



Agenda Date: 12/18/18  
Agenda Item: 8H

**STATE OF NEW JERSEY**  
**Board of Public Utilities**  
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CLEAN ENERGY

IN THE MATTER OF CONSIDERATION OF )  
THE STATE WATER WIND PROJECT AND ) ORDER  
OFFSHORE WIND RENEWABLE ENERGY ) DOCKET NO. QO18080843  
CERTIFICATE )

**Parties of Record:**

- Stefanie A. Brand, Esq., Director**, New Jersey Division of Rate Counsel.
- Stephen B. Pearlman, Esq.**, Nautilus Offshore Wind, LLC
- Alexander Hemsley, III, Esq.**, on behalf of the International Union of Operating Engineers
- Albert G. Kroll, Esq.**, on behalf of New Jersey Laborers-Employers Cooperation and Education Trust
- Aaron Kleinbaum, Esq.**, on behalf of National Wildlife Federation & NJ Audubon

BY THE BOARD:

**I. BACKGROUND**

On August 19, 2010, the Offshore Wind Economic Development Act ("OWEDA") was signed into law and codified at N.J.S.A. 48:3-87.1 and 48:3-87.2. OWEDA and the implementing regulations at N.J.A.C. 14:8-6 et seq. OWEDA allows for a 25 MW nameplate capacity offshore wind ("OSW") project in territorial waters, to be considered as a qualified OSW facility eligible to receive Offshore Wind Renewable Energy Certificates (ORECs), but only if it meets the application requirements stipulated under OWEDA and demonstrates net economic and environmental benefits for the State. On May 30, 2018, Governor Phil Murphy signed S. 1217 into law (P.L. 2018, c. 21), amending N.J.S.A. 48:3-87.2, and requiring the New Jersey Board of Public Utilities ("Board" or "BPU") to accept an application for a small-scale qualified wind energy project located in territorial waters offshore of a municipality in which casino gaming is authorized.

**A. Nautilus Filing**

On August 1, 2018, Nautilus Offshore Wind, LLC ("Nautilus" or "Petitioner") filed a petition, pursuant to N.J.S.A. 48:3-87.2, seeking approval of a proposed offshore wind facility 2.8 miles off the coast of Atlantic City ("Petition" or "Project"). Nautilus requests that the Board approve

the Project as a qualified offshore wind facility and thus eligible for ORECs for a period of 20 years. At the time of submission, Nautilus maintained that the Project was in full compliance with all statutory and regulatory requirements, fully permitted, and ready to begin construction upon the Board's approval. On August 30, 2018 Board Staff sent notice to the Petitioner that the application was deemed administratively complete. (JR-1(c)).

## II. PROCEDURAL HISTORY

By Order dated September 17, 2018, the Board retained the Nautilus Petition for hearing and, pursuant to N.J.S.A. 48:2-32, designated President Fiordaliso as the presiding officer. The Board also directed that any entities seeking to intervene or participate in this matter file the appropriate application with the Board by September 26, 2018. In addition, the full Board issued a procedural schedule designed to ensure that the Board could consider the final decision on the application on October 29, 2018, as requested by the Petitioner.

### A. Motions to Intervene

On September 26, 2018, the New Jersey Laborers-Employers Cooperation and Education Trust ("NJLECET"), the International Union of Operating Engineers Local 825 ("IUOE"), and jointly the National Wildlife Federation and New Jersey Audubon Society ("NWF/NJA"), ("Intervenors"), filed timely motions to intervene in the proceeding.

NJLECET stated in its motion that this Project would enhance NJLECET's membership's competitiveness in the burgeoning wind power construction market. Further, NJLECET asserted that the long-term efficiencies contemplated by New Jersey's increased use of wind power would improve energy efficiency to developers of private and commercial properties, who are represented by NJLECET.

In its motion to intervene, IUOE asserted it was interested in this proceeding because it would be significantly impacted as the Project is expected to employ the equivalent of 600 workers for a year during construction as well as additional jobs during the operation and maintenance.

NWF and NJA (together "NWF/NJA") are non-profit conservation advocacy and education organizations, both with missions aimed at ensuring wildlife, particularly birds, habitats are preserved, conserved or restored. In their motion to intervene, NWF/NJA claim that the specific location of the Project in near coastal waters (0-3 miles offshore) poses probable impacts to wildlife due to established migratory patterns. NWF/NJA Motion at 5. Additionally, NWF/NJA assert that that given the Project's probable impacts on wildlife, BPU's decision on this Project could set a negative precedent for potential future offshore wind projects in New Jersey.

Nautilus filed Opposition to the Motion to Intervene by NWF/NJA on October 1, 2018, stating, among other things, that NWF/NJA would not be substantially, specifically and directly affected by the outcome of the proceeding and that they were not likely to add constructively to the case without causing undue delay or confusion. Should the Board grant intervenor status, Nautilus urged the Board to bar any further discovery and NWF/NJA's involvement in settlement discussions regarding the OREC pricing plan and other matters unrelated to wildlife protection. Nautilus further lobbied that if NWF/NJA were granted intervenor status, Nautilus should be permitted to protect its confidential information and trade secrets by redacting materials no relevant to NWF/NJA.

On October 3, 2018, President Fiordaliso issued an Order granting all three motions to intervene. Following that determination, the intervenors sought to enter into the Board's standard form non-disclosure agreement ("NDA") previously executed by Rate Counsel.

**B. Protective Order**

Nautilus was unwilling to enter into the NDA with the Intervenors, and instead sought to negotiate a separate NDA agreement. These negotiations failed. As a result, on October 5, 2018, Nautilus filed a letter with the Presiding Officer seeking a stay of the existing procedural schedule for the purposes of entering into motion practice on a question of a protective order. Nautilus' request for a stay rendered the prior procedural schedule untenable. Nautilus was made aware of this prior to its request, and nonetheless elected to proceed with the motion practice and the request to stay the existing schedule. As a result, President Fiordaliso suspended the procedural schedule and issued a Motion Practice Schedule on October 5, 2018.

Nautilus then filed a Motion for a Protective Order on October 9, 2018, requesting that access by the Intervenors to certain confidential, propriety information and trade secrets in its petition be limited. On October 16, 2018, Rate Counsel replied, stating that it was unpersuaded by Nautilus' concerns and argued that the standard NDA would suffice in protecting Nautilus' confidential information. NWF/NJA also filed a reply on October 16, 2018 arguing that Nautilus did not properly demonstrate "good cause" as required by law for a Protective Order and that the reasons provided by Nautilus were purely speculative. On October 18, 2018, Nautilus submitted a response, reiterating its strong interest in protecting its confidential information and belief that the Intervenors did not need the contested information to properly evaluate their stated interests. On October 24, 2018, President Fiordaliso denied the Motion for Protection Order.

On October 26, 2018, Nautilus filed a letter with the Board consenting to an extension of the 90-day requirement that the Board render a decision under N.J.S.A. 48:3-87.2(b) to December 18, 2018.

On November 1, 2018, President Fiordaliso issued an amended procedural schedule which allowed the Board may make a determination on the Petition by December 18, 2019.

**III. EVIDENTIARY HEARING/RECORD**

On November 16, 2018, President Fiordaliso presided over an evidentiary hearing at the Office of administrative law. Counsel for all parties were present. Prior to the hearing, the parties stipulated as to the record. All parties agreed that exhibits J-1 to J-24 be entered into the record of the proceeding for consideration by the Board.

Nautilus submitted into the record the pre-filed testimony, of Chris Wissemann, the Managing Director of Fishermen's Atlantic City Windfarm, LLC; Paul Gallagher manager of Nautilus; Steven Gabel, President of Gabel Associates; Doug Copeland EDFR's Regional Manager; Rick Miller EDFR's Director of Wind Business Development, Elisabeth Duranteau, EDFR's Offshore Engineering Coordinator; Eric Hale, EDFR's Director of Wind Assessment; Michael Wheeler, EDFR's Director of Project Finance; and John Whitehead, EDFR's Pre-construction manager. (JR-1).<sup>1</sup>

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<sup>1</sup> Nautilus also submitted Rebuttal testimony of Dr. Kerlinger, Mr. Wissemann, Mr. Copeland, Mr. Miller, Mr. Wheeler and Mr. Gabel. (JR-19)

Counsel presented the pre-filed and sur-rebuttal testimony of Dr. David Dismukes, a consulting economist with Acadian Consulting Group. (JR 14 and JR – 24). NJELECT entered the prefiled testimony of A.J. Sabath, CEO of the Advocacy and Management Group. (JR-15) IUOE submitted the pre-filed testimony of Greg Lalevee, an Executive Board Member. (JR-16) NWF/NJA submitted the pre-filed testimony of Catherine Bowes, the program director of Offshore Wind energy and David Mizrahi, VP of Research and Monitoring for New Jersey Autobahn. (JR-17-18)

At the hearing, the following witnesses supplemented their pre-filed testimony with live testimony: Rick Miller, Paul Kerlinger, David Mizrahi, Catherine Bowes, AJ Sabath, Greg Lalevee, Doug Copeland, and David Dismukes.

### **Nautilus's Testimony**

#### *Description of the Project*

The record in this matter revealed that Nautilus' proposed project consists of a 25 Megawatt ("MW") nameplate capacity offshore wind project located about 2.8 miles off the coastline of Atlantic City. The Project utilizes three MHI Vestas V164-8.3 turbines, each rated at a capacity of 8.3 MW. (JR-1 Exhibit B, Duranteau). MHI Vestas is a Danish company with significant experience in the offshore wind industry. As such, the selected wind turbine components for Nautilus will be manufactured in Europe; therefore, this equipment will be transported across the Atlantic Ocean via purpose-built wind turbine cargo ship. (JR-1 Exhibit B, Copeland).

#### *Project Capital Costs*

#### *Net Economic Benefits*

According to Nautilus, the Project "demonstrates positive economic and environmental net benefits to the State." JR-1(a) 10.

#### *Total Ratepayer Subsidy*

The projected first-year average increase to ratepayers as a result of the Project is estimated to be \$1.52 for residential customers, \$14.71 for commercial customers and \$126.71 for industrial customers. JR-19(f). Exhibit SG-1.

#### *Project Financing*

Fishermen's Atlantic City Windfarm, LLC, ("FACW") is the owner of 100% of the membership interest of the Petitioner. Should the Board approve the Project and award offshore renewable energy certificates, EDF Renewables, Inc. ("EDFR") would acquire the membership interests of Nautilus from FACW. In addition to basic approval of the offshore wind facility, Nautilus also seeks, among other things, approval of the transfer of the project from Nautilus to EDFR as part of this review.

Upon receipt of a BPU Approving OREC Order, EDFR plans to finance the project based on its balance sheet. EDFR represents that it routinely finances construction of renewable energy projects on the balance sheet, by making a sponsor equity contribution to project level special purpose entities, and is therefore not reliant on third party debt providers for construction

financing. It is intended that the Nautilus Project will likewise be financed via equity contribution from EDFR. In addition, EDFR anticipates that it will utilize a typical partnership "flip" to monetize the federal Investment Tax Credit ("ITC") that will be available to the Project. The tax equity investor will fund its tax equity investment immediately prior to commissioning of the first turbine and therefore construction financing will be provided entirely by EDFR through sponsor equity. In any such tax equity structure, EDFR will maintain control of Nautilus. (JR-1 Exhibit B Michael Wheeler).

According to the original Petition, Nautilus contends that EDFR, or the entity that will construct and operate the Project, has demonstrated "financial integrity and sufficient access to capital...to allow for a reasonable expectation of completion of construction of the Project." (JR-1(a) at 12).

#### *OREC Price*

The initial Nautilus OREC Pricing Plan, which assumed receipt of the 2018 ITC credit, included a starting price and an annual escalator. Nautilus later provided a reduced OREC price and annual escalator.

The reduction in OREC price is based in part on EDFR's willingness to accept a lower rate of return based on the intrinsic value of the project for EDFR to mobilize their team to develop larger federal water projects and engage with labor unions while providing an entry point for EDFR operation and maintenance teams to enter the US Market (JR-19 (c)). Secondly, EDFR eliminated construction contingency funds, thus reducing the overall CAPEX of the project.

#### *Project Permitting & Transferability*

The original Petition states that the Project had been "fully permitted, requiring only minor permit modifications" to reflect the change in turbine configuration. JR-1(a) at 3.

#### **Rate Counsel's Cost Testimony**

Dr. David Dismuke's testimony on behalf of Rate Counsel analyzed the proposed projects compliance with OWEDA and the net economic benefits of the proposal. He indicated in his testimony that the Cost-Benefit Analysis submitted by Nautilus contained several fatal flaws, notably, it relied on societal and not market based values to quantify the project's environmental benefits and the CBA "failed to adequately quantify many of the 'first-mover' . . . impacts." (JR-14 at 67). In addition, Mr. Dismuke's testimony provided comparisons of Nautilus' projected price per kilowatt to various other projects which utilized the same equipment. (JR 14, Schedule DED-6 and DED-6).

#### **Environmental Group Testimony**

Catherine Bowes provided testimony indicating that the project may have potential adverse impact on the endangered North Atlantic right whales. Particularly, she indicated that without any precise information with respect to the timing of the pile driving necessary to complete the project, the risk to the whales could not be accurately assessed. (T1:83 to 90). Dr. Mizrahi also submitted testimony on behalf of NWF/NJA indicating that the project would have impacts to migratory birds and may result in high bird mortality due to interaction with the wind turbines. (JR-18 at 10).

#### IV. PARTY POSITIONS

##### A. Nautilus

On November 29, 2018 Nautilus filed an initial brief in support of its application, presenting two primary arguments: 1) the proposed project complies with OWEDA, and 2), the project "unequivocally satisfies the net benefits test." Nautilus Initial Brief at 7.

##### *Full Compliance with OWEDA*

Nautilus argues that its proposed financing mechanism complies with OWEDA and the implementing rules at N.J.A.C. 14:8-6, which stipulate the application requirements and basis for a project being deemed a "qualified offshore wind facility" eligible to receive ORECs. According to its brief, "no OREC will be paid prior to the generation of electricity and that all payments will be based on actual electrical output" by linking the generation of the ORECs to the actual amount of electricity transmitted to the PJM system." (Nautilus Initial Brief at 16). Nautilus maintains that this approach satisfies N.J.S.A. 48:3-87.1(3)(c)(1) of OWEDA. Nautilus also states that its OREC pricing plan includes "no mechanism by which the OREC price could be increased...for any...reason whatsoever", and therefore satisfies the requirement that ratepayers are held harmless for any cost overruns. The brief asserts that EDFR, as the entity that will control Nautilus, will pass any tax credits or other government benefits that are greater than projected along to ratepayers. *Id.* at 17. This assurance, Nautilus argues, satisfies N.J.A.C. 14:8-6.5(a)(5)(iv). Next, Nautilus states that because the OREC payments will only be made when electricity is actually produced, any costs of non-performance will be borne by Nautilus. If no electricity is generated, no ORECs will be produced, and therefore, no payments made by ratepayers. Further, Nautilus confirms that ratepayers will not assume any risk associated with the decommissioning of the project. *Id.* at 18. This approach, according to Nautilus, satisfies N.J.S.A. 48:3-87.1(b)(1)(c) by ensuring all risks are on Nautilus, while the benefits are shared between Nautilus and ratepayers.

Nautilus further maintains that the project satisfies all remaining requirements under OWEDA, including that it is consistent with the State's Energy Master Plan. *Id.* at 42. Nautilus points to the language in Section 4 of OWEDA, which states that a project "shall be no more than 25 megawatts in nameplate capacity." (Nautilus Reply Brief at 15).

##### *Net Benefits Test*

Nautilus asserts that the project will result in positive net economic and environmental benefits to the State as required under OWEDA. Using the R-ECON model, Nautilus argues that it "demonstrates that the Project will result in a minimum net economic benefit to the State of \$285 million." *Id.* at 20. Nautilus further claims that despite its small size, this Project will: assist in lowering costs for future OSW projects, create more than 600 jobs, resolve issues related to union labor agreements and the coordination of labor trades, provide the State with a trained OSW workforce, and allow for the testing of advanced monitoring systems to reduce curtailment during construction and operation. Nautilus Reply Brief at 5. Additionally, EDFR anticipates making millions of dollars of direct expenditures in the State during construction and operations. Nautilus Brief at 20.

Furthermore, according to Petitioner's model, the project will result in the avoidance of carbon dioxide, sulfur dioxide, nitrogen dioxide and particulate matter over the lifetime of the project. *Id.* at 25. Nautilus states that the benefits associated with the CO<sub>2</sub> reductions should be based on

societal costs of carbon, which includes impacts on human health, productivity, flood costs and many other items. Id. at 26. Despite varying testimony regarding these calculations, the brief concludes that “the Project results in positive net-benefits under a number of different CO<sub>2</sub> scenarios.” Id. at 28.

#### *Other Application Requirements under OWEDA*

Nautilus asserts that the Project will not have any significant detrimental environmental impacts. Nautilus Reply Brief at 9. Nautilus points to the comprehensive permitting process with both state and federal regulatory agencies on the impacts to natural resources. The project received a Finding of No Significant Impact (“FONSI”) in 2015 from a National Environmental Policy Act Review (“NEPA Review”) undertaken by the United States Department of Energy (“DOE”). DOE concluded “that the Project ‘will not have any adverse significant adverse impacts and that... [it] would have beneficial impacts to the economy and development of renewable energy.’” Nautilus Brief at 30. In that same report, DOE reported that the Project “will not significantly adversely affect an endangered or threatened species or any critical habitat.” Nautilus Reply Brief at 9.

Nautilus requested permit modifications from the New Jersey Department of Environmental Protection (“NJDEP”) to account for certain changes in the design of the proposed project. On this issue, Nautilus maintains that “there has been no indication from the NJDEP that the Project is ineligible for the requested permit modification and Nautilus submits that the Project meets the applicable standards to allow the permit modification to be granted.” Nautilus Brief at 32. In fact, Nautilus states, “to be clear, it is Nautilus’s position that the project satisfies all applicable NJDEP permitting requirements.” Nautilus Reply Brief at 12.

Nautilus asserts that it has properly demonstrated financial integrity and sufficient access to capital to allow for a reasonable expectation of completion of construction, as required by OWEDA. Ultimately, because the project will be owned and operated by EDFR, the brief states that the company’s track record and balance sheet demonstrates that it has the financial resources to perform the proposed work. Nautilus Brief at 34.

Next, Nautilus contends that it has demonstrated that the wind technology is viable, cost competitive, and suitable, as required under OWEDA. The proposed turbine and platform “meets the Project’s needs and provides a lower commercial and technical risk profile compared to the limited selection of alternates.” Id. at 35. Nautilus believes the turbines also “strike the appropriate balance between proven technology and innovation, while simultaneously allowing ratepayers to benefit from the lowest possible OREC price. Therefore, Nautilus has provided an abundance of evidence that the Project will ultimately perform as anticipated, and therefore the technology is viable.” Id. at 37. It is important to note, according to Nautilus, that due to the small-scale nature of the Project, the costs are competitive with other small-scale projects. Id.

Nautilus lastly contends that the ratepayer subsidy is reasonable, as required by OWEDA. EDFR has committed to accept a significantly lower-than market return on this Project, resulting in a benefit to ratepayers, because it believes there is an intrinsic value in having the opportunity to develop the project. Id. at 40. Furthermore, EDFR has eliminated a substantial portion of the construction contingency from its financial model, thereby reducing the burden on ratepayers. Id. at 41.

Nautilus also encourages the Board to note the important distinction between this Project, and future larger projects, suggesting that this small project may pave the way for future large-scale projects sited in federal waters.

## B. Rate Counsel

Rate Counsel argues that the proposed OREC price and annual rate of escalation "are too expensive and not in the best interests of ratepayers." Rate Counsel Initial Brief (hereinafter "RCIB") at 5. In response to a lower OREC price presented in Petitioner's rebuttal testimony, Rate Counsel's witness notes that "neither the original nor the revised OREC price" is "sufficient to satisfy the statutory requirement that there be a net benefit to ratepayers." RCIB at 6. Rate Counsel also believes that the Nautilus project and proposed OREC plan do not produce a net economic benefit to New Jersey ratepayers as required by OWEDA and therefore the Petitioner has failed to meet the statutory requirements of OWEDA by failing to demonstrate sufficient economic benefits. RCIB at 4.

### *Project Costs*

As compared to other existing projects, Rate Counsel argues that Nautilus' proposed Project costs are simply too high. Rate Counsel's witness, Dr. David Dismukes, compares the cost of the Nautilus Project on a \$/kW basis with the cost of 85 European projects built between 1991 and 2018. Dr. Dismukes finds that the price per kW of only one other project exceeded Nautilus' proposed Project. The data suggests that the Nautilus project had among the highest installed capacity costs and, if approved, would mean that "New Jersey ratepayers would be subsidizing an overly expensive OSW facility" when compared to the value of similar projects. RCIB at 6-7. JR-14 Attachment DED-6. Dr. Dismukes also notes that if comparing a subset of projects utilizing the same turbine as the one proposed for this project, the installed capacity cost estimated for Nautilus far exceed the installed capacity costs of the other projects with the same turbine. RCIB at 7-8. Additionally, Dr. Dismukes compared the Nautilus project to recently approved projects off the coasts of Maryland and Massachusetts, and again, found "significantly lower installed unit costs." Dr. Dismukes concludes that given a statutory mandate to demonstrate positive net benefits, the very high cost of the Nautilus Project as compared to larger project economies of scale means that the Nautilus project is not in ratepayers' best interests. RCIB at 8.

Dr. Dismukes proposes an alternate development cost and lower OREC price that, Rate Counsel believes, to be more reasonable for the Nautilus project. RCIB at 9. Dr. Dismukes constructs his alternative cost analysis based on his statistical study of other projects' costs and then cites several publicly available published sources for OSW costs including the U.S. Energy Information Administration's Annual Energy Outlook and financial advisory and asset management firm Lazard's *Levelized Cost of Energy Analysis*. RC-14 at 29.

In response to Rate Counsel's proposed OREC price, Nautilus offered a revised OREC pricing schedule, citing use of a lower rate of return on the project. Rate Counsel rejects the revised pricing schedule, noting that Nautilus failed to address "the significant disparity in pricing" compared to similar OSW projects approved in the US and Europe. More so, Dr. Dismukes argues that Nautilus failed to demonstrate a net positive benefit to ratepayers even under its revised OREC schedule. RCIB AT 10.

Rate Counsel also takes issue with the annual escalator that Nautilus incorporated in its initial OREC pricing schedule "to account for inflation and other economic contingencies over the term of the project." Dr. Dismukes compares this escalation rate to Massachusetts, Maryland and New York approved projects and found that those projects used a lower rate. Dr. Dismukes

asserts that Petitioner did not provide any justification for the rate or rationale for why its rate exceeds that used by other U.S. projects recently approved.

More generally, Rate Counsel believes that Nautilus' purported benefit to New Jersey from "learning at a small-scale before implementing at commercial scale" compared with the high costs of the small-scale project is a misplaced argument. Simply put, Rate Counsel asserts that "the costs are too excessive for its relative size." While the Petitioner cites "lessons learned" benefits related to the environmental permitting process, the organizing jobs among competing labor groups, acting as a research laboratory to inform future projects, creating investor confidence in the OREC system and collaborating with the fishing industry", Rate Counsel is unpersuaded. Because development of commercial scale projects is now moving so quickly, Rate Counsel argues it diminishes the opportunity to learn and transfer such benefits. RCRB at 3-4.

#### *The Project Does Not Satisfy the Net Benefits Test*

Rate Counsel disagrees with Petitioner's approach to estimating environmental and economic benefits, believing that such estimations should be tied to market prices. Rate Counsel reviewed the data relied on by the Company and found that the use of non-market based approaches, such as "societal costs" are problematic because they represent estimates, not reported data. RCRB at 6.

Citing the previous Board Order which rejected the earlier iteration of the Nautilus project (Fishermen's Atlantic City Windfarm), Rate Counsel contends that the environmental benefits "must be tied to market prices because that is a reasonable manner to ensure fair, just and reasonable ratepayer impact" and that is "consistent with the EMP." RCIB at 12. Similarly, Rate Counsel believes market prices should also be used for valuing particulate matter. RCIB at 12.

Rate Counsel also challenges the Petitioner's approach to valuing avoided carbon dioxide emissions in its cost-benefit analysis. Rate Counsel argues that the Board should instead use the NJ Office of Clean Energy assumptions developed by the Rutgers Center for Energy Economics and Environmental Policies ("CEEPP") which incorporate carbon values published by the U.S. Government Interagency Working Group on Social Cost of Carbon. RCIB 13-14. Further, Rate Counsel's witness states that Nautilus' model not only included a calculating error, but that the mathematical approach was flawed. Specifically, "averaging empirical outcomes over different discount rates is simply not appropriate and is inconsistent with standard CBA practice." RCRB at 7.

With regard to estimating the economic benefits, Rate Counsel believes that a cost-benefit analysis should include "inputs and outputs related to in-State spending levels, manufacturing, employment, wages, and indirect business taxes among other items." RCIB at 14. Rate Counsel disagrees with Petitioner's cost-benefit analysis because it "relies on inflated benefits that, once adjusted, do not exceed the Project costs" and that other "lessons learned" benefits are not adequately quantified." RCIB at 14. Rate Counsel notes that the cost-benefit study results for the current proposed project, as compared to the similar predecessor project in 2012, vary greatly in quantifying environmental benefits, avoided REC purchase assumptions and several other elements. Rate Counsel concludes that the "high degree of variability...raises serious questions about the reliability of the results." RCIB at 15.

Rate Counsel concludes that the Board "should reject the Nautilus Project and its revised OREC plan since they are not in the public interest, consistent with statutory requirements or demonstrate a net economic benefit to New Jersey ratepayers." RCRB at 8.

### C. Intervenors

#### *NWF and NJA*

On November 29, 2018 NWF/NJA filed their initial brief, providing three arguments as to why the Board should deny the Application.

First, NWF/NJA maintains that Nautilus has not demonstrated that the proposed project will provide positive environmental benefits, as required under OWEDA. The primary concern in the brief focuses on the location of the proposed project, which NWF/NJA assert will likely have "adverse impacts on important avian and marine mammal populations." NWF/NJA Initial Brief at 5. They state that Nautilus failed to use the latest radar and thermal imaging technology, or relevant data collected by their team at Avalon Seawatch, to properly assess the projected impacts on bird populations at the site. Further, they believe the timeline for pile driving, provided by Nautilus, is vague. Their concern stems from the timing of the migration of the critically endangered North Atlantic Right Whale, which NWF/NJA believe will likely coincide with Nautilus' estimated timeline for pile driving. Lastly, NWF/NJA claim that Petitioner has overemphasized the value of this project in assisting the future development of much larger projects, located much further offshore.

Second, NWF/NJA argue that the Board is legally obligated to deny the Application because the power output rating of the proposed turbines is expressly prohibited under DEP's Coastal Zone Management rules and OWEDA's overall size limit. NWF/NJA argue that both the regulatory history and the plain meaning of the statutory language indicate that a project with less than five turbines "must use turbines 'each with a power rating of...five megawatts or less.'" *Id.* at 11. They take issue with Nautilus' interpretation of the statute, which is that a "project must not exceed a combination of five turbines and 25 MWs or six turbines and 24 MW." *Id.* at 12. NWF/NJA believe the language is clear and expressly prohibits the newly proposed configuration. NWF/NJA further reason that it is "inefficient for the Board to approve a project that will likely not receive a necessary authorization from another government agency." *Id.* at 9.

Third, NWF/NJA claim the project is not consistent with the New Jersey Energy Master Plan, as required under OWEDA. According to the brief, the proposed project does not advance Governor Murphy's stated 3,500 MW goal since the project is ineligible to bid into the competitive OREC solicitation. Additionally, NWF and NJA argue that the project's near-shore location will provide little value to help inform future projects which will be much farther offshore. *Id.* at 21-22.

In its Reply Brief, NWF/NJA state the DOE's FONSI finding is a narrow and flawed assessment of the likely environmental impacts. NWF/NJA believe that the Board's standards for assessing the environmental impacts are not exclusively focused on the impacts to threatened and endangered species, like the FONSI's is. Further, DOE and the Petitioner failed to address the fact that the Red Knot, a recently-listed threatened species, has been sighted in the vicinity of the Project. Additionally, the proposed project has changed since the FONSI was issued, raising concerns by NWF/NJA. Reply Brief at 2.

## **V. DISCUSSION & FINDINGS**

OWEDA requires that any entity seeking to construct an OSW project submit to the Board an application that includes numerous details, including, but not limited to, a detailed project description comprised of the selected technology and turbine, a completed financial analysis of the project, an operations and maintenance plan, a decommission plan, a list of all permits required, a cost-benefit analysis, a proposed OREC pricing plan and a plan for interconnection. N.J.S.A. 48:3-87.1. In addition to these, Nautilus submitted an Environmental Protection Plan to provide a comprehensive overview of the projects permits, impacts analysis, and mitigation measures consistent with the BPU Solicitation Guidance Document for federal water projects.

When considering an application for a qualified OSW project, OWEDA requires that the Board determine that the application satisfies the following conditions:

- A. the filing is consistent with the New Jersey energy master plan;
- B. the cost-benefit analysis demonstrates positive economic and environmental net benefits to the State;
- C. the financing mechanism is based upon the actual electrical output of the project, fairly balances the risks and rewards of the project between ratepayers and shareholders, and ensures that any costs of non-performance, in either the construction or operational phase of the project, shall be borne by shareholders;
- D. the entity proposing the project demonstrates financial integrity and sufficient access to capital to allow for a reasonable expectation of completion of construction of the project;
- E. the total level of subsidies to be paid by ratepayers over the life of the project; and
- F. any other elements the Board deems appropriate.

Id.

A. Cost Benefit Analysis

*Costs*

As required by OWEDA, Nautilus proposed an OREC pricing plan. The proposed term of the OREC pricing plan will be for twenty years from the commercial operations date (COD). The COD is estimated to be in energy year 2021.

Nautilus indicated that it intends to pursue the 2018 ITC and that this tax savings is already incorporated into its OREC price. The Company did not indicate that it intends to make use of any other federal subsidies.

Nautilus' OREC Price is largely driven by high project costs. OWEDA does not provide a prescribed approach to evaluating project costs. BPU Staff reviewed the testimony of Dr. Dismukes who found "the capital cost is quite high" when compared to the capital costs of other offshore wind projects in EU and US. Also of note is the comparable price of the Blythe Project in the U.K., which is comparable in scale, distance to shore, and utilizes the same MHI Vestas V164 turbine, and is significantly less expensive. For Blyth Phase I, now in operation, one report sets the capital cost at about 145 million British Pounds for a project of 41.5 MW. That converts to about \$188.5 million dollars at an exchange rate of 1.3 USD/GBP (roughly today's exchange rate) and a capital cost of about \$4,542 per kW, which is comparable to the costs suggested by Dr. Dismukes.

The Board recognizes that this Project, as it is the first of its kind in the State, must establish new supply chains and will inherently have larger transport times and costs; however, the Board **FINDS**, after consideration of the aforementioned factors, insignificant justification for the substantially higher price for Nautilus and thus OREC price.

*Economic and Environmental Benefits: General*

An OSW project must be able to demonstrate "positive economic and environmental net benefits to the State" as required by N.J.S.A. 48:3-87.1.b.(1)(b) and the EMP. To provide reasonable confidence that a project will deliver such benefits, N.J.S.A. 48:3-87.1.a(10) requires a benefit-cost analysis, to include at a minimum:

- (a) a detailed input-output analysis of the impact of the project on income, employment, wages, indirect business taxes, and output in the State with particular emphasis on in-State manufacturing employment;
- (b) an explanation of the location, type and salary of employment opportunities to be created by the project with job totals expressed as full-time equivalent positions assuming 1,820 hours per year;
- (c) an analysis of the anticipated environmental benefits and environmental impacts of the project; and
- (d) an analysis of the potential impacts on residential and industrial ratepayers of electricity rates over the life of the project that may be caused by incorporating any State subsidy into rates;

[Id.]

For the overall analysis of benefits and costs, Nautilus created a Microsoft Excel workbook in which they modeled several aspects of the project's costs and benefits. For the input-output analysis, Nautilus chose the Rutgers R/ECON model, which is among the list of potential economic models approved for this use and included at N.J.A.C. 14:8-6.5(a)(11)(i)(1).

Staff asked for clarification and updates to a number of factors and elements that were used in this analysis. Despite these requests, the Petitioner did not provide sufficient data in the record to validate the output of the model.

After thorough review of the Nautilus net economic benefits, the Board **FINDS** that some methodologies, model input values, and assumptions used for the valuation of the benefits are missing, incomplete, and in some cases inappropriately conducted, resulting in a clear over-estimation of the benefits accruing to the project and an inability to validate the purported benefits.

Additionally, the record did not support all the purported economic and environmental benefits. OWEDA and the rules at N.J.A.C. 14:8-6.5 require that "the major assumptions and inputs used in the modeling must be specified by the applicant." OWEDA further allows that the Board may run the model with alternate assumptions and inputs. Although there were numerous requests made through discovery, Nautilus did not provide all of this information, which could then not be included in the record and the amount of in-state spending that Nautilus assumed would take place could not be verified.

The validation of claimed benefits is critical, as the Petitioner is requesting a guaranteed OREC Price to be paid over twenty years. The ratepayer and the State deserve a similar strength of

guarantee that the claimed benefits will materialize. Without the ability to properly substantiate the claimed benefits, the Board **FINDS** that it cannot determine whether the Project satisfies the economic and environmental requirements under OWEDA.

In light of the determinations made herein, the Board does not reach any conclusion regarding the Project's potential impacts on avian and marine mammal populations.

#### *Wholesale Energy Benefits*

Nautilus estimated the total wholesale energy benefit over the 20-year OREC term using the AURORA model. The AURORA model is a proprietary, black-box type model and no information regarding specific input and assumptions embedded in the AURORA model was provided, making a full evaluation impossible.

The expert witness for Rate Counsel was able to provide a separate estimate for wholesale energy benefits based on widely available data and projections which could be as low as 60 percent of the total value estimated by Nautilus.

The Board **FINDS** that wholesale energy benefits cannot be validated based on the record and therefore fails to meet the requirements under OWEDA.

#### *Merit Order Dispatch Benefits*

Nautilus provided a value for Merit Order Dispatch Benefits that it states will result from "price suppression in wholesale electric markets as a result of lower priced supply offering into the market." (JR-19(f) Exhibit SG-1–Nautilus Net Benefit Analysis 2018 ITC – 11.8.18 and JR-1(c) Appendix B at 85).

The Board does not agree that this is a likely result of this project, nor is it a goal of the OWEDA legislation and, therefore, the Board **FINDS** that this benefit shall not be included in the cost-benefit analysis. At no time has the State sought to implicate wholesale electric markets; in fact, the State took significant care to ensure compliance with all requirements and legislative interpretations of the ability of a state to develop its own policy requirements without running afoul of the federal preemption on wholesale prices. OWEDA fits into this process, and thus it would be inappropriate and disingenuous to claim benefits that the state neither sought nor wants, and which the State believes cannot be accomplished through this process.

#### *Avoided REC Purchase Costs*

Nautilus based its valuation of the benefit gained from avoiding the need to purchase Class I RECs on a steeply increasing forward price model that is not supported by historical Class I REC prices. Moreover, the Board believes that New Jersey's energy mix will continue to become cleaner over time and thus the demand for Class I RECs will not skyrocket as proposed by the Petitioners. Therefore, a steady-state or decrease in price is more likely in the future than sharply increasing Class I REC prices. Thus, the Board **FINDS** the benefit from avoided REC purchase costs is overstated by the Petitioner, and therefore contributes to the Project failing to meet the net benefits under OWEDA.

#### *Economic Multiplier Impacts*

Nautilus provided output results of the R/ECON modeling in Attachments 99 through 103 of their petition. JR-1(c) Appendix B. However, the company did not provide in the record a description of the input parameters or their values other than a single input labeled "initial expenditure", nor did it include any description of the specific amount of in-State spending versus spending on equipment, supplies or services from outside New Jersey. Therefore, the Board is unable to fully evaluate the claimed economic multiplier impact. The Board, therefore, **FINDS** that the provided Economic Multiplier Impacts cannot be validated.

#### *Avoided Emissions Benefits*

In JR-1(c) Appendix B at 88-89, Nautilus relies on information related to emission benefits from a federal government document that has since been withdrawn by Executive Order (Technical Support Document, August 2016). In addition, Nautilus inaccurately describes the information provided in that report (see Surrebuttal of Dismukes, JR-24 at 3-4). On this issue, the Board **FINDS** that Nautilus' estimate of benefits flowing from the Project's ability to avoid emissions of carbon and other pollutants to be flawed.

#### *Energy Price Volatility Hedge*

Petitioner has included a value for "Volatility Hedge Benefits" that Petitioner states will result from "a twenty-year hedge against fuel volatility." JR-1(c) Appendix B at 89. The project will be selling into the PJM wholesale market, not direct to consumers. In addition, most ratepayers in New Jersey will obtain supply through BGS auctions or third-party suppliers, and thus will not be subject to frequent or severe volatility in energy prices. Therefore, the Board does not agree that a volatility hedge is a likely result of this project, nor is it a goal of the OWEDA legislation, and therefore the Board **FINDS** that the volatility hedge benefit shall not be included in the cost-benefit analysis.

In light of all of the above the Board **FINDS** that Nautilus failed to make a showing that the "cost-benefit analysis demonstrates positive economic and environmental net benefits to the State."

#### **B. Ratepayer Subsidy Impact**

As stated by the Petitioner, pursuant to OWEDA and the implementing rules at N.J.A.C. 14:8-6.5(a)(12)(iii), "the burden is on the applicant to demonstrate that the proposed OREC Price is reasonable."

Nautilus states that its proposed OREC price will be offset by estimated environmental benefits and net economic benefits. (Exhibit SG-1).

The gap between the OREC revenues and the market revenues earned by the project is a measure of the subsidy being paid by New Jersey ratepayers. In the case of Nautilus, it is worth noting that the value of the ORECs received by the Petitioner is three to four times the value of the wholesale energy revenues generated by the project and returned to ratepayers. Under OWEDA, the net economic benefits of the project must overcome this difference in order to be deemed a "qualified offshore wind facility" eligible to receive ORECs.

In light of the disparity between guaranteed benefits for the developer versus the guaranteed benefits for the ratepayer, the Board **FINDS** that the Project does not fairly balance the risk and rewards of the Project between ratepayers and shareholders.

Because the Board cannot validate the claimed economic and environmental benefits of the Project, the Board **FINDS** that the Nautilus project does not produce a net economic benefit, and does not fairly balance the risk between ratepayers and shareholders.

C. Additional Elements

OWEDA permits the Board to consider additional elements it deems appropriate when reviewing an application for approval. N.J.S.A. 48:3-87.1(b)(2)(b).

a. *Permitting*

Project permitting is a large undertaking, particularly for a project of first impression for the State. Nautilus submitted no less than ten Federal and State applications for permits it needed to acquire for this project alone. While the Board is not expressly required to address this issue, the Board believes it is important to note that delays due to permitting issues have the real potential to present substantial risks, possibly increasing projects costs and, therefore, impacting the ratepayer.

Throughout the proceeding, Nautilus maintained that changes to its turbine configurations required minor modifications to its NJDEP permit. Despite additional inquiries and concerns from the environmental intervenors, Nautilus maintained throughout the process that it did not anticipate any delays or issues with the NJDEP identified minor modification. Well into the proceeding, the parties were notified that, in fact, NJDEP had deemed the modifications as major, not minor. The designation of "major modification" undermines the previous assurances from Petitioner that such modifications would present no problem whatsoever with the Project development.

Maintaining the Project timeline is critical to the Project's successful development. Any real threat of delay presents serious concerns for the Board, as well as New Jersey ratepayers. As such, the Board is highly concerned that all necessary permits were not, as had been represented, fully obtained.

b. *Soft Benefits*

The use of MHI Vestas Turbine is a significant improvement over previous applications and petitions by Fishermen's Energy which proposed use of a pre-commercial turbine manufactured by XEMC, a Chinese manufacture with no commercial operating history for its offshore wind turbines. The installation of three MHI Vestas V164 Turbines in New Jersey ahead of federal water projects is noteworthy for both the State and the manufacturer as it represents the early establishment of the supply chain in New Jersey. The early engagement of the workforce and labor unions in the construction of the project is also very positive although hard to quantify due to the small scale of the project and lack of input data used to estimate the associated economic benefits. Also of note is the opportunity to use the near-shore project as a laboratory for environmental research and testing of advanced monitoring systems to mitigate impacts on marine life. The larger solicitation of 1,100 MWs however will be far more impactful in terms of establishing a supply chain and engaging the workforce at significantly lower cost. Furthermore, at the time of the petition, the Petitioner does not hold a federal lease so there is no direct link or guarantee that early learnings resulting from this small project will be adopted by other developers or transferred and applied to large scale projects in federal waters.

These soft benefits are worth consideration by the Board but do not overcome the deficiencies in the application and specifically the need to demonstrate a net economic benefit that is quantifiable and can be validated.

Finally, the Board **FINDS** that the interim decisions made by the Presiding Officer in this matter were correct and appropriate, and **CONFIRMS** those decisions and affirms them as if made by the full Board.

## **VI. CONCLUSION**

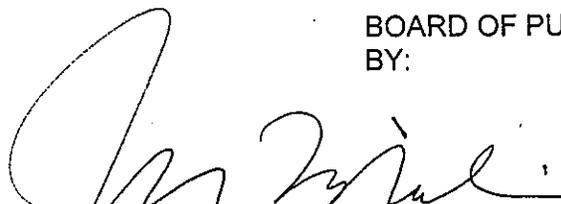
In general, the Petitioner has overstated the net economic benefits of the proposed project to support a high OREC price. Under OWEDA, the OREC price per MWh reflects the total project costs for construction, operation, maintenance and decommissioning over a 20-year period. The OREC price per MWh is guaranteed by the Board for twenty years and paid based on the actual production of the wind project. In return for this guaranteed OREC price, OWEDA requires that an OSW facility demonstrate a net economic benefit to the State and that the applicant provide the inputs and assumptions so that the Board may properly validate those benefits. The Petitioner's over estimation of net economic benefits and lack of data to validate its estimates, creates a scenario where ratepayers carry a disproportionate amount of the investment risk. There is insufficient data to demonstrate that ratepayers and the State will realize purported benefits of the Nautilus project sufficient to justify a guaranteed OREC price for 20 years that is four to five times the value of the energy revenues generated by the project and returned to ratepayers. In evaluating all the factors required under OWEDA, cumulatively, the Board **FINDS** the Project fails the net benefits test.

For the reasons stated above, the Board **HEREBY FINDS** that the Nautilus Project does not satisfy the standard for a qualified OSW facility as set for in N.J.S.A. 48:3-87.1 et seq. and N.J.A.C. 14:8-6.5 et seq. Accordingly, as required by OWEDA and in compliance with the underlying obligation to provide ratepayers full value on OSW projects, Nautilus' request for approval is **HEREBY DENIED**.

The effective date of this Order is December 28, 2018.

DATED: 12/18/18

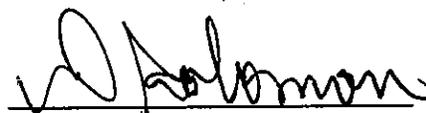
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BY:



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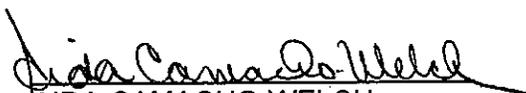
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ATTEST:   
AIDA CAMACHO-WELCH  
SECRETARY

I HEREBY CERTIFY that the within document is a true copy of the original in the files of the Board of Public Utilities.

In the Matter of the Petition of Nautilus Offshore Wind, LLC for the Approval of the State  
Waters Wind Project and Authorizing Offshore Wind Renewable Energy Certificates

BPU Docket No. QO18080843

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