

This unconcern for the effects of sheets of ice sailing downhill allowed the SEC to approve the AWE limits, when it should have led directly to a denial of the AWE application. .

Proposed Factual Reasoning

The applicant must conduct a comprehensive survey around a similar facility, and include a simultaneous meteorological study to determine the conditions under which such ice throw will likely occur and the preferential directions of throw. Any such study must then be adjusted for the larger turbine blades at AWE. Lacking this study, the committee must deny the AEW application.

Extended explanation

Every competent meteorologist knows that at sea level, icing is infrequent. He also knows that icing is very frequent atop 6000' Mt. Washington. But there are little data on the frequency of icing at the 2000' elevation of the AWE turbine blades. Was it ever measured on the Tuttle Hill met tower? That data would be relevant to these proceedings, but the Committee has never requested it be made available for study. Icing is interesting in that it will occur only under limited meteorological conditions, and its throwoff will occur under a different set of meteorological conditions. Both conditions will be very dependent on the wind direction. The shapes of these ice ejections will likely be thin sheets, potentially sailing long distances, DOWNHILL. AWE must know the shapes of the ejecta, and should know the preferential wind direction for accumulation and ejection. Any attempt to determine the frequency of ejection and the shapes of the ejecta should begin with a search downwind in the preferential direction. However, the assertions of AWE that there will be no ejecta more distant than 200 meters from the turbine, without some additional information, is unwise, and potentially dangerous. ABSENCE OF EVIDENCE IS NOT EVIDENCE OF ABSENCE!

17 FLASHING LIGHTS and THEIR EFFECTS

Error of Omission

The glib acceptance by the Committee (Deliberation Day 1 PM, p53) of the AWE proposal to use a radar program to limit the flashing lights at night, without any attempt to get the vital information on the total time, and/or times, during the night which will require lighting, including the flight paths around nearby airports, the altitudes at which these paths cross the Antrim area, and the effect of drones on initiating lighting, was breathtaking. In addition, there was no discussion of the health effects of such lights, nor of the health effects of repetitive occurrences of flashing lights in interrupting sleep. If continuous flashing lights are a problem sufficiently serious to require the radar system, then they must also be a problem during the intervals when they are ON during the night. These omissions made their discussion, and their acceptance of the AWE application, a violation of the Rules.

Unlawful Order

The substitution of any discussion of the flicker effect of the nighttime lighting on the turbines, by referring to the FAA approved radar detection system, allowed the Committee to overlook the serious possibility of repetitive and noticeable shadowing of bedroom windows. This shadowing, its frequency, and its seriousness could/should have led to a denial of the application.

Proposed Factual Reasoning

The Committee needs to require AWE to determine how noticeable this flicker will be, and if noticeable, add these flicker hours (to those regularly computed from low sun angles) in the determination of whether the facility meets the shadow flicker, 8-hour, threshhold. The Committee also needs to get the medical data on nighttime flickering, which could be substantially different from daytime flickering.

Extended Explanation

The Committee was misdirected by the applicant into agreeing that a radar-controlled system to allow the lighting to be turned off when aircraft are "near", "solves" the flashing light problems. It does not! And does "near" differentiate between height and horizontal distance? The Committee agreed to this system with no discussion or questions as to how often the lights would be left on, and how much of an effect the lights would have on their neighbors sleeping habits. When on, these lights are very bright, required by the FAA to be seen for many miles all around. Yet the Committee assumed, since there was a mitigation system in place, that during the "lights-on" times, all would be right with the world. The Committee could NOT make this assumption without an extended discussion and questioning of some basic information. This information had to begin, not end, by seriously determining whether the AWE facility was a "nuisance" when these bright, flashing lights were on. No one disputed that there was not a problem when off. But these bright, flashing lights will be seen from long distances and are bright enough to cast shadows on the structures, AND INTO THE BEDROOM WINDOWS of the dark neighborhood. The human eye detects a very wide range of brightnesses, over a factor exceeding a million! That it can detect color in the range of brightnesses between the sun and the moon, speaks eloquently as to this sensitivity. Anyone within miles of these lights will be aware of their existence. This flashing awareness on a bedroom window will be easily noticed, and be quite similar to a reverse shadow flicker, more than enough to awaken many sleepers. They may be off most of the night, but how many awakenings during the night are required to ruin a night's sleep???? In my stargazing at night, there are frequent flashing red lights from planes passing overhead. There was no evidence as to the height at which such planes will trigger the radar.

There is nothing in Appendix IV that describes the radar-controlled lighting system. There is one short paragraph in the Order, but that paragraph also does nothing to describe the system. There remains nothing to indicate how serious and how frequent these bursts of light will be. It is noteworthy however, that a simple look at the sky over Antrim shows lots of contrails from planes passing within a

few miles of Antrim, meaning that the Antrim skies are on frequently used flight paths, day and night. How far away can a plane activate the lights? How long will they stay on? At what height will a plane turn the lights on? These questions were never asked, discussed, or answered in the Hearings or Deliberations, and were flown by the Committee at supersonic speed, in their Order.

18 WHAT WOULD MAKE AN UNREASONABLE VISUAL EFFECT

Error of Omission

No recognition, discussion or evaluation by the Committee in their deliberations of the level at which the parameters which impact the visual effect of the facility rise to the level of being "unreasonable". Since the Committee approved the facility, they must have concluded that its size, location, prominent elevation, noise, flashing lights, etc., either singly or in combination, did not rise to the level of being unreasonable. That begs the question of how prominent would any one, or combination, have to be, to be "unreasonable". There was no discussion of the thresholds at which any single factor, or any combination thereof, needed to be exceeded. Lacking such determinations, it is impossible to agree to, or dispute, the Committee's subjective determination. Raphael's repeated failures to set such thresholds during his cross-examination by Ward constitutes the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

Ignoring the big picture led to the approval of a facility which dwarfs its landscape and overpowers passersby with its continual "look at me, look at me" by its big motions, big changes over time, loud noises and flashing lights. The data on advertising billboard assessment criteria presented by Ward (Ward pre-filed testimony, 21 May 2016, Reference (a)) were never acknowledged nor deliberated. The Committee's approval suggests that questions of how huge, how overpoweringly tall, how much motion, how much noise would be "unreasonable", are for the future, especially in light of the planned larger turbines. Such casual consideration cannot be the basis for a lawful approval.

Proposed Factual Reasoning

The Committee should first have acknowledged that 8 ½ x 11", still, silent, unchanging photographs of a facility which is huge, constantly in motion, noisy, with flashing lights, and presenting a different face every time it's observed, display only a tiny facet of its visual impact. The factors listed in Ward, above, required the Committee's acknowledgment and discussion prior to any approval.

Extended Explanation

Every meteorologist is trained to describe the salient features of the atmosphere around him. The order of descriptors, from important to negligible would be Size, Height, Direction and Speed of Motion, Flashing Lights, Noise, Rapidity of Change, and maybe its Brightness and Color. The fraction of the view across which the facility is spread, its lights and noise are all considered in the construction and placement of outdoor billboards. Billboards are the ultimate, and most relevant, substitute for the projected facility presented to the Committee. An instruction manual was presented to the Committee by Ward, which directed billboard assessors to evaluate all these same characteristics. It was ignored, without discussion. Such discussion, had it occurred, would have driven home the enormous visual impact of a facility which extends miles along an elevated, and isolated horizon, is in constant motion, shows ever changing faces to its viewers, makes noise, has flashing lights, etc. Comparing its visual impact to the present pristine hillside requires acknowledgment of all these characteristics. Not one of them can be gleaned from an 8 ½ x 11" still photograph.

In the face of all this reasonableness, it is fair to ask, what singly, or combination of these sensory effects, would be judged unreasonable? Would larger blades do the job, a site on Mt. Monadnock, a blazing billboard with flashing images, or a big band music revue? Larger blades are on the horizon, is there any limit? There are only a limited number of high ridges in New Hampshire, and any serious

contribution by wind energy will require using all of them. The Committee needs to state what limits they deem reasonable if a huge, noisy, prominent lighted facility is not!

Since the Committee has determined that impact of the present proposal is not unreasonable, it's appropriate to ask what changes would make it unreasonable.
Would a longer facility, stretching 5-10 miles along the ridge be unreasonable?
Would turbines 1000 feet in diameter be unreasonable?
Would a more isolated and elevated site such as Mt. Monadnock have an unreasonable visual impact?
Would louder noise issuing from the proposed facility make an unreasonable impact?
Would brighter flashing lights be an added "attraction?"
Did the Committee ever ask about what would trigger the flashing lights? Would the direction of the plane with respect to the facility matter? How high does the plane need to be to avoid such triggering? What about drones. etc?
How much do noise, flashing lights and motions exacerbate its visual impact?
We'll never know, because in the long discussions of visual impact, the Committee never put a limit on the size, noise, light, etc that they would have considered unreasonable.

The comment on page 116 0f the Order, completely misrepresents Ward's position and testimony. It also omits the bases for his testimony, and his critical cross-examination of AWE witness Raphael.

19 IGNORING NIGHTTIME VISUAL IMPACT

Error of Omission

The Committee, in their deliberations of visual impact, did not consider the visual impact of the facility during the nighttime hours, even if the facility had a radar-activated lighting system (ADLS). The Committee assumed (without evidence or deliberation) that there is not enough light to see the facility. This was a gross error! (Deliberations Day 1, PM, p53-60).

Unlawful Order

These oversights by the applicant and the members of the committee required additional discussion by the Committee. The nighttime visual impact is not zero! It cannot be ignored! A strong case can be made, but wasn't, that the markedly increased visual sensitivity, and the lowered ambient sound levels at night, exacerbate the visual impact of a facility which is always partially lit by skyglow, moonlight, and flashing lights, and moves and makes noise. The nighttime visual impact must be evaluated prior to any approval of this facility, which incidentally will increase in the number of hours of shadow flicker.

Proposed Factual Reasoning

The nighttime visual impact of this facility must be a major factor in its approval and requires extended discussion prior to approval. The shadow flicker from the wintertime full moon will add significant hours of noticeable shadow flicker.

Extended explanation

The inclusion of ADLS merely reduces one obvious nighttime visual impact of this huge facility, but by no means all. The Committee's conclusion would have been faulty even if there were no flashing lights on the facility. The facility will be prominently visible at night due to moonlight, which moonlight will be a factor on at least 25% of the nighttime hours. In addition, in the winter months, when the full moon is high in the sky, the week around full moon, especially with snow cover, the facility will present a very strong visual face, and the moon will cause substantial shadow flicker when rising and setting. Flashing lights add a strong, and very different impact. These two effects could have led the Committee to conclude that the nighttime Visual Impact would have been MORE serious than the daytime one. And the 7-month lack of foliage allows an impressive view. The comment noted above is

simply erroneous and allowed the Committee to completely overlook this issue.

The rapidity with which the Committee agreed to the radar system, without the key details of the system, including the frequency with which these lightings are likely to occur, is irresponsible. Is there really any difference in constant nighttime flickering, and "only" a dozen flickerings during the night? A further Omission by the Committee, but which would be very much on the minds of any nighttime visitor to Lempster, is the brightness of these flickering lights. At night the human eye becomes extremely sensitive, especially when sleeping. Lempster-type lights will cast a (reverse) flicker on the windows of many neighbors. A light/dark/light flicker in daytime will be replaced by a dark/light/dark flicker at night, equally annoying.

20 TIPPING the SCALES of JUSTICE

Errors of Omission

Little recognition, discussion or evaluation by the Committee in their hearings and deliberations of the many pieces of evidence presented by the Meteorological Intervenors, which evidence directly contradicts testimony and evidence presented by AWE witnesses, principally Mr. O'Neal. The Committee never weighed, nor chose between, the contradictory evidence. It simply overlooked the Meteorological Intervenors' evidence and testimony. This is in violation of the Committee's Rules of Procedure. This evidence covered noise, shadow flicker, icing, and other potential problems. By overlooking these criticisms, and deferring to O'Neal's (questionable) competence in every dispute, the committee never took the opportunity to vet O'Neal's assertions.

Ward's criticisms were undisputed by both the applicant and the Committee members, and therefore constitute the preponderance of evidence under Site 202.19 (a) and (b).

Unlawful Order

Ignoring the meteorological evidence presented by the Meteorological Intervenors, both written and oral, allowed the Committee to approve the AWE application, despite its failure to meet many standards set in the Rules. Serious consideration of Ward's fundamental criticisms of O'Neal's testimony and data should have constrained discussion of O'Neal's testimony, and should have totally changed the deliberations by the Committee. The final Order was merely a repetition of wrong evidence, with large, and unexplained gaps.

Proposed Factual Reasoning

The meteorological evidence showed that the AWE proposal failed to meet many of the requirements in the SEC Rules, and the application should have been denied.

Extended Explanation

The Meteorological Intervenors have over two centuries of professional experience, and participated pro bono. In view of the many errors and misunderstandings by O'Neal, the Committee's strong preference for O'Neal is difficult to understand, and raises many questions. The AWE responses of 29 September and 7 November 2016 to Ward's requests for information demonstrated that O'Neal did not know how percent sunshine was calculated, and the second AWE response was a 100% change from the first, despite it being the only AWE description of their post-construction plans.

One of the more interesting "omissions" was the lack of cross-examination of Ward by AWE counsel, particularly its omission of responses to Ward's criticism of O'Neal's testimony, particularly on shadow flicker and noise. This lack of cross-examination by AWE counsel, and the absence of rebuttal testimony by AWE, must be considered as acceptance of Ward's testimony. In addition, the lack of any questioning by the members of the Committee must be understood as their acceptance of Ward's criticisms. This lack of responses by both AWE and the committee is equivalent to dispositive acceptance of Ward's conflicting testimony. In addition, the Committee never acknowledged the

meteorological data presented by Ward, which showed O'Neal's primitive, and inaccurate, knowledge of the weather data he used in his models.

The total lack of discussion of Ward's fundamental criticisms of O'Neal, and the acceptance of O'Neal's analyses and conclusions, without consideration of Ward's refutations, flies in the face of the Committee's obligations as stated in the many "shall consider" and "shall apply" in the Rules of Procedure. It even goes beyond the weight of evidence. The record shows that the Committee ignored the evidence submitted by Ward, whether Ward was right or wrong. If Ward was correct, the record shows that the pre- and post-construction noise levels will exceed the 40/45 Db levels on many nights of the year, and the shadow flicker will substantially exceed the 8-hour limits at the receptors O'Neal studied, and at many additional receptors,. The icing will pose a continuing risk to life and limb for the neighbors, hikers and visitors.

Dr. Richard Hendl
Dr. Joseph D'Aleo
Mr. Robert Copeland
Mr. Bruce Schwoegler
Dr. Fred Ward

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MIDDLETON

April 5, 2017

VIA ELECTRONIC MAIL & HAND-DELIVERY

New Hampshire Site Evaluation Committee
Pamela G. Monroe, Administrator
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: NH Site Evaluation Committee Docket No. 2015-02:
Application of Antrim Wind Energy, LLC – Objection to Meteorological Group's Motion for Rehearing

Dear Ms. Monroe:

Please find enclosed for filing in the above-captioned matter, an original and one copy of Applicant's Objection to the Meteorological Group's Motion for Rehearing.

We have provided members of the distribution list with electronic copies of this Objection, pending addition of the document to the Committee's website.

Please contact me directly should you have any questions.

Very truly yours,

Rebecca Walkley

Rebecca S. Walkley

RS3:

Enclosure

cc: Distribution List

THE STATE OF NEW HAMPSHIRE

SITE EVALUATION COMMITTEE

Docket No. 2015–02

APPLICATION OF ANTRIM WIND ENERGY, LLC FOR A CERTIFICATE OF SITE AND FACILITY

APPLICANT ANTRIM WIND ENERGY, LLC OBJECTION TO THE METEOROGICAL INTERVENOR'S MOTION FOR REHEARING

Antrim Wind Energy, LLC ("AWE" or the "Applicant") by and through its attorneys, McLane Middleton, Professional Association, respectfully submits this Objection to Meteorological Intervenor's Motion for Rehearing (the "Motion") and respectfully requests that the Committee deny the Motion because it fails to set forth good cause for a rehearing. Specifically, it does not raise any issue that was overlooked or mistakenly conceived by the Committee in its Decision and Order Granting Application for Certificate of Site and Facility nor does the Motion present any new evidence that was not before the Committee during the adjudicative hearing.

I. Background

On October 2, 2015, the Applicant filed an application with the New Hampshire Site Evaluation Committee ("SEC" or the "Committee") for a Certificate of Site and Facility to construct and operate a 28.8 MW electric generation facility consisting of nine Siemens SWT-3.2-113 direct drive wind turbines in Antrim, New Hampshire (the "Project"). The Committee accepted the application on December 1, 2015.

The Committee presided over thirteen days of adjudicative hearings, during which time the Committee heard from 15 witnesses proffered by the Applicant as well as nine intervenor groups, and Counsel for the Public's visual expert. In total the Subcommittee received 220

exhibits as well as receiving oral and written statements from interested members of the public. Upon completion of the adjudicative hearing, and after closing the record pursuant to Site 202.26, the Committee began deliberations.

The Committee deliberated on December 7, 9, and 12, 2016. During the deliberations, as the transcripts illustrate, the Committee reviewed the complete record including affirmative testimony provided by the Applicant as well as rebuttal or opposing testimony provided by all the intervenor groups, including the Meteorological Group. On March 17, 2017 the Committee issued its Decision and Order Granting Application for a Certificate of Site and Facility and Order and Certificate of Site and Facility with Conditions. The Committee's Decision, which addressed each and every concern raised by the Meteorological Intervenors during the Adjudicative hearing, was well-reasoned, and thoroughly supported by the comprehensive record.

On March 25, 2017, the Meteorological Intervenors filed a Motion for Rehearing, outlining the same arguments raised and addressed during the adjudicative hearing. The Motion fails to meet the standard required to grant a motion for rehearing and ignores the extensive record in this docket and thorough deliberations undertaken by the Committee.

II. The Motion Fails to Identify Any Issue That Was Overlooked or Mistakenly Conceived by the Committee and Does Not Introduce Any New Evidence That Was Not Before the Committee During the Adjudicative Hearings.

The purpose of a rehearing "is to direct attention to matters said to have been overlooked or mistakenly conceived in the original decision, and thus invites reconsideration upon the record upon which that decision rested." *Dumais v. State of New Hampshire Pers. Comm.*, 118 N.H. 309, 311 (1978). RSA 541:3 provides that the commission "may grant such rehearing if in its opinion good reason therefor is stated in said motion." The Committee may grant rehearing or

reconsideration for "good reason" if the moving party shows that an order is unlawful or unreasonable. RSA 541:3, RSA 541:4; *Rural Telephone Companies,* N.H. PUC Order No. 25,291 (Nov. 21, 2011). A successful motion must establish "good reason" by showing that there are matters the Commission "overlooked or mistakenly conceived in the original decision," *Dumais*, 118. N.H. at 311; or by presenting new evidence that was "unavailable prior to the issuance of the underlying decision." *Hollis Telephone Inc.*, N.H. PUC Order No. 25,088 at 14 (April 2, 2010). A "good reason" for rehearing is not established where, as here, the movant merely restates prior arguments and asks for a different outcome. *Public Service Co. of N.H.*, N.H. PUC Order No. 25,676 at 3 (June 12, 2014). A motion for rehearing must be denied where no "good reason" or "good cause" had been demonstrated. *O'Loughlin v. State of New Hampshire Pers. Comm.*, 117 N.H. 999, 1004 (1977); *Order on Pending Motions*, Docket 2012-01, Application of Antrim Wind, at 3 (Sept. 10, 2013).

The Motion should be denied because it fails to identify how any finding made by the Committee is unlawful or unreasonable, it fails to identify any issue that was overlooked or mistakenly conceived by the Committee, and it fails to identify any new evidence that was not available during the adjudicative hearing. The Motion simply rehashes all of the arguments previously made by the Meteorological Intervenors in their pre-filed testimony and during the adjudicative hearing. The Committee correctly determined that the Applicants met their burden of proof pursuant to Site 202.19, and established by a preponderance of the evidence that it satisfied all of the requirements of RSA 162-H:16 to receive a Certificate of Site and Facility.

A. Noise

The Committee recently adopted specific rules relating to the assessment of noise for proposed wind facilities, ostensibly in part, to reduce litigation on this issue. The Applicants

submitted a comprehensive Sound Level Assessment Report that evaluated both existing sound levels and the predicted noise levels associated with this Project, consistent with the rules. *See Application*, App. Exh. 33, Appendix 13A; *see also Supplement to Application re: New Rules*, App. Exh. 34, Attachment 9. The Applicant also submitted extensive expert testimony from Robert O'Neal demonstrating that Epsilon complied with and followed all requirements and standards set out in the SEC rules.

Dr. Ward's assertion that the Committee was "reluctant to hear contradictory evidence," *Motion*, at p. 3, is contrary to the clear record in this docket. The Committee heard several hours of Dr. Ward's cross examination of Mr. O'Neal's testimony on issues relating to noise and shadow flicker, in addition to cross examination and testimony by several other parties on the issue. *See Tr. Day 3/Afternoon Session*, at p. 91-167; *Tr. Day 4/Morning Session*, at p. 7-66. In addition, Dr. Ward ignores the lengthy transcript from the Committee's Deliberations in which opposing views are discussed at length, including the same concerns Dr. Ward again raises in the Motion. *See* Deliberation, Tr. Day 2 Morning Session, p. 80 – 128 (The Committee discussed extensively, among other concerns raised during the proceeding, the G-factor as well as making specific reference to "testimony from Mr. Ward about ducting and whether there could be ducting, [and] whether they're weak or large temperature inversions.")

Epsilon modeled the predicted sound levels associated with the operation of the Project for 344 potentially sound-sensitive structures within 2 miles from the proposed Project as required pursuant to Site 301.18(c)(3). S*ee Supplement to Application re: New Rules*, App. Exh. 34, Attachment 9, p. 7-3. The Sound Assessment predicted sound levels using the Cadna/A noise calculation software that employs the ISO 9613-2 international standard for sound propagation as required under the SEC's rules. *See* Site 301.18(c)(1). The software performs

highly refined computations that consider the effects of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. S*ee Supplement to Application re: New Rules*, App. Exh. 34, Attachment 9, p. 7-2. Consistent with the ISO 9613-2 standard, the model assumes favorable conditions for sound propagation, which corresponds to a moderate, well-developed ground-based temperature inversion. S*ee Supplement to Application re: New Rules*, App. Exh. 34, Attachment 9, p. 7-4. The model also includes the highly conservative assumption that each receptor is always located directly downwind from every turbine simultaneously. S*ee Supplement to Application re: New Rules*, App. Exh. 34, Attachment 9, p. 7-4; *see also Robert O'Neal Prefiled Testimony,* App. Exh. 6, p. 5. This hypothetical assumption allows for calculation of the theoretical "worst case" as required pursuant to the SEC's rules. Site 301.18(c)(3).

Dr. Ward and other intervenor groups, Counsel for the Public, and the Committee conducted an extensive cross-examination of Mr. O'Neal. During the course of this cross examination, Dr. Ward raised the issues reiterated in the Motion. While Dr. Ward stated during the adjudicative hearing, and now reasserts in the Motion, that he has concerns with the ISO 9613-2 standard, it is undisputed that the SEC Rules require the use of this model, nor is it in dispute that Mr. O'Neal employed this model in his evaluation of the Project. The model requires certain limited inputs to be determined and applied by the expert and the specification of how these inputs should be determined are not expressly defined by the SEC Rules and instead are left to professional judgment. The Subcommittee properly found, based on the evidence presented, that the sound report was prepared in accordance with professional standards and with the administrative rules. *Decision and Order*, at 153.

Throughout the proceeding, several parties cross-examined Mr. O'Neal regarding his use of a 0.5 ground attenuation factor or G-factor. Dr. Ward again rehashes these same arguments in the Motion without providing any new evidence that was not presented to, and considered by the Committee during the hearing. Mr. O'Neal, based on his professional judgment and substantial experience, chose to use a conservative assumption in using a G-factor of 0.5, which reflects an assumption that the ground surface within the project area is partly reflective and partly porous. S*ee Robert O'Neal Supplemental Testimony,* App. Exh. 13, p. 6-7. The Committee reached its conclusion based on a careful review of the full record and ultimately agreed with Mr. O'Neal that "the G factor of .5 seemed to be reasonable." *Deliberations Day 2/Morning Session*, at p. 98-99. The Committee discussed the testimony provided in opposition to Mr. O'Neal's use of a G-factor of 0.5, but ultimately concluded that this professional decision made sense given the circumstances in this docket.

The Motion fails to satisfy the statutory requirements for rehearing. The Meteorological Intervenors simply re-state their prior arguments without providing any information indicating that good cause exists for rehearing. The Motion does not identify any error of fact, reasoning or law. Rather, the Motion simply outlines a disagreement with the conclusion reached by the Committee.

B. Shadow Flicker

The Motion fails to consider the comprehensive rules and limits the Committee has adopted relating to shadow flicker. The Motion does not identify any evidence that was not already presented to and evaluated by the Committee during the course of the adjudicative hearings. The mere fact that the Committee disagreed with Dr. Ward's conclusions regarding the calculation of shadow flicker does not equate to an error of reasoning. Dr. Ward's

unsubstantiated claims do not provide any new information that the Committee did not already have the opportunity to consider and evaluate.

The Applicant conducted a shadow flicker study using *WindPRO* version 3.0.639 software ("WindPro"). *Supplement to Application re: New Rules*, App. Exh. 34, Attachment 6, p. 4-1. WindPro is a widely accepted software modeling package developed specifically for the design and evaluation of wind power projects. Contrary to Dr. Ward's assertions, the Applicant calculated two different measurements; the worst-case or astronomical maximum calculation and the expected shadow flicker. The worst-case calculation assumes that the sun is always shining during the day and that the wind turbine is always operating. *Supplement to Application re: New Rules*, App. Exh. 34, Attachment 6, p. 4-1. Sunshine probabilities, obtained from the National Climatic Data Center, and expected wind turbine operational data are then incorporated into the model to calculate the expected shadow flicker. *Supplement to Application re: New Rules*, App. Exh. 34, Attachment 6, p. 4-1.

Dr. Ward asserts, without providing any basis, that the hours of shadow flicker will be greater than those predicted by the Applicant. Dr. Ward had ample opportunity to question the Applicant's model and the record already contains the same arguments outlined in the Motion. Contrary to Dr. Ward's claims, the expected shadow flicker modeling used by Mr. O'Neal is conservative as it assumes a "greenhouse" mode, with windows facing all directions. *Supplement to Application re: New Rules*, App. Exh. 34, Attachment 6, p. 4-1; *see also Robert O'Neal Prefiled Testimony*, App. Exh. 6, p. 15. The model also does not consider structures and vegetation that could screen the receptors and reduce expected shadow flicker. *Supplement to Application re: New Rules*, App. Exh. 34, Attachment 6, p. 6-1. There was extensive cross-examination of Mr. O'Neal on his testimony and report regarding shadow flicker. *See Tr. Day*

3/Afternoon Session, p. 141-167; *Tr. Day 4/Morning Session*, p. 7-46. Intervening parties, including Dr. Ward, had a full and complete opportunity to present their case. The positions articulated in the Motion have already been presented to the Committee for their consideration. The Committee is entitled to evaluate the evidence presented and give it the weight it feels is appropriate. The fact that Dr. Ward disagrees with the Committee's conclusions does not provide sufficient grounds to grant a rehearing.

C. Public Health & Safety

The Applicants demonstrated through the testimony of several witnesses, with extensive experience working with wind facilities, that the construction and operation of the Project will not have an unreasonable adverse effect on public health and safety. In addition to noise and shadow flicker, the Applicant also evaluated the potential effect from ice throw.

The proposed Siemens turbines are equipped with numerous system that monitor for ice buildup that could lead to potentially hazardous conditions. *See Jack Kenworthy Supplemental Testimony*, App. Exh. 24, p. 27; *see also Application*, App. Exh. 33, Section 1.6.b. These systems will automatically shut down an affected turbine under a range of icing conditions. *Tr. Day 2/Afternoon Session*, at p. 26. Siemens has over 1,050 of the exact turbine model proposed for this Project installed globally. *Tr. Day 2/Afternoon Session*, at p. 28. Mr. Marcucci, from Siemens, testified that he is "not aware of any situation where ice throw has caused injury or damage to property or people." *Tr. Day 2/Afternoon Session*, at p. 29. Further, Mr. Stovall testified that while 67,000 turbines are located in conditions where icing can occur, "there have been no reported or documented injuries." *Tr. Day 2/Morning Session*, at p. 147. Thus, the evidence indicates that risks from ice throw are extraordinary small. While Dr. Ward contends that this information is "absence of evidence," in fact, Mr. Stovall's extensive experience and

testimony provides concrete evidence that the conditions suggested by Dr. Ward do not and will not occur.

Dr. Ward presents unsubstantiated, speculative statements in the Motion suggesting that no objective evaluation was completed by the Committee in their deliberations of the likely distance of ice throw. *Motion*, at p. 15. Dr. Ward's argument does not reflect the thorough deliberations and evaluation completed by the Committee. *Deliberations, Day 2 Afternoon*, at p. 65-74. The Committee clearly considered opposing evidence, including reference to cross examination by Ms. Linowes. Ultimately the Committee concluded that based on "information provided by the Applicant [] ice throw is not a risk." *Deliberations Day 2 Afternoon Session*, at p. 72. While the Committee found "the information provided by the Applicant [to be] the most credible evidence," *Decision and Order*, at p. 156, this does not suggest the Committee did not consider other evidence presented, including the same positions restated in the Motion.

In addition to ice throw, Dr. Ward also asserts, without any reference to the record, that the Committee improperly failed to address safety concerns associated with the use of radar lighting. Dr. Ward's assertion that it is the responsibility of the Committee to independently seek out and evaluate evidence to contradict or refute affirmative evidence provided by the Applicant suggests a failure to understand the adjudicative process. Dr. Ward states that the Committee failed to get "vital information on the total time, and/or times, during the night which will require lighting." *Motion*, at p. 16. Dr. Ward had ample opportunity to cross examine the Applicant's witnesses and failed to adequately raise this concern. After extensive discussion on the use of radar activated lighting, the Committee concluded that this was an appropriate form of mitigation. Dr. Ward has failed to provide any evidence not already presented to support his

assertion that the use of a radar activated lighting system will adversely affect public health and safety.

D. Aesthetics

The Committee heard several days of testimony from the Applicant's expert David Raphael, Counsel for the Public's expert, Kellie Connelly, and from numerous intervenors on the issue of aesthetics. The deliberations were thorough and comprehensive and took into consideration the specific criteria outlined in the newly adopted SEC rules. *See* Site 301.14(a)(1)-(7). Dr. Ward has not provided any basis in the Motion to suggest that the Committee failed to adequately consider the evidence presented and reach a well-reasoned determination. In fact, the Motion is devoid of any reference to the deliberation or adjudicative hearing transcripts regarding the issue of aesthetics.

The Applicant engaged David Raphael from LandWorks to conduct a visual assessment of the Project and to prepare a VA. Mr. Raphael has been a landscape architect and planner, in both the public and private sector, since 1976. *David Raphael Pre-Filed Testimony*, App. Exh. 9, Attachment DR-1. LandWorks has used the methodology employed in conducting the VA for this Project over "a half a dozen times, in a number of different projects, and including wind projects in Maine." *Tr. Day 6/Morning Session*, at p. 118. LandWorks performed a comprehensive assessment of scenic resources within the project area using a wide range of sources. They also spent a significant amount of time visiting many of the 290 resources initially identified in order to get a sense for the region as a whole, the significance of these scenic resources within the context of the region, and the extent, nature and duration of public use of these resources, as required by the SEC rules. *LandWorks Visual Assessment*, App. Exh. 33, Appendix 9a, p. 2. LandWorks ultimately concluded that given the limited visibility of this

Project, the Project, in relation to the existing character of the landscape and resources, is not dominant and from a holistic landscape perspective will not be an overly significant or dominant feature in the landscape. *David Raphael Prefiled Testimony*, App. Exh. 9, p. 14.

During the adjudicative hearings, Dr. Ward did not purport to be an expert on visual impact. While the Committee did spend a significant amount of time during the deliberations evaluating the views presented in visual simulations, the Committee also considered all other aspects of the testimony presented both by the Applicant as well as by other parties to the proceeding. The Committee's final Order reflect this thorough review of the record. *See Deliberations Day 1 Afternoon*, at p. 4-141. It is unclear from the Motion what aesthetics issues Dr. Ward believes the Committee overlooked or mistakenly conceived. What is clear is that the Motion fails to identify any new evidence not already before the Committee that could not have been introduced during the proceeding and therefore, the Motion should be denied.

E. Mitigation

The Motion asserts that the Committee improperly failed to take into account the effect that mitigation of potential noise or shadow flicker exceedances may have on the efficiency of the Project. In fact, this concern was raised and addressed during the course of the proceedings. Dr. Ward specifically asked the Applicant about these same concerns. The Committee heard testimony from Mr. Weitzner that the Applicant has a very good idea of what the cost will be to curtail the project in order to comply with noise and shadow flicker requirements and that there is no "situation where the curtailment that [the Applicant] might need to do for sound or shadow flicker could have any kind of material financial impact on this Project." *Tr. Day 1/Morning Session*, at p. 100-02. Because Dr. Ward merely ask the Committee to reach a different

conclusion on this issue based on the same record evidence and fails to point to new evidence that could not have been introduced during the proceeding, the Motion should be rejected.

III. Conclusion

Based on the foregoing, the Meteorological Intervenors have not met the standard for a rehearing pursuant to RSA 541:3. The record in this docket is extensive and the Committee's deliberations and final Order reflect a thorough review. The Meteorological Intervenors have failed to present any issue that the Committee has overlooked or mistakenly conceived. Moreover, the Motion fails to articulate any new evidence that was not before the Committee during the adjudicative hearings. Because the Motion merely asks that the Committee reach a different conclusion on the same evidence it should be denied.

WHEREFORE, the Applicants respectfully request that the Committee:

A. Deny the motion for rehearing; and

B. Grant such further relief as requested herein and as deemed appropriate.

Respectfully submitted,

McLANE MIDDLETON,
PROFESSIONAL ASSOCIATION

Dated: April 5, 2017

By: Rebecca Walkley for

Barry Needleman, Bar No. 9446
Rebecca S. Walkley, Bar No. 266258
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Certificate of Service

I hereby certify that on the 5th of April 2016, an original and one copy of the foregoing Objection to Motion for Rehearing were hand-delivered to the New Hampshire Site Evaluation Committee and an electronic copy was served upon the SEC Distribution List.

Rebecca Walkley

Rebecca Walkley

DTC Lawyers
Dedicated to Clients

CELEBRATING OVER 30 YEARS OF SERVICE TO OUR CLIENTS

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Please respond to our Exeter office

April 14, 2017

New Hampshire Site Evaluation Committee
Pamela G. Monroe, Administrator
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: Antrim Wind Energy, LLC
Docket No. 2015-02

Good Afternoon Ms. Monroe:

Enclosed please find for filing in the above referenced matter, a Joint Motion for Rehearing of the Abutting Landowners Group, Non-Abutting Landowners Group, The Levesque-Allen Group, The Stoddard Conservation Commission, and The Windaction Group.

Please let me know if you have any questions.

Very truly yours,
DONAHUE, TUCKER & CIANDELLA, PLLC

Eric A. Maher, Esq.
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Enclosure
cc: Client (via email)
Distribution List, Docket No. 2015-02 (via email)

THE STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

Docket No. 2015-02

APPLICATION OF ANTRIM WIND ENERGY, LLC
FOR A CERTIFICATE OF SITE AND FACILITY

JOINT MOTION FOR REHEARING OF THE ABUTTING LANDOWNERS GROUP, NON-ABUTTING LANDOWNERS GROUP, THE LEVESQUE-ALLEN GROUP, THE STODDARD CONSERVATION COMMISSION, AND THE WINDACTION GROUP,

NOW COME, Janice Longgood, Bruce and Barbara Berwick, and Mark and Brenda Schaefer on behalf of the Abutting Landowners Group, Richard and Loranne Block, Annie Law, Robert Cleland, Jill Fish, and Kenneth Henninger on behalf of the Non-Abutting Landowners Group, Mary Allen on behalf of the Levesque-Allen Group, Geoffrey Jones on behalf of the Stoddard Conservation Commission, and Lisa Linowes on behalf of the Windaction Group, (collectively "the Opposing Intervenors") and hereby move this Subcommittee of the Site Evaluation Committee (hereinafter "the Subcommittee") to grant a rehearing with regard to its Decision and Order Granting Application for Certificate of Site and Facility (hereinafter "Antrim II Decision") dated March 17, 2017. In support thereof the Opposing Intervenors state as follows:

I. FACTUAL AND PROCEDURAL BACKGROUND

1. On January 31, 2012, Antrim Wind Energy, LLC (hereinafter "the Applicant") filed an Application for Site and Facility with the Site Evaluation Committee ("the Committee"), seeking authorization to construct ten wind turbines along the ridgeline of Tuttle Hill in the Town of Antrim, New Hampshire (hereinafter "the 2012 Application"), said case having Docket No. 2012-01 (hereinafter "Antrim I").

2. On April 25, 2013, the Committee denied the 2012 Application in a 71 page decision, following 11 days of hearings on the merits and 3 days of deliberations, wherein it that the proposed project would have an adverse aesthetic impact upon the area, including "significant qualitative impacts upon Willard Pond, Bald Mountain, Goodhue Hill, and Gregg Lake." See Antrim I, Decision and Order Denying Application for Certificate of Site and Facility at *50 (issued April 25, 2013) (hereinafter "Antrim I Decision").

3. On October 2, 2015, the Applicant filed another Application for a Certificate of Site and Facility (hereinafter "the Application"), in which it sought to install 9 wind turbines and a meteorology tower along the ridgeline of Tuttle Hill in the Town of Antrim, New Hampshire (hereinafter "the Project").

4. As set forth in the Application, the Applicant seeks to construct nine Siemens SWT-3-2-113 direct drive turbines each with a nameplate generating capacity of 3.2 MW. The turbines would run approximately 2 miles along the ridgeline toward nearby Willard Mountain. Excluding turbine blades, 8 of the turbines would be 92.5 meters tall (303.5 feet) and 1 turbine would be 79.5 meters tall (260.9 feet); including turbine blades, 8 of the turbines would be 488.8 feet tall and turbine 9 would be 446.2 feet tall. The 9 turbines are to be placed on the Tuttle Hill ridgeline, the elevation of which ranges between 1760 feet and 1830 feet, a rise of 610 to 680 feet above the valley floor.

5. On December 1, 2015, the Subcommittee accepted the Application.

6. On March 17, 2017, after thirteen days of hearings on the merits and three days of deliberations, the Subcommittee granted the Applicant a Certificate of Site and Facility.

7. On April 3, 2017, the Subcommittee suspended the Antrim II Decision in light of a Motion for Rehearing filed by Meteorological Intervenors.

8. As will be set forth in detail below, the Subcommittee should have ruled as the Committee did in 2012: "the turbines are too tall and too imposing in the context of the setting" and that "[t]hey would overwhelm the landscape and would have an unreasonable adverse impact upon valuable viewsheds." See Antrim I Decision at 51.

II. STANDARD FOR REHEARING

9. Within thirty days after any order or decision has been made by [the Subcommittee], any party to the action or proceeding before the [Subcommittee], or any person directly affected thereby, may apply for a rehearing in respect to any matter determined in the action or proceeding, or covered or included in the order, specifying in the motion all grounds for rehearing." See RSA 541:3. "Such motion shall set forth fully every ground upon which it is claimed that the decision or order . . . is unlawful or unreasonable." See RSA 541:4.

10. Said motion shall: (1) identify each error of fact, error of reasoning, or error of law; (2) describe how each error causes the committee's order or decision to be unlawful, unjust, or unreasonable; (3) state concisely the factual findings, reasoning, or legal conclusion proposed by the moving party; and include any argument or memorandum of law the moving party wishes to file. See N.H. CODE OF ADMIN. R. Site 202.29 (d).

11. A rehearing may be granted when the Subcommittee finds "good reason." See RSA 541:3; see also Antrim I, Order on Pending Motions at * 2 (issued September 10, 2013) (cases cited). A rehearing may be denied when the Subcommittee finds that "no good reason" exists. Id.

III. ARGUMENT

12. The Subcommittee should grant rehearing in this case because of errors of fact, reasoning, and law in matters of both procedure and substance. With regard to procedure, the Subcommittee should grant rehearing because the Subcommittee was unlawfully constituted and because the Committee made procedural and evidentiary rulings in a manner that prejudiced the full development of the record and the fair involvement of the parties.

13. With regard to substance, the Subcommittee should grant rehearing because the Subcommittee made errors of fact, reasoning, and law when it found that the proposed project would not have unreasonable adverse effects on aesthetics, natural environment, public health and safety, and orderly development of the region. See RSA 162-H:16, IV. Specifically, the Subcommittee either misinterpreted or ignored significant errors and defects in the analysis submitted by the Applicant with regard to the Applicant's Visual Impact Assessment, Sound Study, Shadow Flicker Analysis, Wildlife Study, Real Estate Analysis, and review of local land use regulations and/or ignored compelling evidence from Counsel for the Public and the Opposing Intervenors as to the Project's impacts. Each issue will be addressed in turn.

IV. RES JUDICATA

14. At the outset, the Subcommittee erred when it determined that the doctrine of Res Judicata/Collateral Estoppel does not apply to preclude the Applicant from putting forth a proposal for a wind farm so substantially similar to that proposed in Antrim I. The Subcommittee erred because the factual circumstances surrounding the two applications are not sufficiently distinct to allow the Applicant to obtain a new adjudication on what is, in essence, the same Application with de minimis modifications.

15. "Res judicata, or claim preclusion, bars litigation of any issue that was or might have been raised with respect to the subject matter of the prior litigation." See North Country Envtl. Servs. v. Town of Bethlehem, 150 N.H. 606, 621 (2004). For the doctrine to apply, 3 elements must be met: (1) the parties must be the same or in privity with one another; (2) the same cause of action must be before the Subcommittee in both instances; and (3) a final judgment on the merits must have been rendered on the first action. Considering the similarities of the parties in the Antrim I and Antrim II dockets, there can be no serious contention that the first element of res judicata is met. It further cannot be contested that the Subcommittee issued a decision on the merits in Antrim I.

16. The primary issue is whether the current Project constitutes "the same cause of action" as that brought forth in Antrim I. In the context of siting matters, a successive proposal can be brought if there is a material change in the proposed use of the land or there are material changes in the circumstances affecting the merits of the application. See Brandt Dev. Co. v. City of Somersworth, 162 N.H. 553, 557 (2011). The Applicant bears the burden of proving such material changes.

17. The Subcommittee ruled that the Project is materially different from the project proposed in Antrim I, based on the mitigation measures proposed by the Applicant. The Subcommittee's ruling, however, ignores the Committee's rationale in Antrim I, specifically with regard to the impact of non-aesthetic related mitigation measures.

18. The reduction of turbine heights by roughly 38 inches, the elimination of one tower, and various off-site mitigation measures, do not amount to such a material change that the impact would affect the overall outcome of the Antrim I decision. As is discussed in depth

below, the Committee in Antrim I clearly found that the non-aesthetic related impacts would not mitigate a project's adverse effect on aesthetics. See Antrim I Decision at 53.

19. The Committee in Antrim I also focused heavily on the extensive impact the proposed project would have on Willard Pond and the dePierrefeu Wildlife Sanctuary. The Project would continue to have a "profound" impact on Willard Pond. All nine of the turbines would be visible from Willard Pond. See Exhibit 3 to Visual Assessment prepared by Landworks. The Project will also continue to be visible from prominent viewsheds on Bald Mountain and Goodhue Hill, both of which are part of the dePierrefeu Wildlife Sanctuary. There is no indication that the change in the Committee's rules regarding Visual Impact Assessments and the consideration of aesthetic impacts are so material as to now call the Antrim I Decision into question.[1]

20. The Applicant cannot claim that the change in the Committee's rules now allows it to present the Project anew in its (slightly) modified form because, unlike Brandt, the change in the Committee's rules would not have altered the Committee's decision in Antrim I. See Brandt 162 N.H. at 556. The change in the Committee's rules would not likely have altered the Antrim I decision because the Committee's deliberations in Antrim I consider many, if not all, of the considerations now codified in Rule Site 301.14(a). This is particularly evident with regard to the Committee's analysis of Willard Pond and the dePierrefeu Wildlife Sanctuary, whereupon the Committee's analysis addressed: (a) the character of the area, (b) the significance of an affected resource; (c) the extent, nature, and duration of the public use; (d) the scope and scale in the change in landscape; (e) the extent to which the Project would be a dominant and prominent

[1] Indeed, the rule change appears to have such a limited impact on the Visual Impact Assessment of Landworks that Landworks only had to provide limited additional information with regard to photosimulations.

feature within a natural or cultural landscape of high scenic quality; and (f) the effectiveness of mitigation measures. See N.H. CODE OF ADMIN. R. Site 301.14(a). Each of these criteria is addressed in the substance of the Committee's analysis in Antrim I. See Antrim I Decision at 50-52. Therefore, there have been no material changes with regard to the facts or law which would permit the adjudication of the Project a second time.

21. The Applicant cannot show that the proposed changes in the Project are so material as to now call into question the Committee's determinations in Antrim I. The Subcommittee's finding that the Project contains material modifications was contrary to the evidence and ignores the substantial analysis performed by the Committee in Antrim I. The Subcommittee's ruling with regard to the issue of res judicata is unreasonable and unlawful. The Subcommittee should grant rehearing on this matter, determine that the doctrine of res judicata is applicable here, and deny the application based on the aesthetic concerns fully adjudicated in Antrim I.

V. PROCEDURAL ISSUES

a. The Subcommittee was not lawfully constituted

22. The Subcommittee's decision was unlawful and unreasonable because the Subcommittee was missing a public member. RSA 162-H:4, II provides that "[w]hen considering the issuance of a certificate or a petition of jurisdiction, a subcommittee shall have no fewer than 7 members. The 2 public members shall serve on each subcommittee with the remaining 5 or more members selected by the chairperson from among the state agency members of the committee." (Emphasis added.)

23. In the case of a public member, "if at any time a member must recuse himself or herself on a matter or is not otherwise available for good reason," the chairperson of the Committee "shall appoint the alternate public member, or if such member is not available, the governor and council shall appoint a replacement upon petition of the chairperson." See RSA 162-H:3, X (emphasis added). This process is applicable to both the committee and subcommittee members. See RSA 162-H:3, XI.

24. Here, Chairman Honigberg appointed Roger Hawk and Patricia Weathersby as the original two public members of the Subcommittee on October 20, 2015. Unfortunately, on January 7, 2016, Mr. Hawk died. On January 11, 2016, Chairman Honigberg appointed Rachel Whitaker to serve on the Subcommittee as an alternate public member. However, Member Whitaker did not preside over any proceedings in this matter, as she shortly went on maternity leave.

25. With the exception of an informational session held on February 22, 2016, Member Whitaker was not present for, and did not preside over, any other hearing, including the adjudicative hearing or the deliberative sessions, nor did Member Whitaker execute or sign any orders docket. For all intents and purposes, Member Whitaker was absent from the proceedings, and, upon information, with good reason, as she went on maternity leave after being appointed. Notwithstanding the good reason for Member Whitaker's absence, there clearly was a vacancy of a public member from the Subcommittee, and that vacancy was not duly filled as required by RSA 162-H:3.

26. As a result, the public did not have a full "seat at the decision-making table" as was intended when RSA 162-H:3 was amended in 2014 to expressly require that the Committee

have public members and that those public members preside on all subcommittees. When the Legislature enacted RSA 162-H, and required the participation of public members on all subcommittees, the Legislature made a clear statement: the voice of the public shall be heard on the important matter of siting energy facilities, and that voice shall carry considerable weight (2 out of 7 members). One of those critical voices was absent from the Subcommittee and the virtual entirety of the proceedings.[2]

27. While the impact of that absence is impossible to determine, one instance shines brightly as an example of when that extra public member would have had a meaningful impact in this case. On December 12, 2016, while deliberating the Project's impact to property values, the Subcommittee deliberated the issue of the property value guaranty, a matter of critical importance to several of the Opposing Intervenors. See December 12, 2016 Transcript, Afternoon Session, at 141-42.[3]

28. The property value guaranty was being considered after several Subcommittee members expressed skepticism as to the opinions of the Applicant's real estate expert, Matthew Magnuson. See e.g., 12/9/2016 PM Transcript at 169-70; 12/12/16 PM Transcript at 71, 102, 104, 128, 137. Despite recognizing the impact to property values associated with the Project that Antrim residents will have involuntarily thrust upon them, the Subcommittee voted 3 to 3 with

[2] It will likely be argued that RSA 162-H:4 allows for Subcommittees to have a quorum of five members and that the Subcommittee's acts in this case, made through six members, was valid.

This argument ignores the fact that throughout the entirety of this proceeding, the Subcommittee was missing a public member, whom the Legislature mandates preside over these matters. To say that the mere act of appointing Member Whitaker to the Subcommittee satisfied RSA 162-H:4 effectively nullifies that provision of the statute, i.e. that vacancies are to be filled, and undermines the Legislature's intent. It was clear that Member Whitaker was absent from the proceedings, that the Subcommittee had a vacancy, and that vacancy was not filled as required by RSA 162-H:4.

The Subcommittee was unlawfully constituted and the decision of the Subcommittee is invalid.

[3] Hereinafter transcripts will be cited as using the following format: month/day/year AM/PM Transcript at __.

regard to adopting a property value guaranty. See 12/12/16 Transcript at 141-42. Because of the deadlock, the motion was defeated. Had the requisite number of seven members been there to vote, this deadlock would not have occurred, and, considering that the missing member was a Public Member, the very real possibility existed that the motion would have passed.

29. The Subcommittee would later go on to write that it was "not convinced that the Project will . . . not have any effect on values of some properties," but dismissed those concerns stating that the Subcommittee did not believe that the project would have an adverse effect on orderly development in the region. See Antrim II Decision at 85-86.

30. In short, the Subcommittee acknowledged that Mr. Magnuson's analysis was less than credible, but still ruled in favor of the Applicant without any mitigation to impacted property owners, all due to a tie vote during deliberations. Had the Subcommittee been lawfully constituted, the Subcommittee may have voted to adopt a property value guaranty, thus protecting the interests of the Opposing Intervenors.

31. In conclusion, the Subcommittee was not lawfully constituted because a public member was absent, and the Chairman did not petition to have that public member replaced by a member of the Governor and Council. The Subcommittee's decision, made whilst unlawfully constituted, was unreasonable and unlawful as a result. The Subcommittee should grant rehearing and, at the least, arrange for Chairman Honigberg to have the Governor and Council fill the vacancy, whereupon a second public member can consider the evidence and testimony and participate in deliberations anew.

b. Waiver of Requirements

32. The Subcommittee's decision is unlawful and unreasonable because the Subcommittee granted the Applicant a waiver with regard to the Application of various sound and shadow flicker impacts with regard to "participating property owners" without complying with Rule Site 202.15.

33. The Subcommittee correctly determined that the Committee's rules "do not differentiate between participating and non-participating landowners." See Antrim II Decision at 168. The Subcommittee went on, however, to state that "the landowners have a right to voluntarily agree to subject themselves to different environments" and, for that reason, waived the "noise and shadow flicker restrictions set forth in N.H. CODE OF ADMIN. RULES, Site 301.14(f)(2)a and b., as applied to participating landowners. See Antrim II Decision at 168-69.

34. The Subcommittee's ruling is inconsistent with Rule Site 202.15 because the Subcommittee did not make the requisite finding that said waiver was within the public interest. Rule Site 202.15 provides that a subcommittee "shall waive any of the provisions of [the Committee's] rules . . . on its own motion if the . . . subcommittee finds that: (1) [t]he waiver serves the public interest; and (2) [t]he waiver will not disrupt the orderly and efficient resolution of matters before the subcommittee." The rule expressly notes that the public interest would compel waiver if "[c]ompliance with the rule would be onerous or inapplicable given the circumstances of the affected person; or (2) [t]he purpose of the rule would be satisfied by an alternative method proposed." See N.H. CODE OF ADMIN. R. Site 202.15(b). Prior to granting the waiver, the Subcommittee shall allow other parties "the opportunity to comment on any waiver request before" the subcommittee. See N.H. CODE OF ADMIN. R. Site 202.15(f).

35. Here, the Subcommittee did not make the required findings that the grant of a waiver was in the public interest. For one, the Subcommittee expressly found that the rules were applicable under these circumstances. See Antrim II Decision at 168. Moreover, the requirement that "compliance with the rule" being onerous is more geared toward procedural or application criteria not waiver of a substantive criteria meant to preserve the public health and safety, such as the case with sound and shadow flicker. See N.H. CODE OF ADMIN. R. Site 301.14(f)(2). As such that criteria for determining "public interest" is not applicable. The waiver also does not reflect any "alternative method" that would satisfy the purpose of the rule because Rule Site 301.14(f)(2) clearly exists to protect the public health and safety and merely giving the Applicant a pass on certain individuals does not serve the purpose of the rule.

36. Further, the Subcommittee violated Rule Site 202.15 because the Subcommittee raised the prospect of a waiver for the first time during deliberations and did not allow the opportunity for comment. In fact, Lisa Linowes expressly noted that there was no request for waiver on the last day of the hearing on the merits in this matter. See 11/7/16 PM Transcript at 24.

37. For these reasons, the Subcommittee acted unlawfully and unreasonably when it unilaterally decided to grant a waiver of the Committee's sound and shadow flicker rules. The Subcommittee should grant rehearing, determine that a waiver under these circumstances does not satisfy the criteria set forth in Rule Site 202.15, and find that Project exceeds permissible sound and shadow flicker requirements at participating properties.

c. Procedural Fairness

38. The Subcommittee should grant rehearing on this matter because the proceedings in this matter were replete with procedural unfairness to the prejudice of Counsel for the Public and the Opposing Intervenors. The result of this procedural unfairness was a chilling effect on intervenor involvement and an inability to fully develop the factual record for this Subcommittee's consideration.

39. In an administrative proceeding, a party "may conduct cross-examinations required for a full and true disclosure of the facts." See RSA 541-A:33. Pursuant to Rule Site 202.02, the presiding officer shall "conduct any hearing in a fair, impartial, and efficient manner," "admit relevant evidence and exclude irrelevant, immaterial, or unduly repetitious evidence," and "provide opportunities for the parties and committee members to question any witness."

40. At the heart of the procedural unfairness in this case was the issue of friendly cross-examination and inability to rehabilitate critical witnesses. The procedure established by the Subcommittee, i.e. requiring the Applicant and Intervenors to submit supplemental pre-filed testimony on the same day permitted the Applicant to effectively respond to the critiques of the its witnesses from Counsel for the Public and the Applicant, but precluded Counsel for the Public and the Intervenors from effectively rehabilitating their witness. The procedure was contrary to the spirit of RSA 541-A:33 because it prevented a full and true disclosure of the facts. See RSA 541-A:33. Further, the procedure was contrary to Rule Site 202.02 because it was unfair, benefited the Applicant and those intervenors supporting the Project, and did not allow for the admission of relevant evidence.

41. Indeed, Counsel for the Public particularly was prejudiced by this procedure, as she was incapable under the procedure of responding to the Applicant's criticisms through the supplemental pre-filed testimony and was precluded from asking questions on rebuttal which would have rehabilitated her witness. See e.g. 11/7/16 PM Transcript at 10-17 (argument of Counsel for the Public regarding her inability to rehabilitate Ms. Connelly regarding her visual impact assessment and Subcommittee's sustaining of objection precluding rehabilitation testimony). As is reflected by the Subcommittee's deliberations, Ms. Connelly's testimony was of critical importance with regard to aesthetic impacts; however, the Subcommittee was prevented by its own procedural rulings from being able to meaningfully weigh and consider Ms. Connelly's testimony.

42. Compounding this issue is the fact that Applicant and supporting intervenors were allowed to engage in friendly cross-examination, the result of which allowed parties to rehabilitate witnesses that had been impeached and criticized during cross-examination. This privilege was not shared by Counsel for the Public and the Opposing Intervenors, who were subjected to frequent objections. Indeed, counsel for the Town of Antrim was permitted to engage in substantial friendly cross-examination of Mr. Raphael, see 9/22/16 PM Transcript at 66, whereas Counsel for the Public and Opposing Abutters were frequently precluded from any and all efforts to rehabilitate witnesses.[4]

43. The impact of this procedural schedule was an unreasonable constraint on the full development of the factual record, resulting in the Subcommittee being deprived of the ability to consider fully-vetted evidence and testimony. The Subcommittee's reliance on such an

[4] This is not to mention that the Opposing Intervenors were frequently told to "hurry" and to move "quickly," instructions which were not directed at parties supporting the Project. +-

undeveloped record in this matter renders the Subcommittee's ultimate determinations unlawful and unreasonable. Accordingly, the Subcommittee should grant rehearing to allow for the full development of a factual record with the opportunity to rehabilitate witnesses.

VI. SUBSTANTIVE ISSUES

a. *The Subcommittee should grant rehearing with regard to its determination that the proposed wind farm would not have unreasonable adverse effects on aesthetics*

44. The Subcommittee should grant the Intervenor's Motion for Rehearing because the Subcommittee's ruling with regard to several criteria set forth in RSA 162-H:10 was unjust and unreasonable. The Subcommittee's findings were unjust and unreasonable because the Subcommittee made several errors of fact and/or law with regard to the following areas: (i) aesthetics; (ii) sound; (iii) shadow flicker; (iv) orderly development in the region; (v) wildlife habitat; and (vi) ice throw.

i. Standard for Issuance of a Certificate of Site and Facility

45. To grant a Certificate of Site and Facility, the Subcommittee must first find, in part, that the project will not have an unreasonable adverse effect on aesthetics, historic sites, air and water quality, the natural environment, and public health and safety. See RSA 162-H:16, IV (c). The Subcommittee must also find that the project will not unduly interfere with the orderly development of the region. See RSA 162-H:16, IV(b).

46. With regard to wind projects, the Subcommittee imposes various criteria that must be met in order to find that a project will not have unreasonable adverse effects on aesthetics, historic sites, air and water quality, the natural environment, and public health and safety. Those specific criteria are addressed below.

ii. The Subcommittee's finding that the Project will not have unreasonable adverse impacts on aesthetics is unlawful and unreasonable.

47. The Subcommittee's determination is unlawful and unreasonable with regard to aesthetics because the Applicant did not submit a compliant visual impact assessment in accordance with Rule Site 301.05. Rule Site 301.05 requires the Applicant to provide a visual impact assessment, "prepared in a manner consistent with generally accepted professional standards" regarding the "effects of, and plans for avoiding, minimizing, or mitigating potential adverse effects of the proposed facility on aesthetics." The visual impact assessment must further identify "all scenic resources within the area of potential visual impact and a description of the scenic resources from which the proposed facility would be visible." N.H. CODE OF ADMIN. R. Site 301.05(b)(5).

48. Further, the visual impact assessment must provide photosimulations from "representative key points, from other scenic resources for which the potential visual impacts are characterized as 'high' . . . and, to the extent feasible, from a sample of private property observation points within the area of potential visual impact, to illustrate the potential change in the landscape that would result from construction of the proposed facility and associated infrastructure, including land clearing and grading and road construction." N.H. CODE OF ADMIN. R. Site 301.05(b)(7). These photosimulations "shall be taken at high resolution and contrast . . . under clear weather conditions and at a time of day that provides optimal clarity and contrast, and shall avoid if feasible showing any utility poles, fences, walls, trees, shrubs, foliage, and other foreground objects and obstructions." N.H. CODE OF ADMIN. R. Site 301.05(b)(8). With regard to wind turbines, the photosimulations must reflect turbines placed "with frontal views and no haze or fog effect applied," with blades "set at random angles with some turbines

showing the 12 o'clock position." N.H. CODE OF ADMIN. R. Site 301.05(b)(8)(e). In projects requiring nighttime lighting per Federal Aviation Administration (hereinafter "FAA") regulations, the visual impact assessment must describe and characterize the potential visual impacts of this lighting, including the number of lights visible and their distance from key observation points. N.H. CODE OF ADMIN. R. Site 301.05(b)(9).

49. Here, the Visual Assessment for the Antrim Wind Project prepared by David Raphael of Landworks (hereinafter "Landworks VIA") fails to meet the above referenced criteria because (1) Mr. Raphael did not consider the full extent of visual impact to scenic resources in his viewshed analysis; (2) Mr. Raphael applied unreliable methodologies to select impacted sites for further analysis; (3) Mr. Raphael's determination of visual effect is based on incomplete and irrational factors and methodologies; (4) Mr. Raphael's determination of viewer effect is incomplete and contradictory; (5) the photosimulations prepared by Mr. Raphael are inconsistent with the criteria set forth in Rule Site 301.05; and (6) Mr. Raphael's consideration of mitigation measures is inconsistent with Rule Site 301.05.

50. Ultimately, each of these flaws appear in the Subcommittee's deliberations, and find their way into the Subcommittee's ultimate conclusions. As such, the Subcommittee acted unlawfully and unreasonably in finding that the Project would have no adverse aesthetic impacts based, in part, on Mr. Raphael's analysis.

1. Viewshed Analysis

51. First, the Subcommittee erred in not applying the doctrine of collateral estoppel when determining the "scenic resources" that would be affected by the Project. For collateral estoppel to apply, three basic conditions must be satisfied: (1) the issue subject to estoppel must

be identical in each action; (2) the first action must have resolved the issue finally on the merits; and (3) the party to be estopped must have appeared in the first action, or have been in privity with someone who did so. See Gephart v. Diagneault, 137 N.H. 166, 172 (1993).

52. In Antrim I, the Committee analyzed the proposed project's impacts on various scenic resources including Willard Pond, Goodhue Hill, Gregg Lake, Robb Reservoir, Island Pond, Highland Lake, Lake Nubanusit, Black Pond, Franklin Pierce Lake, Meadow Marsh, and Pitcher Mountain. See Antrim I Decision at 49-50. The Committee further noted the "profound impact" the proposed project would have on Willard Pond and the dePierrefeu Wildlife Sanctuary in its entirety. See Antrim I Decision at 51.

53. The Applicant should be collaterally estopped from challenging the Committee's prior determination that the above-referenced are impacted scenic resources because they are the same party, the issue was fully adjudicated to a final decision on the merits in Antrim I, and the criteria to be employed to determine scenic resources in Antrim II is identical to that actually employed in Antrim I creating the same pertinent issue. See Gephart, 137 N.H. at 172.

54. Here, the Subcommittee did not consider the impacts to such resources as Highland Lake or Lake Nubanusit. See Antrim II Decision at 117-120. Moreover, Mr. Raphael did not analyze, nor did the Subcommittee consider the significance and impact of the Project on the dePierrefeu Wildlife Sanctuary in its entirety (as opposed to distinct segments of the Sanctuary). See Antrim II Decision at 117-121. The Subcommittee's failure to consider such impacts results in an incomplete analysis of the potential aesthetic impacts of the Project and renders the Subcommittee's determination unlawful and unreasonable.

55. Moving past the issue of collateral estoppel, Mr. Raphael's determination of the scenic resources with a view of the project is based upon the erroneous limitation that only properties with potential visibility of the turbine hubs needed to be analyzed. See Landworks VIA at 10. In doing so, Mr. Raphael's analysis only considers the project to be 92.5 meters tall (79.5 meters for turbine 9), instead of 149 meters (136 for turbine 9). Id. The impact of said limitation is that critical scenic resources are determined to have limited visibility, when in actuality those resources will have a significant viewshed.[5] Compare Exhibit 3 of Landworks VIA with Exhibit 4 to Landworks VIA (reflecting that turbine visibility of Gregg Lake, Franklin Pierce Lake, Kimball Hill, and Willard Pond was reduced with the removal of consideration of turbine blades). The impact of this assessment is that Mr. Raphael determined that:

- Gregg Lake would have views of 8 turbines rather than 9 turbines;
- Franklin Pierce Lake would have views of 8 turbines rather than 9 turbines;
- Island Pond would have views of 3 to 7 turbines rather than 3 to 8 turbines; and
- The Robb Reservoir would have views of 4 turbines as opposed to 8 turbines.

Compare Exhibit 3 of Landworks VIA with Exhibit 4 of Landworks VIA.[6] This does not include those scenic resources that Mr. Raphael discounted based on the assumption that a smaller geographic area would be subjected to the project's viewshed. Interestingly, although each of

[5] Mr. Raphael's decision to analyze scenic resources based on sites that will have a view of the hub only is contradictory. He initially claimed that the hub was analyzed because the blades' aesthetic impact is transient, but then analyzes 10 scenic resources based on the number of turbines (including blades) visible from those sites. See 9/22/16 PM Transcript at 155.

Mr. Raphael's assertion that the blade height did not need to be factored is without merit. The animation prepared by Michael Buscher of T.J. Boyle Associates, clearly reflect that spinning blades will attract attention. See Audubon Society Exhibit 7; see also 0/3/16 PM Transcript at 64-65. There is no indication that this piece of evidence was considered by the Subcommittee.

[6] Interestingly, Loon Pond, which would have a viewshed of nine turbines was not even analyzed by Mr. Raphael. See Exhibit 3 to Landworks VIA.

these resources were identified as resources having potential visibility, these resources were removed from further consideration based on Mr. Raphael's determination that their overall sensitivity ratings were "Low-Moderate," thereby disqualifying these resources from further consideration and analysis. See Landworks VIA at 71.

56. Compounding Mr. Raphael's errors in determination of scenic resources and viewshed impacts is Mr. Raphael's culling process, whereby numerous scenic resources whose viewsheds will be impacted by the Project are removed from consideration.[7] Mr. Raphael erroneously concludes that resources such as Franklin Pierce Lake and Gregg Lake do not merit extended consideration because they are not identified by any federal or state department as scenic resources, and further determined that there is no provision in any municipal master plans designating these bodies as scenic resources. See Landworks VIA at 61-70. This conclusion is completely incorrect. The Antrim Master plan states that "Antrim's lakes, ponds, and streams are important water, recreational, and scenic resources" that must be "protected from overdevelopment and pollution." See Antrim Master Plan, Water Resources at V-5, submitted as Exhibit Cal-B. The Master Plan goes on to expressly identify Franklin Pierce Lake and Gregg Lake as waterbodies deserving of protection. See id. Therefore, despite Franklin Pierce Lake and Gregg Lake receiving "moderate" scenic quality designations, they are removed from further consideration based upon a "low" "cultural designation" predicated upon an erroneous review of the Antrim Master Plan. See Landworks VIA at 71.

[7] Mr. Raphael further appears to have erroneously limited his consideration of scenic resources. Mr. Raphael did not consider the Meeting House Hill Town Cemetery because it was a historic as opposed to a scenic resource. See 9/22/16 PM Transcript at 146-47. In doing so, Mr. Raphael ignores that "scenic resource" as defined by the Committee's rules include "historic sites that possess a scenic quality." See N.H. CODE OF ADMIN. R. Site 102.45; see also 9/22/16 PM Transcript at 147 (testimony of Mr. Raphael that he was not asked to review historic resources).

57. The foregoing is just one example of Mr. Raphael's unreliable and un-credible methodologies with regard to identification of scenic resources. The end result of these methodologies is an incomplete visual impact assessment that does not fully describe the scenic resources from which the project will be visible and deprives the Subcommittee of the necessary analysis and photosimulations to make a knowing and intelligent determination of aesthetic impacts. See N.H. CODE OF ADMIN. R. Site 301.05.

58. For the reasons stated above, the Landworks VIA is considerably lacking and incomplete with regard to its analysis of aesthetics, and the Subcommittee should have found that the Applicant did not satisfy its burden of proof of showing that there was no unreasonable adverse effect on scenic resources.

2. Project's Aesthetic and Viewer Effects

59. Second, Mr. Raphael's methodology to determine the Project's effects to his list of 10 sites is based upon a specious analysis predicated upon faulty assumptions, the results of which are inaccurate conclusions. Mr. Raphael rated the Project's impacts on the 10 sites based on, amongst other factors, number of turbines visible and percentage of the site from which the Project is visible.

60. With regard to number of turbines visible, Mr. Raphael essentially averaged the number of turbines from each of the 3 pre-existing wind projects in the State, and stated that an amount of turbines over that average would contribute to a "high" impact rating. See Landworks VIA at 82; see also 9/22/16 PM Transcript at 154-56. This standard was borrowed from the analysis employed by another visual impact assessor in Maine, but, by doing so, Mr. Raphael ignored that the Maine methodology was predicated upon a sample size 4 times larger than what

exists in New Hampshire. See id. Consequently, the baseline for Mr. Raphael's turbine visibility analysis is subject to considerable skewing and has suspect confidence levels.

61. In applying the percent of visibility criteria to trails, Mr. Raphael utilized the footage of the total trail from which the Project is visible, rather than from a particular overlook or viewshed. The impact of the number of the turbines visible and the percent visible criteria is profound on the 10 scenic resources selected by Mr. Raphael. For example, Bald Mountain was dismissed from extended consideration because it received a "low-moderate" overall visual effect score, based primarily on the fact that 6 turbines will be visible from the site and the project is visible from 1.07% of the total trail. See Landworks VIA at 87. This analysis, particularly its inclusion of the entire trail length, ignores that users will often hike for hours to enjoy a particular view and that the entire trail length is not a proper indicator of extent of resource impact. In short, Mr. Raphael's visual effect scores, which in turn determined his consideration of resources for which to prepare photosimulations is fundamentally flawed.[8]

62. With regard to Viewer Effects, Mr. Raphael's analysis is contradictory and arbitrary. Mr. Raphael's viewer effect methodology is contradictory because two of the factors – extent of use and remoteness – consider "interaction between users." For remoteness, a higher likelihood of user interaction can lead to a lower score, whereas that same level of interaction can lead to a higher score for extent of use, and visa-versa. See Landworks VIA at 88-89. As such, these two criteria are offsetting and contradictory, a factor Mr. Raphael himself acknowledged except in limited and rare instances. See 9/22/16 PM Transcript at 161-62.

[8] The analysis is further flawed because of its failure to consider the existence of other projects within a viewshed. For example, although the Project is distal from the Pitcher Mountain, two separate wind projects would be viewable from the summit, and the Project will actually obstruct the summit's view of Crotched Mountain. A user that climbed to the summit of Pitcher Mountain, therefore, would be incapable of escaping a view of industrial infrastructure.

Moreover, other factors included in Mr. Raphael's analysis, such as activity, ignores the contributory impact of scenic views and the role of scenic impacts upon outdoor activities.

63. The Subcommittee's deliberations reflect a line of thinking much in line with Mr. Raphael's reasoning. Indeed, the Subcommittee appeared to take an unduly restrictive view of scenic resources and, instead dismissed, rather than acknowledged, the contributory value of a scenic view to recreational activities. See12/7/16 PM Transcript at 29-31. Indeed, under the Subcommittee's analysis, as reflected during deliberations, it is difficult to see what un-developed resources that are used for recreational purposes would ever be spared from industrial wind projects when the use of that area is limited to "transient" recreation. See 12/7/16 PM Transcript at 39-40. In this regard, the Subcommittee's analysis is unlawful and unreasonable.

3. Photosimulations

64. Third, Mr. Raphael's analysis is further unreliable, un-credible, and undeserving of any weight because of the faulty photosimulations of his 10 selected sites. Rule 301.05(b)(7) and (8) is quite clear: photosimulations are to be prepared under clear weather conditions, at a time of day that provides optimal clarity and contrast, and should avoid if feasible all utility poles, fences, walls, trees, shrubs, foliage, and other foreground obstructions. Mr. Raphael's photosimulations fail each of these requirements.

65. Without exception, each of Mr. Raphael's photosimulations were taken during cloudy or hazy conditions, which have the effect of diminishing the anticipated visual impacts from various scenic resources. See Landworks VIA at Exhibits 6 through 18. While Mr. Raphael's justification for these deviations was that he made photosimulations under anticipated weather conditions, such an approach ignores the purpose of photosimulations. See N.H. CODE

OF ADMIN. R. Site 301.05(b)(7). Photosimulations are intended to provide a "worst case scenario" view of the project, i.e. circumstances when an individual will be able to see the Project to the greatest extent possible.

66. Moreover, in various photosimulations, Mr. Raphael has framed the windmills among objects in the foreground, which again, has the effect of diminishing the Project's aesthetic impacts. This is particularly evident with regard to Gregg Lake, where the Project is framed next to a sailboat. See Landworks VIA at Exhibit 8. A similar phenomenon can be observed in a photosimulation on Willard Pond, where a photosimulation of the project is framed by rocks in the foreground. See Landworks VIA at Exhibit 12.

67. These deviations were not without impact. Over 60 pages of deliberation transcript are dedicated to analyzing the various photosimulations provided by Landworks and Terraink. 12/7/16 PM Transcript at 80-146. Indeed, the Subcommittee's review of the photosimulations provided the primary basis for the Subcommittee's ultimate determination on the Project's aesthetic impact.

68. The Subcommittee members frequently noted that the clouds and haze from the photosimulations made this analysis difficult. Indeed, Dr. Boisvert stated during deliberations, "I wish that the background was clear, not hazy. I think that could affect our interpretation." See 12/7/16 PM Transcript at 82; see also 12/7/16 PM Transcript at 80 (statement of Dr. Boisvert stating "[t]he cloudy sky is not our friend here"); 12/7/16 PM Transcript at 125-26 (statement of Dr. Boisvert, "I have difficulty seeing the turbines in this one because of the sky color and the color of the turbines"). Attorney Weathersby expressed similar frustration with Mr. Raphael's

photosimulations with regard to the sailboat in the foreground because it "clearly distracts from the turbine." See 12/7/16 PM Transcript at 92.

69. In other instances, the obstructed photosimulations from Mr. Raphael caused the effect that Rule Site 301.05(b)(7) and (9) was intended to prevent — specifically considering circumstances which may ameliorate an otherwise unreasonable aesthetic effect — as evidenced by Mr. Clifford's comment that the sailboat depicted "what I'm going to see if I walk out there," a contention which was shared by Mr. Rose. See 12/7/16 PM Transcript at 92-93, 94.

70. In short, the photosimulations from the Applicant's expert was deficient under Rule Site 301.05, and the Subcommittee's determinations on aesthetics was tainted by the impermissible depictions shown in those photosimulations. The Subcommittee' determination was unlawful and unreasonable, and the Subcommittee should grant rehearing with regard to the issue of aesthetics to allow for submission of compliant photosimulations of impacted sites based on objective and soundly-applied criteria.

4. Mitigation Measures

71. Fourth, Mr. Raphael's inclusion of mitigation measures is inconsistent with Site Rule 301.05 because the mitigation measures do not go toward aesthetics, and the bulk of the proposed mitigation measures will not be realized for, at least, half of a century. Mr. Raphael considered, and this Subcommittee further credited, various proposed mitigation measures in determining whether the Project had an unreasonable adverse effect on aesthetics. Those mitigation measures include: placing 908 acres in conservation easement; giving $40,000.00 to the Town of Antrim for the enhancement of Gregg Lake; giving $100,000.00 to the New England Forestry Foundation; and employing radar detection lighting.

72. Rule Site 301.05 requires visual impact assessments to analyze the effect of "mitigating potential adverse effects of the proposed facility on aesthetics." The mitigation measures to be analyzed must specifically pertain to relieving aesthetic impacts; mere consideration of mitigation measures which may relieve certain ecological impacts is a separate consideration. This conclusion is supported by the plain meaning of Rule Site 301.14, which requires the Committee to consider "[t]he effectiveness of the measures proposed by the applicant to avoid, minimize, or mitigate unreasonable adverse effects on aesthetics." (Emphasis added.)

73. The Committee has previously recognized this principle in Antrim I, when the Committee considered the Applicant's offer to place 800 acres into conservation easements: "While additional conserved lands would be of value to wildlife and habitat, they would not mitigate the imposing visual impact that the Facility would have on valuable viewsheds." See Antrim I Decision at 53.

74. This prior determination by the Committee in Antrim I should collaterally estop the Applicant from seeking to put forth such a similar proposal now, and should preclude the Subcommittee from considering such mitigation measures in its analysis of aesthetic impacts. As stated above, for collateral estoppel to apply, three basic conditions must be satisfied: (1) the issue subject to estoppel must be identical in each action; (2) the first action must have resolved the issue finally on the merits; and (3) the party to be estopped must have appeared in the first action, or have been in privity with someone who did so. See Gephart, 137 N.H. at 172 (1993). There can be no doubt that the Applicant is the same party as was in Antrim I. Additionally, it cannot be credibly argued that the Committee in Antrim I did not resolve the issue of aesthetics,

and the proper mitigation measures to alleviate aesthetic impacts, finally on the merits. Most importantly, the issues to be collaterally estopped are identical in each action: whether the mitigation measures which do not actually impact the aesthetics of a Project can be considered by the Subcommittee with regard to determining adverse aesthetic effects of the Project. While the mitigation measures have been tweaked since Antrim I, the flavor of the mitigation, i.e. donations and placing land into conservation easements, is the same.[9] It is unreasonable that the Committee in Antrim I found that placing land into conservation easement does not mitigate aesthetic effects, but the Subcommittee in Antrim II found that the same practice does mitigate aesthetic effects. The Subcommittee should not have considered the Applicant's mitigation efforts in its determination of aesthetic effects.

75. Even if the Subcommittee does not find the matter to be collaterally estopped, Committee's decision in Antrim I still remains valid and should be followed here. The Subcommittee erred in its consideration of the Applicant's proposed mitigation measures because with the exception of the radar detection lighting (which has its own issues) none of these mitigate the aesthetic impacts from the Project.

76. The Project will be the largest free-standing structures in the State of New Hampshire. The turbines will be taller than the tallest office building in Manchester and will be

[9] To the extent that the Applicant, or others, claim that the change in the rule alters the application of collateral estoppel with regard to this issue, the argument is a red herring. While the rules were changed since Antrim I, they were not changed in such a way such that the Committee's analysis in Antrim I should not be called into question. The only pertinent revision with regard to mitigation is that the Committee now must consider mitigation measures, whereas before that requirement was not codified.

As reflected above, the Committee in Antrim I did actually consider mitigation measures in a manner consistent with what the Committee's administrative rules now require. There is no indication that the change in the administrative rules call the Committee's determination in Antrim I into question. See Monarch Life. Ins. Co. v. Ropes & Gray, 65 F.3d 973, 981 (1st. Cir. 1995) (noting that "changed circumstances will preclude the application of collateral estoppel only if they might have altered the decision the court made in the first proceeding") (emphasis added).

located atop of a prominent ridge. The placement of property in conservation easement, which, according to Mr. Raphael, will protect the project site from further development after the project is decommissioned, see 9/22/16 PM Transcript at 77, does not mitigate the aesthetic impacts of the Project; it merely partially restores the property to a status quo years later.[10] The consideration of these measures as measures to mitigate aesthetic impact is inconsistent with the Committee's administrative rules and the Subcommittee erred in considering them with regard to aesthetic effects. See N.H. CODE OF ADMIN. R. Site 301.14(a)(7).

77. With regard to the use of radar detection lighting systems, the Subcommittee found that the "[i]nstallation of such systems will effectively minimize the nighttime impact of the Project while ensuring its operation." See Antrim II Decision at 118. However, there is no evidence in the record as to what visual impact this system will have. With the exception of the Applicant, no party has seen the FAA permit. The Subcommittee has not seen the FAA's permit. There is no evidence in the record as to the frequency with which this system will be activated. There is no evidence as to what size object will trigger the lights to activate, or the distance at which a flying object will activate it. There is no evidence as to what impact the Manchester Airport, and flight patterns coming from it, will have on the radar detection lighting system. In short, there is no evidence from which to draw any conclusions from the Applicant's agreement to employ a radar detection lighting system. As such, Mr. Raphael's consideration of this measure as a mitigation system is without any foundation, and the Subcommittee's finding in this regard is unlawful, unreasonable, and unsupported by any evidence.

[10] To say that this land will be developed in the absence of conservation easements defies logic and economics. The amount of money necessary to develop the top of the ridge and the surrounding hills (much of which is already in conservation easement) would likely be prohibitively expensive. This is demonstrated by the fact that Mr. Ott reserved the right in his conservation easement to build a house atop the ridge after the Applicant has installed the necessary roads and infrastructure for him to do so. See Appendix 10 to Application, at *9.

78. The Subcommittee should grant rehearing on the issue of aesthetics and, consistent with prior decisions of the Committee, give proper consideration to the only those proposed mitigation measures that actually address aesthetics. The Subcommittee should further grant rehearing on the issue of aesthetics, find that the Applicant has not supplied sufficient evidence to carry its burden of demonstrating that the FAA lighting system will be sufficient so as to not create an adverse aesthetic impact, and, thus, deny the Application.

ii. Conclusion: Aesthetics

79. In short, the Subcommittee's finding that the Project would not have unreasonable adverse aesthetic impacts is unsupported by the evidence and is unlawful and unreasonable. The Applicant did not submit any credible evidence as to the visual impact of the Project. The Subcommittee took an unduly constrained view on the impact the Project would have on public uses at various scenic resources. Landwork's photosimulations, which served as a primary tool for the Subcommittee's determination on aesthetics, were prepared in violation of the Committee's administrative rules. The Subcommittee unreasonably considered the effect of mitigation measures, all but one of which did not involve aesthetics (and the remaining one having no evidence regarding the impact to aesthetics), in determining whether the Project would have an unreasonable impact on aesthetics.

80. Moreover, the Subcommittee's deliberations and ultimate decision on the merits do not reflect any clear findings or consideration of the various factors set forth in Rule Site 301.14. The Subcommittee's deliberations are lacking in a meaningful discussion of the public uses as the various scenic resources, the significance of various affected resources, or the nighttime impacts from the project. See N.H. CODE OF ADMIN. R. Site 301.14. Rather, the

Subcommittee's deliberations largely address only whether the Project would be a dominant and prominent feature within a natural or cultural landscape, with sporadic references to the scope and scale of the change in the landscape. See N.H. CODE OF ADMIN. R. Site 301.14.

81. As such, the Subcommittee's decision is unlawful, unreasonable, and unsupported by the evidence. See RSA 541:4. The Subcommittee has not reflected that it considered the appropriate factors in determining whether the Project would have unreasonable aesthetic effects. See N.H. CODE OF ADMIN. R. Site 301.14. The Subcommittee should grant rehearing on the issue of aesthetics and, ultimately, deny the Application as the Applicant has not submitted sufficient or credible evidence to demonstrate that the Project will not have an adverse effect on aesthetics.

iii. The Subcommittee's finding that the Project will not have unreasonable adverse impacts on public health and safety is unjust and unreasonable.

82. The Subcommittee's finding that the Project will not have unreasonable adverse impacts on public health and safety is unjust and unreasonable because the Subcommittee made erroneous factual findings with regard to (1) the sound which will emanate from the Project, (2) the shadow flicker that the Project will cause, (3) the potential hazards presented by ice throw; and (4) the decommissioning of the Project. Each point shall be addressed in turn.

1. Sound

83. The Subcommittee's determination that the Project would not have an unreasonable effect on public health and safety is essentially based on the Applicant's promise that the Project will not exceed sound levels, and if it does, the Applicant will engage in Noise Reduction Operations ("NRO") to bring sound levels down to regulatory limits.

84. The Subcommittee's determination is unlawful and unreasonable because it impermissibly shifts the burden to abutting property owners to notify the Applicant or the Town of Antrim of a potential exceedance of the 40 dBA limit. The abutting property owners then must wait for the Applicant or the Town to act upon said complaint to notify an unidentified sound expert to then measure the sound exceedance at a time indeterminate, which will then be used to make a decision as to whether the Applicant will initiate NRO.

85. Regardless of whether this procedure will be deployed in any timely fashion sufficient to allow for a meaningful opportunity to observe exceedances such that NRO are initiated, the uncontroverted testimony of Richard James was that NRO necessarily will reduce the Project's production capabilities by upwards of 10 percent per decibel. See 10/19/16 PM Transcript at 66-67; see also 9/22/16 PM Transcript at 38 (testimony of Mr. O'Neal stating "you could step down each turbine in one decibel increments and turn it down. There's obviously a penalty for that in terms of electricity produced but you can reduce sound levels as well").

86. There is no analysis submitted by the Applicant to demonstrate that the Project will continue to be economically and financially feasible in light of the reduced production capabilities to make NRO an economic and feasible mitigation measure. See 9/22/16 AM Transcript at 136 (testimony of Mr. O'Neal stating that he did not know what the amount of reduction in output would be as a result of NRO).

87. This scenario, i.e. proposing a mitigation measure mid-hearing, is very similar to the Counsel for the Public's efforts in Antrim I, wherein Counsel for the Public in that case sought to impose various mitigation measures upon the proposed project, include turbine reduction and height. In that instance the Committee stated that the proposed mitigation efforts

"would likely change other dynamics of the Project to such a degree that the Subcommittee would be unable to confidently assess the consequences of issuing a Certificate." See Antrim I Decision at 54.

88. The scenario here is no different; the Applicant is proposing mitigation measures that may have fundamental impacts upon the dynamics of the Project. Yet, the Subcommittee here unreasonably and unlawfully allowed the Applicant to make this half-baked proposal without a full consideration of the dynamics, logistics, the impacts, and the hardships that would be associated with such a proposal. Moreover, until the NRO is fully implemented, the fact of the matter remains that many properties within 2 miles of the Project will experience sound levels in excess of regulatory limits.[11]

89. The fact remains that the Subcommittee approved a Project where there is the very real possibility that sound will exceed maximum levels. For that reason, the Subcommittee's decision is unlawful and unreasonable.

90. Here, the Applicant had the burden of proving the Project would be capable of operating within the limits set forth in Rule Site 301.14(f)(2)(a). The Applicant cannot meet that burden because the sound study prepared by the Applicant's expert, Robert O'Neal is unreliable and not entitled to any weight. Mr. O'Neal's sound study is not reliable and is not entitled to any weight because Mr. O'Neal did not make necessary adjustments to his predictive modelling to reflect a credible worst case condition for sound emission and propagation. Had these necessary adjustments been made, the modeled sound levels at various abutting properties would have far exceeded maximum allowable sound levels.

[11] Notably, the Committee did not find that Mr. O'Neal's modeling was accurate when he excluded these factors. See Antrim II Decision at 153-54. The Opposing Intervenors assert that the Committee overlooked the substantial evidence reflecting Mr. O'Neal's errors when it granted the Certificate of Site and Facility to the Applicant.