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March 30, 2015

Site Evaluation Committee
N.H. Department of Environmental Services
29 Hazen Drive
Concord, NH 03302-0095

**Re: Docket No. 2014-05: Antrim Wind Energy, LLC Petition for Jurisdiction
Over a Renewable Energy Facility**

Dear Sir or Madam:

In connection with the above-referenced docket I enclose an original and eighteen (18) copies of the pre-filed testimonies of Jack Kenworthy and David Raphael in the above-referenced matter.

If you have any questions regarding these materials, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "P. H. Taylor", written over a light blue horizontal line.

Patrick H. Taylor

Enclosures

STATE OF NEW HAMPSHIRE
BEFORE THE SITE EVALUATION COMMITTEE
Docket No. SEC 2014-05

PETITION FOR JURISDICTION OVER A RENEWABLE FACILITY
BY ANTRIM WIND ENERGY, LLC

PREFILED DIRECT TESTIMONY OF JACK KENWORTHY ON BEHALF OF
ANTRIM WIND ENERGY, LLC

March 30, 2015

1 **Qualifications of Jack Kenworthy**

2 **Q. Please state your name and business address.**

3 A: My name is John (Jack) B. Kenworthy. My business address is 155 Fleet Street,
4 Portsmouth, New Hampshire 03801.

5 **Q. Who is your current employer and what position do you hold?**

6 A: I am employed by Eolian Renewable Energy, LLC (“Eolian”) as its Chief
7 Executive Officer. Eolian is a minority owner of Antrim Wind Energy, LLC (“AWE”), the
8 developer of the Project.

9 **Q. Please describe your responsibilities as CEO of Eolian.**

10 A: As CEO of Eolian, I have oversight and management responsibilities for every
11 aspect of the Company. My primary roles include strategic development, raising capital,
12 investor relations, major contract negotiations and project development support. While I am
13 generally responsible for managing the growth and corporate health of Eolian, I am also closely
14 involved in all projects developed by Eolian, including the Antrim Wind Project (the “Project”)
15 that will be proposed in AWE’s forthcoming Application for a Certificate of Site and Facility
16 (the “Application”). I provided extensive witness testimony regarding the previously proposed
17 Antrim Wind Project in Docket 2012-01, and am directing the preparation of the current
18 Application. I have also negotiated all land leases and conservation easements in connection with
19 the Project, and have participated in dozens of meetings in Antrim related to the Project.

20 **Q. What are your background and qualifications?**

21 A: I have been an executive in the renewable energy industry for more than a decade,
22 and have extensive project development experience in wind, solar, and biofuel technologies. My

1 professional and educational experience is set forth fully in my CV, which is attached hereto as
2 Attachment JBK-1.

3 **Q. Have you previously testified before this Committee and / or any other state**
4 **permitting agencies?**

5 A: Yes. I provided extensive written and oral testimony in Docket No. 2011-02,
6 supporting AWE's petition to the SEC to take jurisdiction over its initial Application for a
7 Certificate of Site and Facility for the Project, as well as in Docket 2012-01, supporting AWE's
8 initial Application for a Certificate of Site and Facility.

9 **Q. What is the purpose of your testimony?**

10 A. My testimony explains how the facility that AWE intends to propose in its
11 forthcoming Application differs from the facility reviewed by the SEC in Docket 2012-01, both
12 in its physical attributes and its impacts. As AWE noted in its Petition for Jurisdiction, the
13 proposed facility will be, in many respects, substantially similar to the facility proposed in
14 Docket 2012-01. The SEC made numerous findings in Docket 2012-01 that aspects of the
15 facility would not have an unreasonable adverse effect, either as proposed or upon satisfaction of
16 certain conditions, and as such there is little reasons for AWE to amend those aspects of the
17 facility that are unrelated to the SEC's denial of AWE's application. However, the facility that
18 AWE now intends to propose for construction in Antrim does differ substantially in several
19 critical and fundamental ways from that which preceded it, and I discuss those differences below.
20 Notwithstanding the many similarities among the two proposed facilities, the project that AWE
21 now asks the SEC to take jurisdiction over is, ultimately, a different project with different
22 impacts that fully merits review by the SEC.

23

1
2 **Q. How does the reconfigured Antrim Wind Project differ from the project**
3 **reviewed by the SEC in Docket 2012-02?**

4 **A.** The most fundamental changes to the proposed facility are the removal of turbine
5 # 10 from the turbine array and the substantial reduction in height of turbine #9. By removing
6 turbine #10, AWE has substantially reduced the physical scale of the proposed facility and, in
7 doing so, eliminated all of the civil and electrical infrastructure associated with that particular
8 turbine. Turbine #10 was identified in Docket 2012-01 as having a particularly strong impact
9 upon Willard Pond, and AWE has removed it to directly address that concern. AWE has also
10 significantly redesigned turbine # 9 to decrease its height and reduce its visual impact. The
11 tower for turbine #9 will now be 79.5 meters tall, with a rotor diameter of 113 meters. This
12 results in a total height from foundation to blade of 446.2 feet for turbine # 9, a reduction of
13 more than 45 feet from the 492 foot total height proposed in Docket 2012-01. As Dr. Raphael
14 explains in his accompanying testimony, this height reduction means that the tower and nacelle
15 of the turbine (the two most significant visual impacts) now sit below the tree line, virtually
16 eliminating the visual presence of the turbine from Willard Pond. Therefore this height
17 reduction has the effect of removing the turbine visually from the location where its visibility
18 was a primary concern...

19 AWE has also reduced the height of turbines ## 1 – 8. Though AWE's Petition for
20 Jurisdiction in the above-captioned docket states that these turbines will have a maximum height
21 from foundation to blade tip of "not more than 495 feet," the total turbine height will actually be
22 488.8 feet, with towers of 92.5 meters tall and a rotor diameter of 113 meters. All ten of the
23 turbines proposed in Docket 2012-01 were 492 feet from foundation to blade tip; now, there will
24 be only nine turbines, one of the turbines will be significantly shorter than initially proposed, and

1 the remaining eight will several feet shorter than initially proposed. This represents a substantial
2 difference in the configuration of the proposed facility.

3 Finally, the manufacturer and certain physical attributes of the turbines themselves will
4 be different. In Docket 2012-01, AWE proposed the construction of ten Acciona AW 3000 wind
5 turbine generators each with a nameplate capacity of 3 MW. The facility that AWE now intends
6 to construct in Antrim consists of nine Siemens Energy Inc. (“Siemens”) SWT 3.2/113 direct
7 drive turbines, each with a nameplate capacity of 3.2 MW, or 28.8 MW in total. Each turbine is
8 a horizontal axis machine comprised of a tubular steel tower, a nacelle with a generator inside,
9 and a rotor with three blades. In many respects the turbines are similar to the Acciona turbines.
10 But the SWT 3.2/113 has a slightly larger 3.2 MW generator housed inside the nacelle, the
11 Siemens machines are direct drive turbines (no gearbox), and they are quieter. Siemens is a
12 larger and more experienced company than Acciona, with vast experience in the manufacture,
13 installation, commissioning and operation of turbines both globally and in the United States,
14 including New England.

15 Essentially, AWE’s new application will retain the many favorable components of the
16 project reviewed by the SEC in Docket 2012-01 while making significant and beneficial
17 improvements to features of the facility that previously caused concern.

18 **Q. How will the changes described above affect the anticipated impacts of the**
19 **Project?**

20 **A.** All of the impacts of the previously proposed facility will be reduced as a result of
21 the changes outlined above. For example, AWE will submit an updated Sound Level
22 Assessment Report prepared by Epsilon Associates, Inc. demonstrating that the sound levels
23 generated by the Siemens turbines will be lower than those generated by the previously proposed

1 Acciona turbines, thereby reducing the sound level impacts of the facility. AWE also intends to
2 submit an updated Shadow Flicker Analysis, again prepared by Epsilon Associates, Inc.,
3 showing that the flicker effect of the facility will be diminished from that of the facility proposed
4 in Docket 2012-01. Ground clearing and grading amounts will be reduced significantly, and the
5 removal of turbine #10 means that the overall footprint of the project will be smaller, further
6 minimizing any impacts to habitat or the environment. For example, the proposed facility will
7 no longer touch upon the Willard pond watershed.

8 Critically, the visual impacts of the proposed facility have been significantly reduced, as
9 explained in greater detail in the pre-filed testimony of David Raphael of LandWorks. In Docket
10 2012-01 turbines ## 9 and 10 were singled out as having an adverse effect on views from the
11 Willard Pond resource. Though Counsel for the Public's expert recommended the complete
12 removal of turbines ## 9 and 10, AWE has redesigned the facility to remove turbine # 10 entirely
13 and shorten turbine # 9 in a way that significantly mitigates its visual impact. These represent
14 material changes that respond directly and meaningfully to concerns raised by the SEC and
15 various parties to Docket 2012-01. AWE has also commissioned a new Visual Impact
16 Assessment that is far more comprehensive than the assessment presented by AWE in Docket
17 2012-01 to characterize the facility in the surrounding landscape and assist the SEC in evaluating
18 this essential component of the Application.

19 Standing alone, each of these reduced impacts is significant and represents a considerable
20 improvement to the previously proposed facility. The cumulative effect of these reduced impacts
21 is significant, and the new facility is sufficiently different from the one reviewed in Docket 2012-
22 01 to merit fresh consideration by the SEC.

1 **Q. Will AWE’s Application include new mitigation measures not previously**
2 **considered by the SEC?**

3 **A. Yes.** In addition to providing significant clean energy and fuel diversity benefits
4 to New Hampshire, the Project will include an extensive and expanded conservation benefit
5 package that will permanently conserve over 908 acres of valuable forest land and habitat. The
6 project as proposed in Docket 2012-01 provided for the conservation of 808 acres. As a result of
7 these conservation commitments, the Project will permanently conserve more than 16 times
8 more land than will be initially cleared for construction and more than 78 times the land that will
9 be occupied in the long term by the facility itself. The area to be conserved includes more than
10 313 acres of the highest ranked habitat in the state (under New Hampshire’s Wildlife Action
11 Plan) and over 156 acres of the highest ranked habitat in the region. The additional 100 acres of
12 conservation land that have been added to the Project’s conservation package include the area
13 surrounding turbines 5,6,7 & 8 – such that now 100% of the ridgeline will be permanently
14 conserved. Conserving 100% of the ridgeline dramatically increases the total value of the
15 overall conservation package by ensuring perpetual protection of the entire ridge and also by
16 providing continuity among all of the conserved parcels. AWE has also committed to make a
17 one-time payment of \$40,000.00 to the Town of Antrim for the enhancement of the recreational
18 activities and aesthetic experience at the Gregg Lake Recreational Area, which the Town of
19 Antrim agreed was “full and acceptable compensation for any perceived visual impacts to the
20 Gregg Lake area.” AWE also recently updated its Payment in Lieu of Taxes (“PILOT”)
21 agreement with the Town of Antrim, providing for significant and stable revenue to the Town of
22 Antrim for the first twenty years of the Project’s life, paying the highest per MW payment of any
23 PILOT agreement for a wind project in New Hampshire. Finally, AWE has entered into a Land

1 Conservation Funding Agreement with the New England Forestry Foundation (“NEFF”), in
2 which AWE has agreed to fund \$100,000 to NEFF in order to acquire new permanent
3 conservation lands in the general region of the Project for the enhancement and maintenance of
4 the region’s aesthetic character, wildlife habitat, working landscape, and public use and
5 enjoyment.”

6 The reduced physical scale and impacts of the Project, combined with increased
7 mitigation measures, make Project that AWE now asks the SEC to take jurisdiction over
8 significantly different than the project proposed in Docket 2012-01. As such, the SEC should not
9 decline to take jurisdiction over the Project on the grounds that it is not sufficiently different than
10 the previously proposed project.

11 **Q. Did AWE propose the changes outlined above in Docket 2012-01?**

12 **A.** After the SEC issued its decision denying AWE’s application for a certificate of
13 site and facility in Docket 2012-01, AWE moved to reopen the record so that the SEC could
14 consider new documents and evidence, including revised plans that removed turbine # 10 from
15 the turbine array. AWE’s motion at that time also included the Gregg Lake Agreement with the
16 Town of Antrim and the proposal for an additional 100 acres of conservation land. Changing the
17 turbine manufacturer from Acciona to Siemens turbines, significantly reducing the height of
18 turbine # 9 and the Land Conservation Funding Agreement with NEFF have never been part of
19 AWE’s proposal until now. All of the changes described herein are “new” and have not been
20 previously considered by the SEC since they concluded in 2013 that review of the new evidence
21 would require re-review of the entire application in light of the requirements set forth by RSA
22 162-H, and therefore denied AWE’s request to re-open. Docket No. 2012-01, Order on Pending
23 Motions at 10 (Sept. 10, 2013). Notably, the SEC explained that AWE sought to “introduce

1 evidence which would materially change the original Application and would require extensive *de*
2 *novo* review.” *Id.* at 11. In their deliberations om AWE’s motion to reopen, several members of
3 the SEC subcommittee indicated that the proposed changes offered by AWE were better suited to
4 review upon re-application. Docket 2012-01, Transcript of Deliberations on July 10, 2013 at pp.
5 94-99. Comments from Commissioner Ignatius on this point are particularly relevant to the
6 question now being considered by the SEC:

7 [Y]ou take these four, five issues, and you're going to be retrying an awful lot of
8 the evidence about the turbine design and the sound impacts and the visual
9 impacts and the ridgeline protection. It strikes me as really pretty significant. . . .
10 It's really a new modified proposal. . . . It's really new, it's all new issues would be
11 presented, not all, but a number of new issues to be presented.
12

13 *Id.* at p. 98.

14 AWE has taken heed of the SEC’s comments in Docket 2012-01 and intends to present a
15 its modified project for the SEC’s review in a forthcoming application for a certificate of site and
16 facility. As explained above, the turbine array has been materially altered, as have the
17 characteristics and manufacturer of the turbines themselves. These modifications to the original
18 project will result in changes to visual and sound impacts, among other things, and AWE will
19 present a completely new visual impact assessment and updated sound impact study as part of its
20 application. Thus, while the newly proposed facility will share many key attributes with the
21 previously proposed facility, there are critical differences that relate directly to the aesthetic
22 issues underlying the SEC’s denial of AWE’s initial application. In fact, it is AWE’s efforts to
23 modify the project to address the SEC’s concerns in Docket 2012-01 that has caused the
24 nameplate capacity of the facility to dip slightly below the 30MW jurisdictional threshold. The
25 facility that AWE will present to the SEC in its upcoming application will be, to quote
26 Commissioner Ignatius, a “new modified proposal” meriting full review by the SEC.

1 **Q. Is it your opinion that the Project is significantly different than the one**
2 **proposed in Docket 2012-01?**

3 **A.** Yes. As I noted above, the SEC made favorable findings with respect to many
4 features of the Antrim Wind Project in Docket 2012-01, and AWE will retain those features
5 (and, in some cases, adopt conditions proposed by the SEC) when it files its Application.
6 However, AWE has made significant changes to the wind facility that it proposes to build in
7 response to concerns raised by the SEC, changes that the SEC itself deemed better suited for re-
8 application than reconsideration in the previous docket. These changes, and the reductions in
9 impacts that result from them, merit consideration by the SEC in a new docket reviewing AWE's
10 Application for a Certificate of Site and Facility.

11 **Q. Does this conclude your pre-filed testimony?**

12 **A.** Yes.

John B. Kenworthy (Jack)

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Portsmouth, NH 03801
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jkenworthy@eolian-energy.com

GENERAL QUALIFICATIONS:

Experienced executive with over 12 years in the renewable energy sector. Expert in the financial, legal, technical and community elements involved in complex clean energy project development. Superior communications skills and ability to build and manage excellent teams and form lasting business relationships built on a foundation of trust and follow-through.

EDUCATION:

The University of Vermont, B.A. Environmental Science, 2000 (summa cum laude)

PROFESSIONAL EXPERIENCE:**Eolian Renewable Energy, LLC:** Portsmouth, NH: *Co-Founder, CEO*

(January 2009-Present)

Founded Eolian Renewable Energy, LLC – a wind energy development company focused on utility scale wind facilities in the New England and Mid-Atlantic regions. Responsible for capital raising, site acquisition, oversight of permitting and commercial development for projects, and corporate management and reporting.

Kenworthy Partners, LLC: Portsmouth, NH: *Founder, Managing Partner*

(July 2008-2009)

Founded Kenworthy Partners – a consultant to industry, educational institutions and municipalities on strategies to maximize competitiveness by providing thought leadership in integrated sustainable systems and technical competence in energy systems design.

Cape Systems, Limited: Eleuthera, Bahamas: *Co-Founder, President and CEO*

(July 2005 – June 2008)

Founded Cape Systems Ltd. – a full service renewable energy and biofuels consulting firm and project developer.

Bahamas Biodiesel: Nassau, Bahamas; *Co-Founder*

(May 2007-June 2008)

First commercial scale waste oil to biodiesel facility in the region developed in partnership with Bahamas Waste, Ltd.

Cape Eleuthera Institute: Eleuthera, Bahamas: *Co-Founder and Director of Systems, Facility Manager*

(January 2002 – June 2006)

Co-Founded Cape Eleuthera Institute – a center of excellence in marine resource preservation and sustainable technologies in The Caribbean.

Cape Eleuthera Island School: Eleuthera, Bahamas: *Teacher, Facilities Manager, Research Advisor*

(January 2001-January 2004)

PROFESSIONAL ACCOMPLISHMENTS:

- First successful public/private renewable energy partnership in The Bahamas using hybrid wind/solar technologies connected to utility grid in pilot partnership with utility.

- First “carbon finance” deal in The Bahamas for commercial scale biodiesel plant
- Launched “Freedom 2030” initiative to eliminate Eleuthera’s dependence on oil with partners at Rocky Mountain Institute, National Renewable Energy Labs, Bahamas Electricity Corporation, Bahamas Ministry of Works, Bahamas Office of the Prime Minister, international development banks, and private capital.
- Advisor to Renewable Energy Working Group at Bahamas Electricity Corporation.

PROFESSIONAL MEMBERSHIPS:

- New Hampshire Clean Tech Council
- Maine Renewable Energy Association

ACADEMIC AWARDS/ACCOLADES:

- George T. Kidder Medal for Leadership, Scholarship and Service, University of Vermont (May 2000)
- College Honors in Arts and Sciences, University of Vermont (May 2000)
- Program Honors, Environmental Studies at the University of Vermont (May 2000)
- Member of the John Dewey Honors Program at The University of Vermont
- Member of the Phi Eta Sigma Honors Society through The University of Vermont
- Member of the Vermont chapter of the Golden Key National Honors Society
- Crow Award for Excellence in Systems Thinking - Columbia University, Earth Semester, spring 1998

INTERESTS:

- NAUI certified for SCUBA (Dive Master)
- National Outdoor Leadership School (NOLS) instructor in rock/ice climbing, mountaineering, backpacking
- Mountain biking, windsurfing, fly fishing, rock climbing, guitar