

STATE OF NEW HAMPSHIRE
BEFORE THE SITE EVALUATION COMMITTEE
Docket No. SEC 2015-02

APPLICATION OF ANTRIM WIND ENERGY, LLC
FOR A CERTIFICATE OF SITE AND FACILITY

**PREFILED DIRECT TESTIMONY OF DARRELL STOVALL ON BEHALF OF
ANTRIM WIND ENERGY, LLC**

September 10, 2015

1 **Q. Please state your name, title and business address.**

2 A: My name is Darrell Stovall. I am employed as Principal Engineer, Asset
3 Management and Operations Services, DNV GL. My principal business address is 1400 Ravello
4 Dr., Katy, TX 77449.

5 **Q. Please describe DNV GL and the services that it provides.**

6 A: DNV GL is recognized as the world's leading technical authority in wind power
7 generation for three decades and is the world's largest technical consultancy to onshore and
8 offshore wind, wave, tidal, and solar industries, as well as the global oil & gas industry. The
9 company provides industry standard testing and advisory services to the full energy value chain
10 including renewables and energy efficiency. Our expertise spans onshore and offshore wind
11 power, solar, conventional generation, transmission and distribution, smart grids, and sustainable
12 energy use, as well as energy markets and regulations. Our 3,000 energy experts support clients
13 around the globe in delivering a safe, reliable, efficient, and sustainable energy supply.

14 Our specific wind project capabilities include the following: wind resource
15 measurements, energy assessment, pre-construction engineering, environmental & permitting
16 services, numerical modelling, control solutions, array modelling tools, project engineering and
17 strategy, warranty and verification testing, asset management, strategy & policy advice.
18 Combining leading technical and operational expertise, risk methodology and in-depth industry
19 knowledge, we empower our customers' decisions and actions with trust and confidence. We
20 continuously invest in research and collaborative innovation to provide customers and society
21 with operational and technological foresight.

22 Beyond consulting, DNV GL is an international certification body and classification
23 society with main expertise in technical assessment, research, advisory, and risk management.

1 DNV GL was created in 2013 as a result of a merger between the two leading organizations in
2 the field - Det Norske Veritas (Norway) and Germanischer Lloyd (Germany). Operating in more
3 than 100 countries, our 16,000 professionals are dedicated to helping customers make the world
4 safer, smarter and greener.

5 **Q. What are your responsibilities as Principal Engineer, Asset Management and**
6 **Operations Services?**

7 A. My responsibilities include direct operational/technical support to a variety of
8 owner-operators, service providers and other wind industry participants. Specific duties/activities
9 include the following: development/implementation of asset management systems; supporting
10 clients with procurement of turbine equipment and operation & maintenance (O&M) services
11 including technical/commercial evaluation and contract negotiations, strategy development, and
12 assessments of service provider capabilities; Independent Engineering reviews to support project
13 financing; development of O&M plans to support owners transition to a self-perform mode; and
14 onsite construction monitoring as an owner's representative.

15 I also coordinate with and manage the application/utilization of other subject matter
16 experts within the company in areas such as turbine technology, SCADA, energy assessment,
17 inspection services, etc.

18 **Q. Briefly summarize your educational background and work experience.**

19 A. I have a B.S. and Masters in Engineering from Texas A&M University and have
20 over 30 years in the power generation industry including 10 years in wind energy. This includes
21 approximately 4 years with DNV GL and almost 6 years with EDP Renewables (EDPR,
22 formerly Horizon Wind), a major wind industry company that designs, develops, manages and
23 operates wind projects. I served in a variety of positions with EDPR including Sr. Technical

1 Manager leading a technical/operation support group of wind/electrical/SCADA engineers and
2 Quality Manager. My duties involved significant contracts support/negotiations,
3 construction/commissioning support and organizational/staffing management as well as leading
4 the development and implementation of the company's safety program. Additionally, I served
5 for a period of time as site manager for EDPR's Maple Ridge project, its largest wind farm.

6 Prior to EDPR, I have 20+ years experience primarily in combined cycle gas turbine and
7 geothermal projects. This includes a variety of operational, EPC project management and asset
8 management positions with Ormat Energy Systems, Enron Engineering & Construction,
9 Constellation Power and United American Energy.

10 Additional details regarding my education, background and experience are contained in
11 my curriculum vitae which is attached hereto as Attachment DS-1.

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

13 A. The purpose of my testimony is to give a brief overview of DNV GL's
14 responsibilities as Owners Engineer for AWE in connection with the Antrim Wind Project
15 (hereafter referred to as the "Project"). I will also provide background on the capabilities that I
16 and other DNV GL engineers will apply to support AWE.

17 **Q. Please describe DNV GL's relationship to AWE in connection with the**
18 **Project.**

19 A. AWE has engaged DNV GL as its Owner's Engineer to help ensure that all
20 Balance of Plant O&M and Asset Management services are or will be in place for the Project.
21 Such services include, but are not limited to: managing collector system maintenance; managing
22 Project substation maintenance; emergency response management; parts supply and inventory
23 management; daily turbine monitoring and fault analysis; infrastructure (road and building)

1 maintenance and repair; vegetation removal and waste disposal; maintaining site security and
2 safety and managing public access; coordinating repairs to the MET tower and radar equipment;
3 ensuring compliance with post-construction environmental monitoring and reporting
4 requirements; and coordinating and monitoring appropriate training. DNV GL's broad
5 experience and substantial resources will be leveraged to provide a wide range of value-added
6 input as needed to ensure that the Project is developed, constructed and operated consistent with
7 best industry practices and that it is operated and maintained in compliance with all applicable
8 regulatory requirements and conditions contained in a Certificate.

9 **Q. Has DNV GL served in this role in connection with other wind or renewable**
10 **energy projects?**

11 A. Yes, DNV GL has performed as Owners Engineer on numerous occasions on
12 small to large wind projects involving development phase support, construction phase
13 monitoring, and assessments of operating projects. Additionally, many DNV GL engineers have
14 previously worked for owners and contractors, and we draw from this collective experience to
15 inform our Owners Engineering work. My previous work for EDPR is a good example. As
16 indicated, I was site manager for the 350 MW Maple Ridge wind farm in upstate New York, so I
17 have first-hand experience with onsite safety issues, coordination of turbine service and
18 BOP/electrical contractors, land owner interaction and road access issues. Many other DNV GL
19 engineers have direct owner or contractor experience and will be utilized as appropriate to
20 support the AWE effort.

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1 **Q. How are the tasks performed by DNV GL distinguishable from those**
2 **performed by AWE, Reed & Reed, or Siemens?**

3 A. DNV GL will support AWE through key phases of the Project in planning,
4 staffing, contracting/negotiations, development of processes and procedures including safety and
5 emergency response areas, and BOP/electrical scope definition and contractor
6 evaluation/selection. An early activity will be development of a division of responsibilities
7 matrix that will define key roles and responsibilities for AWE, Reed and Reed, Siemens and
8 other contractors or Project participants to ensure that the comprehensive set of requirements for
9 project construction and operations will be met and to facilitate interface management between
10 relevant parties.

11 **Q. What is the time frame in which DNV GL will act as Owners Engineer on the**
12 **Project?**

13 A. DNV GL is currently engaged to provide support to AWE during the SEC
14 application phase. As the Project moves forward, we will provide appropriate support through
15 development, construction/commissioning, and into operation.

16 **Q. For which phases of the Project will DNV GL be engaged to provide services?**

17 A. DNV GL will support AWE in following areas:

18 (a) Mid-to late development phase activities including technical/operational input &
19 review and negotiating support on key contracts such as the turbine supply agreement
20 (TSA), the BOP/EPC agreement, the service and maintenance agreement (SMA) and
21 contracts for other important services;

22 (b) AWE staffing and organizational support;

- 1 (c) Appropriate design review or oversight and construction/commissioning phase
2 monitoring;
3 (d) Project construction completion and acceptance process;
4 (e) Support during initial operations to the point where routine, on-going project status is
5 achieved.

6 **Q. Will DNV GL help coordinate on-site staffing?**

7 A. DNV GL personnel will be onsite as needed at key points as the Project moves
8 forward. Moreover, AWE will work with DNV GL to hire two full-time staff who, acting with
9 qualified subcontractors, will perform the Balance of Plant O&M and Asset Management
10 Services described above. DNV GL will also provide remote support as needed to ensure that
11 AWE and the Project are successful.

12 **Q: Is the plan that AWE has developed for the construction, operation and**
13 **maintenance of this facility consistent with other developers of wind energy projects in the**
14 **US?**

15 A: Yes, the plan is consistent with other projects that DNV GL has seen and is
16 consistent with best industry practices.

17 **Q: In your professional opinion, does AWE have the technical and managerial**
18 **capability to construct and operate the Project?**

19 A: Yes. AWE has engaged extremely qualified contractors in Reed & Reed and Siemens
20 to perform the highly technical work of constructing and maintaining the wind project. And in
21 hiring DNV GL, the world's leading technical expert on wind energy issues, as its Owners
22 Engineer, AWE has taken the necessary steps to ensure that this Project will be built and
23 operated in a manner that is consistent with industry standards for safety and reliability.

1 **Q: Does this conclude your testimony?**

2 **A: Yes.**

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Darrell Stovall

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Summary

Significant operations and asset management experience including site manager and various direct operations support functions. Conducted operation assessment of mid-sized wind portfolio and recommended O&M strategy. Working with AWEA Quality Assurance Committee to developed and implemented a structured service provider qualifications program. Developed and implemented asset management program for major Canadian wind owner-operator. Supported major utility client in turbine supply and O&M agreement RFPs and negotiations.

Experienced Wind Energy Manager with proven track record in technical performance/ reliability direction, due diligence/OEM supplier review, quality/risk management, field management, construction inspection, operational optimization and overall project implementation; plus broad Power Generation background involving start-to-finish project development and project/asset management of gas turbine projects, geothermal facilities; some solar experience, etc.

Management strengths include customer focus, ability to deliver win-win solutions, excellent people skills, team building/leadership of multi-disciplined groups, structured/data-driven problem solving, asset management/optimization, contract development/management and multi-tasking capability; strong Quality/EHS background and orientation.

Academic Qualifications

B.S. Chemical Engineering, Texas A&M University

M.S. Chemical Engineering, Texas A&M University

Membership of Professional Societies

American Wind Energy Association (AWEA)

Career Profile

DNV GL Energy – Renewables Advisory

Principal Engineer, 2011 – Present

- Responsibilities include various asset/operations support areas as well as technical due diligence, project management, contracts and agreements, operational history, project proforma reviews and business development

EDP Renewables / Horizon Wind

Senior Technical & Quality Manager, Asset Operations, 2005 – 2011

- Worked over five years for a major wind industry owner/operator as a technical/performance and reliability manager leading turbine, electrical and SCADA support to a large fleet

- Established and implemented construction phase QA programs on several projects and helped to upgrade project completion, testing and acceptance requirements
- Served as site manager on a 350 MW wind farm
- Lead contributor to several large turbine procurement programs, O&M agreement negotiations, end of warranty/service contract planning and execution and on-site construction/commissioning and initial operations support

Ormat Energy, Inc.

Engineering Manager, 2002 – 2005

- Responsible for Operations Support, Engineering, EPC Project, and Operations management for geothermal project in Southern California

Enron Engineering & Construction

Project Manager, 2000 – 2002

- Managed gas turbine/combined cycle projects at various locations

United American Energy

General Manager, 1998 – 2000

- Managed gas turbine/cogeneration project in California

Constellation Power

Operations Manager, 1995 – 1998

- Provided site management for geothermal project in Hawaii

Ormat/LFC Power Systems

Project Manager and Operations Manager, 1987 – 1995

- Responsible for project and facility management on geothermal projects at various locations
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