

STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION
IN RE: REVIEW OF PROPOSED TOWN OF NEW SHOREHAM PROJECT
PURSUANT TO RHODE ISLAND GENERAL LAWS § 39-26.1-7

PREFILED REBUTTAL TESTIMONY

OF

WILLIAM M. MOORE
CHIEF EXECUTIVE OFFICER
DEEPWATER WIND HOLDINGS, LLC

FOR

DEEPWATER WIND BLOCK ISLAND, LLC

FEBRUARY 16, 2010

1 **I. INTRODUCTION**

2 **Q. What is the purpose of this rebuttal testimony?**

3 A. A number of issues have been raised in this Docket over the last several months. I would like
4 to address these issues, and summarize Deepwater Wind's views on the Block Island Wind Farm
5 Project.

6

7 **II. RENEWABLE ENERGY IN RHODE ISLAND**

8 **Q. What is the rationale for building a small project such as the Block Island Wind Farm**
9 **Project?**

10 A. First, and foremost, the construction of the smaller Block Island Wind Farm before the larger
11 Utility Scale Wind Farm is part of the approach required by the Rhode Island General Assembly
12 and Deepwater Wind's contract with the State of Rhode Island. We believe the approach has
13 merit. The Block Island Wind Farm is a small project in Rhode Island state waters that can be
14 built sooner than any other offshore wind farm currently being developed in the United States. It
15 is the only offshore wind farm in the country that can qualify for existing Federal government
16 incentives, which require projects to meet certain criteria by December 31, 2010. These benefits
17 have been incorporated in the price proposed under the Power Purchase Agreement ("PPA").

18

19 **Q. Please describe the origins of Deepwater Wind's involvement in developing offshore**
20 **wind projects in Rhode Island?**

21 A. As noted in my direct testimony filed on December 9, 2009, the State of Rhode Island
22 identified offshore wind as an industry of significant importance to Rhode Island, and as the
23 means by which the State will meet its goal of securing sixteen percent of its energy needs from
24 renewable sources. These conclusions were set forth in the *RIWINDS Phase I: Wind Energy*
25 *Siting Report* commissioned by the Governor and issued in April 2007, and later endorsed by a
26 report published by the Office of Energy Resources, *Rhode Island Offshore Wind Stakeholders*
27 *Final Report*, February 2008. The Rhode Island Coastal Resource Management Council
28 ("CRMC") instituted its Ocean Zone Special Area Management Plan ("Ocean SAMP") in 2008
29 with the goal of making Rhode Island the first state in the nation to zone its offshore waters for a

1 variety of purposes, including renewable energy projects. Deepwater Wind was selected as the
2 State’s preferred offshore wind developer following a competitive process established by the
3 Department of Administration.
4

5 **Q. Can you elaborate on the approach Rhode Island has taken in developing the offshore**
6 **wind industry?**

7 A. As described in greater detail below, the State determined that a two-step approach was the
8 preferred method for implementing its vision for a “green” industry in Rhode Island. This
9 approach, which calls for the construction of the smaller Block Island Wind Farm first, with the
10 larger Utility-Scale Project to follow, is outlined in the Joint Development Agreement between
11 Deepwater Wind and the State of Rhode Island. Deepwater Wind is required to develop the
12 Block Island Wind Farm under the Joint Development Agreement. This approach was ratified
13 by the Rhode Island General Assembly through a series of measures, which resulted in the
14 enactment of the Long-Term Contracting Standard for Renewable Energy Act. The measures
15 that resulted in this Act were passed by a cumulative vote of 393 to 1. This Act codified the
16 State’s two step approach, which calls for a renewable energy project serving the Town of New
17 Shoreham, a transmission line connecting Block Island to the mainland, and a subsequent
18 “Utility-Scale Offshore Wind Project.”
19

20 **Q. What are some of the challenges associated with building the larger Utility Scale**
21 **Project alone without building the smaller project first?**

22 A. As I noted in my direct testimony, and in responses to various data requests, a larger wind
23 farm would be more challenging to finance as a first-of-its-kind project in the United States.
24 Second, the permitting process for such a project, constructed in Federal, rather than state waters,
25 is less certain and almost certainly lengthier because of compliance requirements with Federal
26 regulations. Third, the existing supply chain is highly concentrated in Europe. There simply is
27 no established supply chain in the United States. The smaller project will allow Deepwater Wind
28 and its suppliers to begin building this supply chain by allowing the stakeholders to assess and
29 understand infrastructure needs, costs and mobilization issues.

1 **III. BLOCK ISLAND WIND FARM DESIGN**

2 **Q. Why has Deepwater Wind chosen a jacket foundation?**

3 A. The jacket foundation is based on dozens of years of experience in the oil and gas industry,
4 and is capable of achieving greater water depths, such as those found around Block Island and in
5 Rhode Island Sound. Jacket foundations are a more cost-effective solution for projects in deeper
6 water than monopiles, which are typically used in shallower water applications, and quickly
7 become more expensive to build and install as water depths increase. In addition, the presence of
8 boulders beneath the sea floor around Block Island increases the installation risks associated with
9 monopiles. This is explained in greater detail in our response to the Commission's Data
10 Requests, 5-20 and 5-21.

11
12 Furthermore, there is a local labor component included with the jackets. Deepwater Wind plans
13 to assemble the jackets at Quonset Point using local labor. In addition, the lessons learned from a
14 project using monopile foundations could not be transferred to the Utility-Scale Project, which is
15 in even deeper waters.

16
17 If Deepwater Wind were to use monopiles, we would be pioneering the deepest offshore wind
18 project to ever use that technology. Furthermore, a heavy monopile would require larger vessels
19 and specialized equipment to lift and drive the monopile into the sea floor. There are fewer
20 vessels of this type available and they are more expensive than the vessels that would be used in
21 a jacket installation. If such vessels are not available in the U.S., they would have to be imported
22 from Europe, which will add further obstacles due to compliance with complex federal
23 regulations governing foreign vessels and higher mobilization expenses. In addition, such vessels
24 would likely employ European crews. When taken in combination with the higher risk profile of
25 the installation process, Deepwater Wind does not believe there are adequate rewards to
26 outweigh the risks of using monopiles.

27

28

1 **Q. Is Deepwater Wind using the Block Island Wind Farm to demonstrate the viability of**
2 **unproven technology?**

3 A. No. The Block Island Wind Farm is not being used to prove that an offshore wind farm is
4 viable from a technological standpoint. The technology to be used for the Block Island Wind
5 Farm is established. The turbine to be used will be a proven turbine manufactured by a respected
6 manufacturer and backed by appropriate warranties on availability and performance. The jacket
7 foundation is based on an existing design used in the North Sea, and the design process has been
8 informed by decades of experience with offshore oil and gas platforms, including those in the
9 Gulf of Mexico. Projects similar to the Block Island Wind Farm exist in Europe, and their design
10 and construction are well understood. If it was not certain that the turbines would work, or that
11 the jackets would hold up, we could never persuade investors to provide equity capital, or banks
12 to lend money.

13

14 **Q. Is there a “demonstration” component to the Project?**

15 A. Yes, the Block Island Wind Farm Project allows Deepwater Wind, and the State of Rhode
16 Island, to demonstrate that offshore wind projects are viable in the United States from the point
17 of view of community support, environmental permitting, and other regulatory obstacles. It is
18 not the technology that needs to be proven, it is the building of a specific regulatory, political and
19 stakeholder environment in the United States that needs to be established. If Rhode Island can
20 demonstrate that such a project can be accomplished, it will signal to equipment manufacturers
21 that the State is supportive of this nascent industry and is serious about its efforts to develop a
22 green economy. If Rhode Island can show the way, our belief is that it will open the way to many
23 more projects.

24

25 **Q. Since this will be the first offshore wind farm in the United States, is there any risk to**
26 **the ratepayer that the jacket technology will not work as anticipated?**

27 A. No. The power purchase agreement is structured on an “as available” basis. That means
28 Deepwater Wind only gets paid for power it actually produces. If we don’t produce power, then
29 we don’t get paid. So it’s not Rhode Island that’s taking the risk - it is Deepwater Wind.

1 **IV. BENEFITS OF THE PROJECT TO BLOCK ISLAND**

2 **Q. How will the Block Island Wind Farm enhance environmental quality for the Town of**
3 **New Shoreham?**

4 A. The Long Term Contracting Standard For Renewable Energy Act mandates a project that
5 enhances the environmental quality of the Town of New Shoreham. By offering an alternative to
6 the diesel generator on Block Island, with a zero emission source of power, I am confident that
7 the Block Island Wind Farm will achieve this goal and the environmental quality of the Town
8 will be improved. An indirect benefit will be the reduction of fuel oil deliveries to Block Island,
9 reducing the likelihood of accidental spills, which could severely and adversely impact the
10 quality of life for residents and Block Island tourism.

11
12 **Q. What are the other benefits for Block Island?**

13 A. The project will improve the electric reliability for Block Island by connecting the Island to
14 the mainland grid, an objective spelled out in the legislation passed by the General Assembly
15 mandating National Grid's RFP process. In addition, we believe the project provides an
16 opportunity for lower electricity prices on Block Island once it has access to the mainland grid.
17 Residents will be less exposed to price volatility associated with the price of oil once they are no
18 longer dependent on diesel generation.

19
20 **V. STANDARD OF REVIEW AND POWER PRICE**

21 **Q. Do you agree with the following testimony provided by the Division's expert, Richard S.**
22 **Hahn?**

23 **“If the commercially reasonable standard meant only comparing the terms and**
24 **pricing of Deepwater to other projects that benefit the Town of New Shoreham, it**
25 **would become a self referent standard. It seems logical that the legislation sought a**
26 **comparison of winning projects in the RFP to other eligible renewable projects as**
27 **defined by Rhode Island law. Therefore, in my opinion, such other attributes**
28 **should not be included in the definition of the commercially reasonable standard.”**

1 A. I am not an attorney, so I leave it to the Public Utilities Commission to interpret the applicable
2 legislation defining the scope of its authority and obligations in this Docket. However, I do not
3 agree that comparisons to other projects benefiting the Town of New Shoreham are necessarily
4 “self referent.”

5
6 If the relevant comparison were to “other eligible renewable projects as defined by Rhode Island
7 law”, then the PUC would have to consider projects that did not enhance the electric reliability of
8 the Town of New Shoreham, did not enhance the environmental quality of the Town of New
9 Shoreham, potentially exceed the nameplate generation limit imposed in the statute, and that did
10 not contemplate “a transmission cable between the Town of New Shoreham and the mainland of
11 the state”, as provided in the statute. However, such projects would not serve any of the goals
12 specified by the General Assembly.

13
14 In my view, the goals of The Long Term Contracting Standard For Renewable Energy Act are
15 clear. The Act reflects the State's desire for a power purchase agreement that satisfies very
16 specific parameters. The power purchase agreement that we negotiated and entered into with
17 National Grid satisfies those parameters. The applicable standard is whether the power purchase
18 agreement is commercially reasonable in the context of the Act. I believe that it is.

19
20 I believe National Grid adopted a similar interpretation of the scope of the “commercially
21 reasonable” standard. As noted by National Grid in its letter of December 9, 2009:

22
23 “As also explained in the testimony being filed with the agreement, if the Commission
24 applies a “commercial reasonableness” standard to this power purchase agreement to
25 determine whether it should be approved, National Grid believes it is very important for
26 the Commission to make clear that it is commercially reasonable only in the context of a
27 limited demonstration project that was statutorily capped at eight wind turbines.”

28

1 Finally, I would note that National Grid's solicitation process was not limited to offshore wind.
2 The legislation would have permitted a solar project, biomass facility, or any other renewable
3 energy project to file a response and compete with Deepwater Wind for a project.
4

5 **Q. Is the PPA price commercially reasonable in your estimation?**

6 A. Yes. Based on my experience in the electric power industry, which includes the development
7 of 500 MW of electricity in various commercial wind projects as outlined in my direct testimony,
8 the PPA price is commercially reasonable for this Project. The Long Term Contracting Standard
9 For Renewable Energy Act sets forth certain statutory criteria for the Block Island Wind Farm
10 Project. Specifically, the General Assembly has asked the PUC to determine whether the price
11 negotiated by Deepwater Wind and National Grid for not more than 30 MW, that improves the
12 electric reliability and environmental quality of the Town of New Shoreham, and contemplates a
13 transmission line connecting Block Island to the mainland grid, is commercially reasonable. We
14 have provided expert testimony in support of our position. In addition, as described in greater
15 detail below, the contract contains a mechanism to share the benefits of certain 'upside'
16 scenarios with Rhode Island ratepayers, such that the actual unit price of power under the PPA
17 could be lower than the price shown in the PPA.
18

19 **VI. DEEPWATER WIND'S ESTIMATED RATE OF RETURN**

20 **Q. Can you address the issue of Deepwater Wind's estimated rate of return on the Block**
21 **Island Wind Farm Project?**

22 A. Yes. Suffice to say that I do not agree with Mr. Hahn's conclusions on this topic. However,
23 we have not yet had a chance to review the support for Mr. Hahn's opinions and conclusions.
24 Deepwater Wind requested this information in its first set of data requests to the Division of
25 Public Utilities and Carriers. This request was served on February 5, 2010, and a response was
26 due on February 15, 2010. In reviewing this response, the Division has claimed that much of Mr.
27 Hahn's supporting documents and information are confidential. This issue will have to be
28 resolved with the Division.
29

1 Since Deepwater Wind's rebuttal testimony is due on February 16, 2010, I will not be able to
2 review Mr. Hahn's supporting information until the confidentiality issue is resolved and the
3 information produced. Thus, I am not able to fully address this topic at this time. I will file
4 supplemental rebuttal testimony on this issue as soon as possible following my review of the
5 materials and information supplied by Mr. Hahn.

6
7 **VII. PROJECT RISK**

8 **Q. Can you address the risks Deepwater Wind is taking in developing and constructing the**
9 **Block Island Wind Farm? And will these risks affect the PPA price?**

10 Yes. In fact, we are taking significant risks that do not impact the PPA price. Some of these
11 include:

- 12
- 13 • **Construction Scheduling and Costs** – Deepwater Wind is taking the risk that it can
14 meet its targeted construction schedule and costs. By way of example, if the price of
15 steel, a major component for the jackets, rises, or the cost of vessel fuel increases, our
16 costs will be affected. These potential increases are not borne by ratepayers. If there are
17 weather delays or installation problems, our costs could also be impacted. We need to
18 pay boats, crew and workers even if they are sitting idle due to a storm. If we have
19 underestimated construction costs, unlike a regulated utility, we have no basis on which
20 to return to the PUC and ask for an adjustment in our rate. Deepwater Wind bears these
21 risks.
 - 22
 - 23 • **Exchange Rate** - A large portion of the overall project cost is denominated in foreign
24 currency. If the value of the U.S. Dollar falls, the project will cost more in U.S. Dollar
25 terms. Deepwater Wind bears this risk.
 - 26

- 1 • **Production Risks** - Deepwater Wind based its price negotiations on the assumption that
2 the wind will blow at a certain strength. Deepwater Wind bears the risk if its estimates
3 are wrong.
4
- 5 • **Operations Costs** - Similarly, Deepwater Wind has assumed that it will be able to
6 operate and maintain the turbines for a certain cost. If these cost assumptions are wrong,
7 the PPA price does not increase. Thus, Deepwater Wind bears this risk.
8

9 **VIII. PPA STRUCTURE**

10 **Q. Is it Deepwater Wind's position that the power prices in the PPA set a precedent for the**
11 **expected power prices for the Utility-Scale Project it plans to build in Rhode Island Sound?**

12 A. No.
13

14 **Q. Does the PPA create a 25 year agreement, as suggested by the Division's expert, Richard**
15 **Hahn?**

16 A. It does not. Section 2.2 of the Power Purchase Agreement is quite clear that the "Services
17 Term" is twenty years¹. However, as I explained in my direct testimony, Deepwater Wind asked
18 for a right to extend the projected commercial operation date (the beginning of the Services
19 Term) in the event that there are schedule delays. This would include delays in receiving key
20 state and Federal permits. As some may be aware, the Cape Wind project has been in
21 development for close to ten years, due to a lengthy permitting process and active attempts to
22 oppose the project. Given that the Federal government's tax incentives for renewable energy
23 expire in 2012, Deepwater Wind is committed to building the Block Island wind farm in as short
24 a time frame as can be prudently and responsibly achieved and plans to meet that deadline.
25
26

¹ The Services Term can be extended under certain circumstances for Force Majeure.

1 **Q. Are there any mechanisms in the PPA that would lower the price?**

2 A. Yes. Deepwater Wind provided that if, over the lifetime of the project, the wind resource is
3 stronger than is currently expected, we would give half of the power generated above projections
4 to National Grid for free. Put another way, the marginal cost of power to National Grid, once
5 this threshold is met, is sold at a 50% discount to the contract price. Our contract with National
6 Grid does not stipulate how these savings must be treated. However, as I understand it, the
7 Long-Term Contracting Standard For Renewable Energy Act provides that National Grid should
8 pass through the cost of the PPA, and therefore, these savings should be shared with ratepayers.

9

10 In addition to the foregoing, as noted in Mr. Nickerson's testimony, the price paid by National
11 Grid is reduced by the value of the project's capacity, as sold in the ISO-NE Forward Capacity
12 Market. This further reduces the price paid by National Grid.

13

14 **Q. Are there any mechanisms in the PPA that would increase the price beyond the**
15 **scheduled pricing and agreed annual escalation rate?**

16 A. There is no way for Deepwater Wind to unilaterally revise the pricing schedule agreed to with
17 National Grid. If the project takes longer to build, or costs more than we anticipate, that
18 negatively impacts our profit margin. The contract does not allow us to come back to the
19 Commission with a request to pass along cost overruns to the ratepayer, even if those overruns
20 are reasonable. Similarly, decommissioning costs will be borne by Deepwater Wind, and there is
21 no mechanism in the PPA to adjust the price for any increase in decommissioning costs. The one
22 exception to this is the provision regarding the transmission cable, which is addressed in the next
23 section of my testimony.

24

25 **IX. TRANSMISSION CABLE**

26 **Q. Has Deepwater Wind reached an agreement with National Grid for the ownership of the**
27 **transmission cable from Block Island to the mainland?**

28 A. No.

29

1 **Q. Do you expect that an agreement will be reached before the scheduled hearings in this**
2 **Docket?**

3 A. No. I do not.
4

5 **Q. Do you believe that the Commission can render a decision on the commercial**
6 **reasonableness of the PPA without a transmission cable agreement being reached between**
7 **Deepwater Wind and National Grid?**

8 A. I am not a lawyer and certainly all decisions regarding statutory interpretation are in the
9 Commission's discretion, but I believe the Commission can determine whether the PPA is
10 commercially reasonable at this time even though the transmission cable agreement is still being
11 negotiated.
12

13 **Q. Can you please elaborate?**

14 A. Yes. The cost of the transmission cable will not impact the PPA price. There is no
15 mechanism in the PPA to automatically adjust the PPA price based on the cost of the
16 transmission cable. I am aware that the PPA contains a provision whereby Deepwater Wind can
17 ask National Grid to negotiate a revised PPA price if Deepwater Wind owned the cable.
18 However, any such revision would be subject to PUC approval, and as outlined below,
19 Deepwater Wind is unlikely to pursue this option.
20

21 Furthermore, the PPA, by its own terms, does not become effective until a cable agreement is
22 reached by Deepwater Wind and National Grid, and approved by the Commission. We will not
23 be able to construct the project until the transmission cable issue is resolved. So even if the PUC
24 approves the PPA, it will not become effective unless and until a transmission cable agreement is
25 approved by the PUC. If the PUC does not approve a transmission cable agreement, there will
26 be no PPA in effect, and no basis on which Deepwater Wind can continue development and
27 commence construction of the project.
28
29

1 **Q. Who does Deepwater Wind expect will own the cable?**

2 A. Deepwater Wind expects National Grid will own the transmission cable and recover the cost
3 of its investment through a tariff revision, as approved by the Commission and FERC. This
4 process will not impact the PPA price.

5

6 **Q. What if National Grid does not own the transmission cable?**

7 A. As noted in our response to the Commission's Data Request, 5-27, Deepwater Wind has not
8 yet determined if it would continue to develop the project if National Grid does not own the
9 transmission cable. Notwithstanding the provision in the PPA allowing Deepwater Wind to ask
10 National Grid to renegotiate the contract if Deepwater Wind chooses to own the transmission
11 cable, it is unlikely we would pursue this option. This is because in such a case, the transmission
12 cable would function solely as a generator lead, connecting Block Island to the Rhode Island
13 mainland on a unidirectional basis. This means that energy would only flow from the Wind Farm
14 and the Island to the mainland. Under this scenario, Block Island would not have access to the
15 mainland grid. Deepwater Wind does not currently believe such an option to be viable or
16 practical. Alternatively, Deepwater Wind could enter into an arrangement with a third party to
17 develop and construct a transmission cable, and enter into a wheeling arrangement with that third
18 party. However, this would require the execution of additional agreements with National Grid
19 and a modification of the PPA.

20

21 At present, Deepwater Wind envisions that National Grid will own the line and recover its cost
22 through its tariff. As noted in our response to the Commission's Data Request, 5-28, Deepwater
23 Wind has not seriously contemplated any alternative to this arrangement, and could not do so
24 without making significant changes to its business plan in consultation with its investors.

25

26

27

28

29

1 **X. ECONOMIC DEVELOPMENT AND JOBS**

2 **Q. Will building the Block Island Wind Farm have any economic development impact in**
3 **the State of Rhode Island?**

4 A. Yes. I believe that building the Block Island Wind Farm confers first mover advantage to
5 Rhode Island in developing the offshore wind industry in the Eastern United States, and I believe
6 that first mover advantage is significant. It is not only significant to Deepwater Wind, it is
7 significant to the State of Rhode Island.

8
9 Clearly, the State has decided that first mover advantage is an important factor in creating jobs in
10 Rhode Island. This decision was made by the State before Deepwater Wind's involvement. After
11 years of study and policy development, the State chose a private developer to help implement its
12 vision. Deepwater Wind participated in an open and transparent process involving six other
13 parties and was selected by the State as the preferred developer. At the end of that process, the
14 State made it clear that it was important to "be first". Deepwater Wind then spent several
15 months negotiating a Joint Development Agreement with the State. This was an arm's length
16 contract in which the State required, and Deepwater Wind agreed to perform, certain contractual
17 obligations. These included the obligation to use commercially reasonable efforts to achieve
18 certain economic development milestones. To date, we have met all of those obligations. All
19 this is a matter of public record, and we have recited these obligations in the course of this
20 Docket.

21
22 More importantly, the objective of these economic development milestones was to help Rhode
23 Island become first in the United States in offshore wind. As part of that agreement, the state
24 requires Deepwater Wind to develop a smaller project near Block Island, and a larger project in
25 Federal waters adjacent to Rhode Island. The State required that the Block Island project
26 proceed more quickly, making the reasonable supposition that a regulatory regime involving just
27 state authorities would move more swiftly than one that involved Federal agencies and required
28 state-Federal cooperation. The General Assembly later endorsed that approach in the Long Term
29 Contracting Standard For Renewable Energy Act. So the State clearly believes that there is a

1 first mover advantage, and has taken concrete steps to help Rhode Island move into, and stay in,
2 pole position.

3

4 **Q. How do you respond to the criticism that the Block Island Wind Farm will not create**
5 **many jobs in Rhode Island?**

6 A. The Block Island Wind Farm is a first, but firm, step in the direction of a larger project in
7 Rhode Island Sound, and hopefully many more projects built by us, as well as by other
8 developers in the Northeast United States. By establishing our operations at Quonset, Deepwater
9 Wind, and others in Rhode Island, believe that the State can serve as a magnet for other
10 businesses. But building an industry from scratch is a difficult, challenging thing, and we think
11 the Block Island Wind Farm Project is a sound way to start.

12

13 **XI. CONCLUSION**

14 **Q. Does this conclude your rebuttal testimony?**

15 A. Yes, with the exception of supplemental rebuttal testimony I expect to file to address the
16 specific support for Mr. Hahn's opinions and conclusions regarding Deepwater Wind's estimated
17 rate of return.

18

CERTIFICATION

I hereby certify that on February 16, 2010, I sent a copy of the within to all parties set forth on the attached Service List by electronic mail and copies to Luly Massaro, Commission Clerk, by electronic mail and regular mail.

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