



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Memorandum

To: Amanda Lefton
Director, Bureau of Ocean Energy Management

From: James F. Bennett
Chief, Office of Renewable Energy Programs

**JAMES
BENNETT**

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Subject: Carolina Long Bay Final Sale Notice

1. Purpose

This memorandum documents the analysis and rationale used to develop recommendations for the lease areas to be included in the Final Sale Notice (FSN) for the Carolina Long Bay (CLB) renewable energy lease sale, also known as ATLW-9 for Commercial Leasing for Wind Power on the Outer Continental Shelf (OCS). This memorandum also documents the Bureau of Ocean Energy Management's (BOEM's) decisions to exercise its authority under the Outer Continental Shelf Lands Act (OCSLA) to include certain stipulations in the leases that will be offered for sale in ATLW-9.

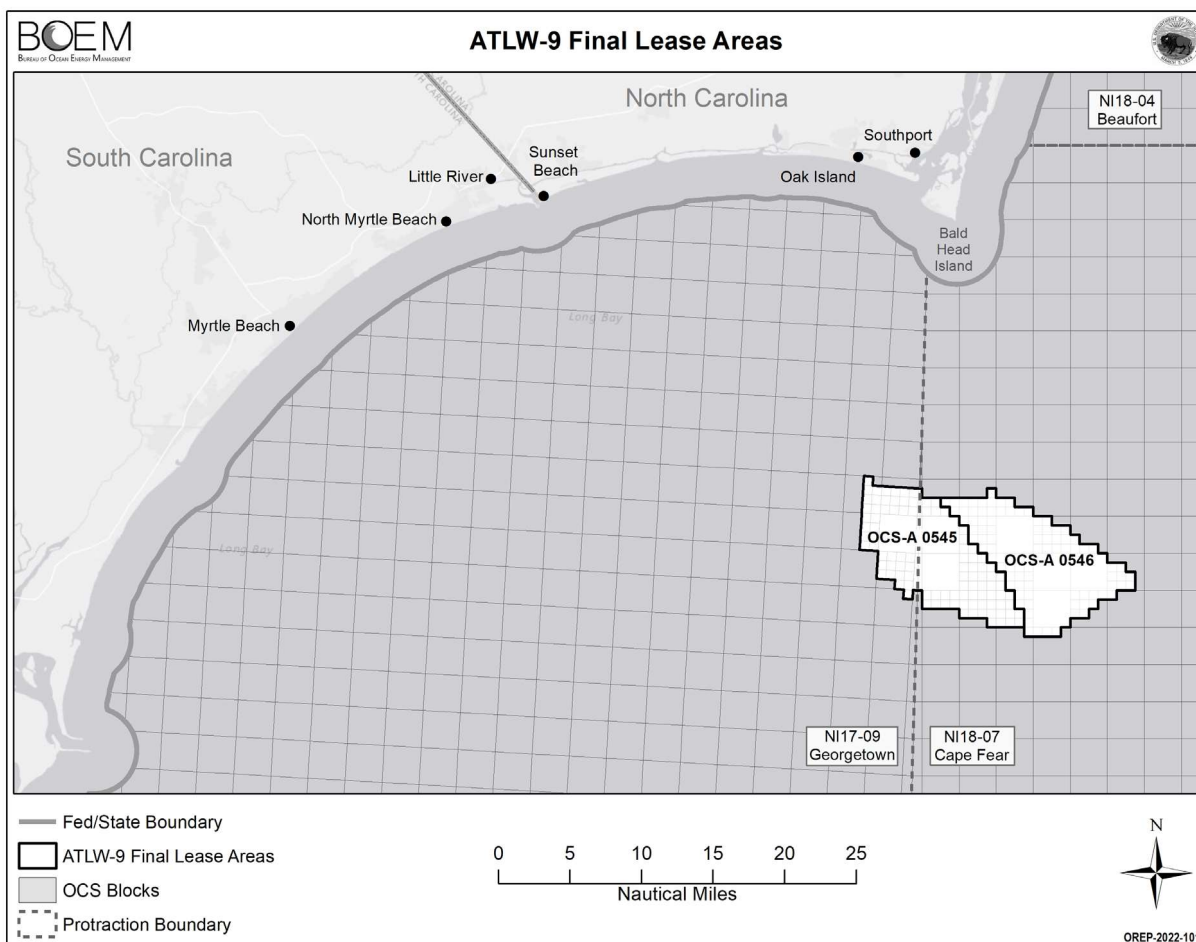
2. Decision Summary

As described in Table 1 and depicted in Figure 1, the recommended lease areas for the CLB FSN consist of 110,091 total acres. The size of the lease areas has been reduced by approximately 14 percent from the size of the areas proposed in the PSN to address issues and concerns expressed in the comments submitted on the PSN and through consultation with Federal agencies. The leases to be awarded, by themselves, do not authorize any activities on the OCS. The leases grant the lessees the exclusive right to submit plans (e.g., Site Assessment Plan (SAP) and Construction and Operations Plan ("COP")) that, if approved after completing all necessary reviews and consultations under applicable Federal statutes, would allow offshore wind energy activities on the OCS. The leases to be awarded would have an operations term of 33 years. Some noteworthy stipulations included in the leases concern reporting requirements, transmission planning, birds and bats, project labor agreements, supply chain, surface structure layout and orientation, and implementation of the results of future consultations under the Endangered Species Act (ESA).

Table 1: CLB FSN Lease Area Descriptive Statistics

Lease	Total Acres
OCS-A 0545	54,937
OCS-A 0546	55,154

Figure 1: Map of the Final Lease Areas in the Carolina Long Bay



3. Legal Background

Pursuant to OCSLA subsection 8(p)(1)(C) the Secretary of the Interior (the Secretary), in consultation with the U.S. Coast Guard (USCG) and other relevant Federal agencies, may grant a lease, easement, or right-of-way on the OCS for activities that produce or support production of energy from sources other than oil and gas (43 U.S.C. § 1337(p)(1)(C)). The Secretary must ensure that activities under this subsection are carried out in a manner that provides for 12 goals, including safety, protection of the environment, and consideration of other uses of the sea or seabed (43 U.S.C. § 1337(p)(4)(A)–(L)). These goals must be balanced, as there may be conflict or tension among them. The Secretary retains wide discretion to weigh those goals as an application of her technical expertise and policy judgment. *See Secretary’s Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf* (Apr. 9, 2021). BOEM has issued regulations governing the leasing process and management of offshore renewable energy projects. *See* 74 Fed. Reg. 19,638 (Apr. 29, 2009); *see also* 30 C.F.R. part 585.

This memorandum addresses BOEM's consideration of the considerations listed in OCSLA section 8(p)(4), particularly environmental factors and multiple uses, at the FSN stage of the leasing process (43 U.S.C. § 1337(p)(4)(A), (B), (D), (F), (I), and (J)), as explained further in Section 4 below. Lease issuance is not the last stage at which BOEM will consider factors under § 1337(p)(4). Issuance of a renewable energy lease, which does not authorize any activities on the lease, but only authorizes the submittal of plans for BOEM's approval, does not constitute an irretrievable and irreversible commitment of resources. BOEM will conduct further analysis under OCSLA and the National Environmental Policy Act (NEPA) if and when COPs are submitted.

4. Description of the BOEM Competitive Lease Award Process

4.1 Call for Information and Nominations to Area Identification

BOEM previously conducted Area Identification offshore North Carolina and established two Wind Energy Areas (WEAs) offshore Wilmington, N.C., on [August 7, 2014](#). After the North Carolina WEA identification, BOEM started a separate planning effort offshore South Carolina and identified Call Areas. Rather than continue to evaluate these areas separately, BOEM combined the planning and leasing process for the existing Wilmington WEAs and South Carolina Call Areas to follow a similar regional model found in the areas to the North – this area is referred to as Carolina Long Bay.¹

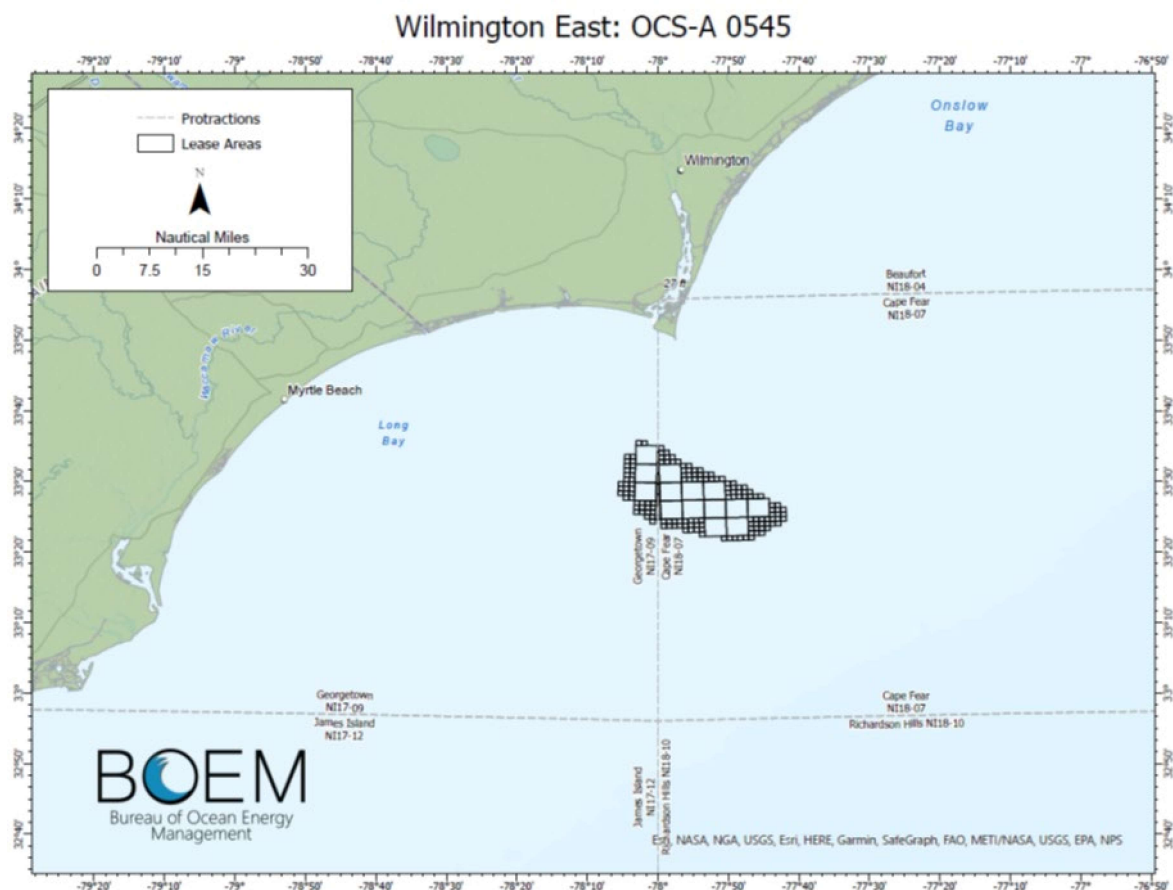
Completing the Area Identification process for the WEAs within Carolina Long Bay included the evaluation of potential incompatible uses, environmental constraints, and other stakeholder concerns. The issues identified and evaluated include impacts on: Department of Defense (DOD) training, testing, and operations; marine mammals; sea turtles; new species listed under the Endangered Species Act; avian species; wind resource/wake effects; and maritime navigation, as well as visual impacts (tourism and historic properties).

4.2 Proposed Sale Notice

On November 1, 2021, BOEM published a Proposed Sale Notice (PSN) for the CLB. The PSN provided detailed information about potential areas that could be available for leasing, possible lease provisions and conditions, auction details (e.g., criteria for evaluating competing bids and award procedures), and lease execution. The PSN included one lease area in the Wilmington East WEA for commercial wind energy development. A map of the lease area published in the PSN is depicted in Figure 2

¹ The FSN identifies lease areas only within the Wilmington East WEA. The Wilmington West WEA and South Carolina Call Areas remain in their current state and may be evaluated for potential future leasing, including the completion of additional WEA identification as appropriate.

Figure 2



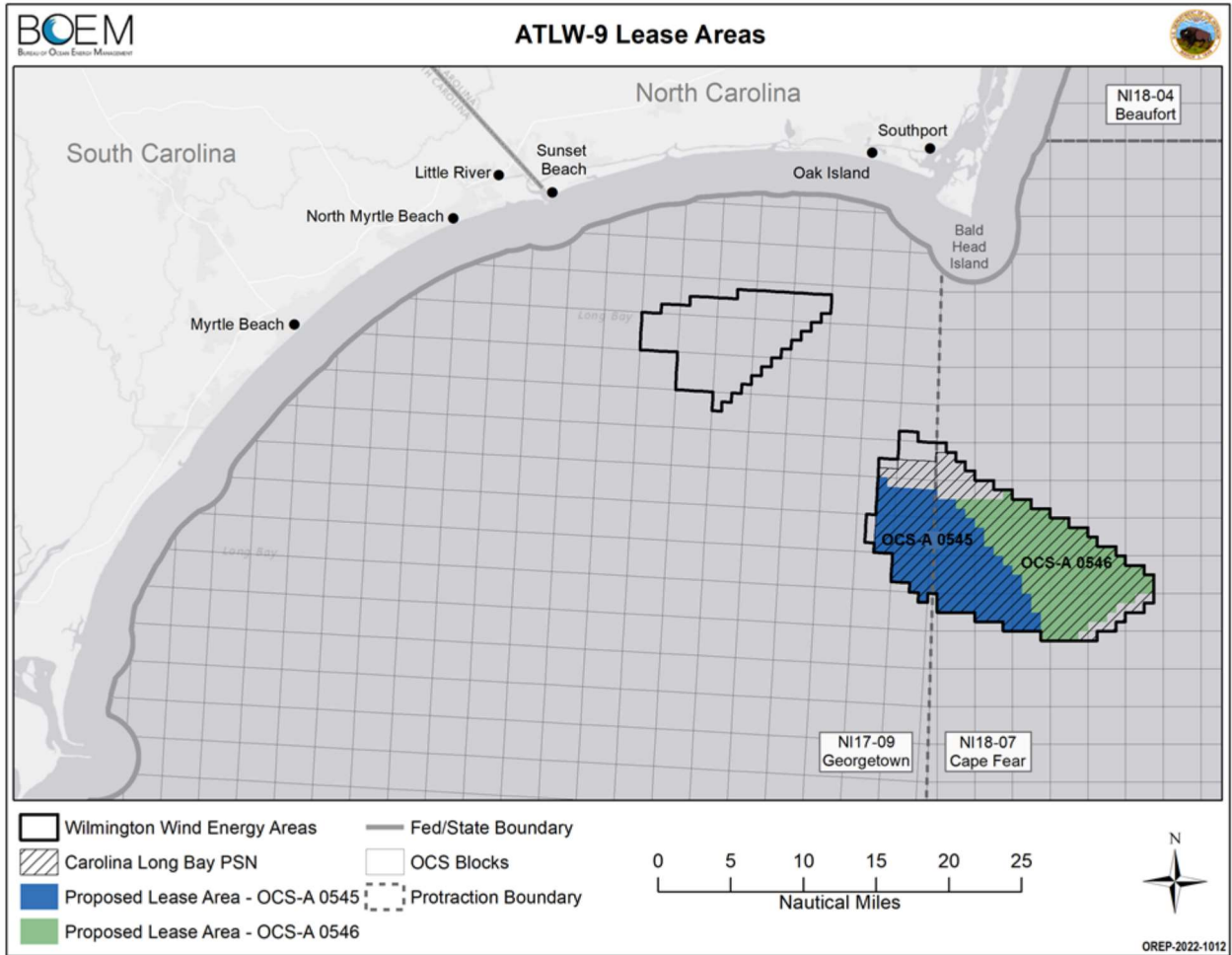
The PSN for ATLW-9 identified specific topics and questions necessary to inform BOEM's decisions on multiple aspects of the lease sale. The summaries below are intended to capture the specific comments received on the questions asked and relate to lease number, size, and orientation, and bidding credits. Summaries of the 60 comments received on the PSN are attached in the Response to Comments document and full versions of the comments are available at <https://www.regulations.gov/docket/BOEM-2021-0078/comments>

4.3 Final Sale Notice

The FSN is the last step, before the sale itself, in the competitive lease award process. *See* 30 C.F.R. § 585.211(d). The FSN contains information pertaining to the areas available for commercial wind energy leasing on the OCS in Carolina Long Bay. Specifically, this FSN includes details regarding certain provisions and conditions of the leases, auction details, the lease form, criteria for evaluating competing bids, award procedures, appeal procedures, and lease execution. BOEM will offer two leases: Lease OCS-A 0545, and Lease OCS-A 0546 (Lease Areas). These two final Lease Areas have the potential to generate more than 1.5 gigawatts of offshore wind energy, which would power over half a million homes and potentially support thousands of new jobs. The issuance of any lease resulting from this sale would not

constitute an approval of project-specific plans to develop offshore wind energy. Such plans, if submitted by the lessee, would be subject to subsequent environmental, technical, and public reviews prior to a decision on whether the proposed development should be authorized. See Figure 3 for a map of the final lease areas.

Figure 3



5. Rationale for Size and Location of FSN Lease Areas

After analysis of the information received in response to the Call for Information and Nominations, the CLB Intergovernmental Task Force engagement, and robust public outreach, BOEM published the PSN on November 1, 2021. A Supplemental Environmental Assessment (SEA) was also initiated to further assess the reasonably foreseeable impacts from site assessment and site characterization activities within the Wilmington East WEA that would likely take place following lease issuance. The Draft SEA was made available for public review and comment on December 8, 2021. Based on these comments, BOEM revised the SEA and published the Final SEA and a Finding of No Significant Impact on March 21, 2022. All of the information gained through these processes, including the comments received on the PSN and Draft SEA, culminates in the FSN. The FSN for the CLB includes 110,091 acres available for lease, a 14 percent reduction from the areas included in the PSN.

In deciding whether to remove areas from leasing consideration, BOEM's charge is to balance the relevant factors in 43 U.S.C. 1337(p)(4). No single factor or comment led to designation of the final sale areas; rather, the areas were altered where multiple factors weighed in favor of a change, there was evidence supporting the application of those factors, and the changes were supported by the comments.

The lease areas in the FSN represent a balance of existing and future uses with the need for expeditious and orderly development of renewable energy. The two areas were chosen taking stakeholder comments into consideration while ensuring a sufficient area to meet Federal and state² renewable energy goals. BOEM designated the two lease areas to ensure that each area has similar acreage, distance to shore, and potential wake effects. BOEM recognizes that potential conflicts may exist with the lease areas, and new user conflicts may arise as the areas are offered for sale and projects are proposed.

In the Carolina Long Bay leases, BOEM is including reporting requirements, discussed below, which are designed to increase and improve communication between future lessees and Tribes, ocean users, underserved communities, agencies, and other stakeholders. It is BOEM's intent to have these reporting requirements establish and maintain a foundation of communication and accountability that will help inform project design early in the process to minimize future conflicts.

In addition to the reporting requirement, BOEM is including a lease stipulation on surface structure layout and orientation to facilitate existing uses and is adding several stipulations aimed at catalyzing domestic supply chain development and encouraging the use of project labor agreements. These latter efforts advance OCSLA's goals, such as orderly and expeditious development, national security, and operations conducted in a safe manner by well-trained personnel.

The inclusion of the lease areas offered in the FSN was informed by the comments received in response to the PSN and in consultation with Federal agencies. Compared to the lease areas

² North Carolina has a goal of developing up to 2,800 MW of wind energy offshore the coast of NC by 2030 (NC Executive Order No. 218), and 8,000 MW by 2040.

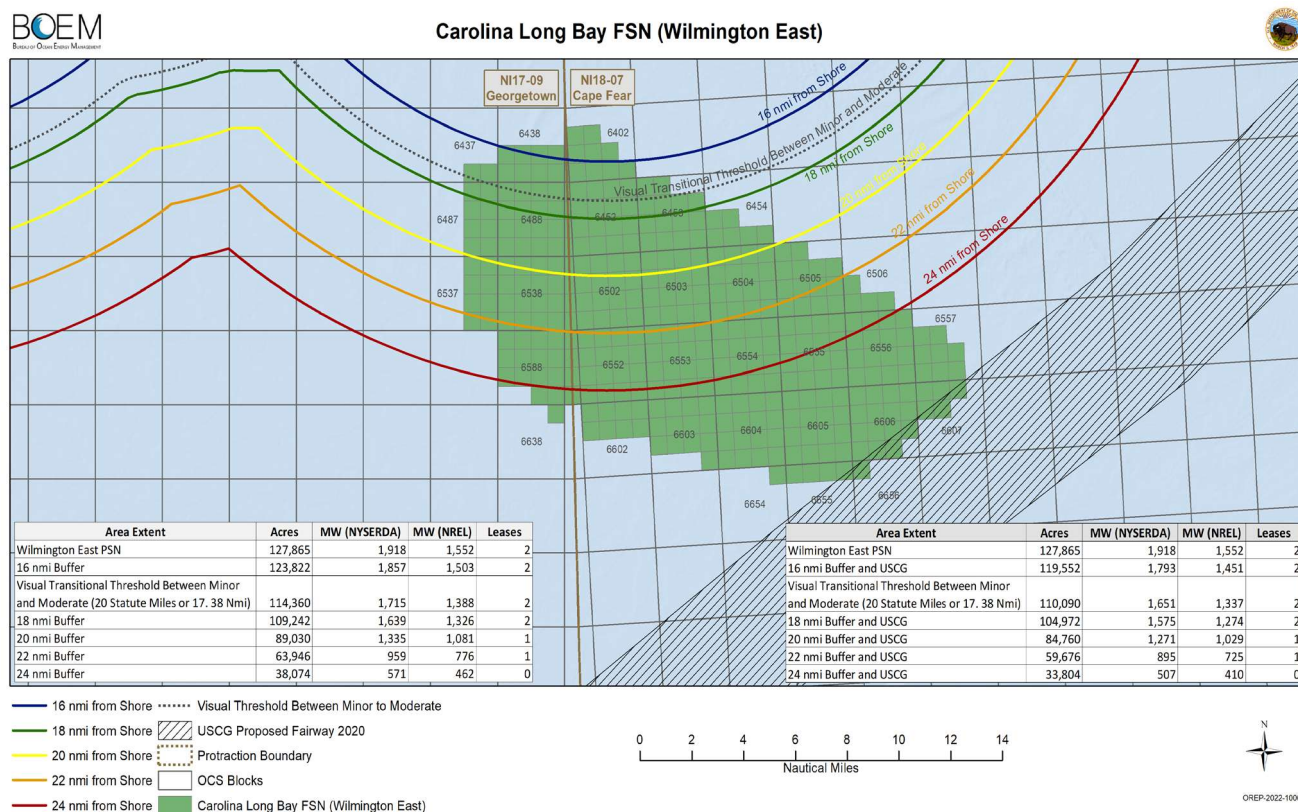
proposed in the PSN, approximately 17,774 acres were further removed in the FSN. This includes 13,474 acres in the northern portion of the WEA and 4,300 acres in the southeast to reduce impacts on the following:

- Maritime Traffic
 - To the east of the Lease Area, there is a proposed Shipping Safety Fairway, per the USCG's 2020 Advanced Notice of Proposed Rulemaking (ANPRM). This fairway is subject to further evaluation in the still unpublished North Carolina Port Access Route Study (NCPARS) Reports. Though USCG will likely not plan to adopt 2 nautical mile (nm) buffers on each side of the proposed fairway, as recommended by American Waterways Operators and included as an attachment in the Atlantic Coast Port Access Route Study Final Report, early communications have indicated that USCG is likely to combine the 5 nm wide Shipping Safety Fairway intended for tug/tow with the 10 nm wide Shipping Safety Fairway intended for deep draft use into a single 15 nm wide Shipping Safety Fairway. This single fairway would likely retain the same boundaries. Therefore, this route would likely remain somewhat in conflict with Wilmington East in the future, and accordingly, all of the PSN Lease Area aliquots conflicting with the Shipping Safety Fairway have been removed in the FSN Lease Areas.

- Potential Visual Impacts
 - In response to feedback received on the PSN, BOEM removed 13,474 acres in the northern portion of the PSN proposed Lease Area. The FSN Lease Areas are now located approximately 20 statute miles from shore. While a 24 nm setback was requested by some coastal communities, BOEM believes its post-lease issuance process will allow for further minimization of potential impacts. Lease stipulations require lessees to engage with potentially affected communities and BOEM will evaluate how feedback and information on visual impacts have been addressed during review of a Construction and Operations Plan. More specific details of a proposed project, including turbine sizes, layout, distance to shore, and analysis within a lessee-developed visual impact assessment will inform BOEM's decision on any projects proposed in the Lease Areas.
 - Figure 4 identifies options considered for a setback between the coast and the PSN proposed Lease Area, associated reductions in the final acreage amount, and the estimated number of leases those acreages could potentially support.³

³ BOEM based the calculation on the potential MW per acre on two metrics: a conservative calculation of 3MW per square km (NREL), and a calculation .015MW per acre based on project proposals in the Northeast US (NYSERDA). Assuming a minimum lease capacity of 800 MW, this results in the potential for two leases from 15-18 nm; one lease from 20-22 nm, and zero viable leases beyond 24 nm.

Figure 4: Map of lease area reduction on MW and Lease acreage



- DOD Coordination

- BOEM coordinated extensively with the DOD Military Aviation and Installation Assurance Siting Clearinghouse (Clearinghouse) within the Office of the Assistant Secretary of Defense (Sustainment) since the beginning of this leasing effort to understand their activities and to identify areas of least conflict. DOD's assessment of the broader planning areas, including the Wilmington East and West WEAs and Call Areas located offshore South Carolina, was completed on February 13, 2020. DOD's assessment identified potential conflicts in the broader planning area, particularly where planning areas overlapped activities occurring within DOD Warning Areas. On December 29, 2021, the South Carolina Air National Guard also submitted comments in response to the PSN and expressed concern with potential impact on training activities in the Warning Areas and on radar use within the area. The FSN lease areas do not fall within the DOD Warning Areas and the Clearinghouse has subsequently confirmed that any potential conflict in the Lease Areas is appropriately addressed during the COP review stage when specific project details are available, and avoidance and mitigations measures can be developed in response to any identified conflicts.

6. Lease Stipulations

BOEM has included a series of lease stipulations for the leases offered in this sale to mitigate existing use conflicts and enhance the development process for all parties involved. Please see the discussion below for a summary of lease stipulations that will be included in the Carolina Long Bay leases.

6.1 Reporting Requirements

BOEM is building upon a previously used lease stipulation to require a semi-annual (i.e., every six months) progress report and require early and regular engagement with affected Tribes, ocean users, and other stakeholders, as well as to encourage regular engagement with and investment in affected underserved communities. Within the progress report, lessees will be required to identify Tribes, ocean users, underserved communities impacted by the project, and other stakeholders potentially affected by proposed activities (collectively “Tribes and parties”). The report will provide updates on engagement activities, challenges or impacts to the Tribes and parties due to the proposed activities, and how, if at all, a project has been informed or altered to address those challenges or impacts, as well as any planned engagement activities during the next reporting period.

Acknowledging that there is an existing and growing consultation burden placed on many affected Tribes and parties, the stipulation also requires, to the maximum extent practicable, that lessees coordinate with one another on engagement activities.

In addition, the stipulation requires that the progress report also address lease requirements for the development of communication plans for:

- Fisheries (Fisheries Communication Plan, FCP),
- Tribes (Native American Tribes Communication Plan, NATCP), and
- Agencies (Agency Communication Plan, ACP),

These plans serve to guide engagement activities with those groups. Lastly, the progress report must also include an update on activities executed under lessee survey plan(s).

Implementation of this stipulation will increase communication and accountability between the lessees, Tribes and parties, and BOEM. The details of how this stipulation will be enforced will be informed by a subsequent guidance document to be developed with input from affected parties.

6.2 Supply Chain Statement of Goals (Stipulation 7/7/1)

BOEM is committed to establishing a durable domestic supply chain that can sustain the U.S. offshore wind industry and support safe, expeditious and orderly development on the OCS. To advance this vision, BOEM has included the lease stipulation in the FSN.

- BOEM has included a stipulation that requires the lessee to establish a statement of goals in which the lessee will describe its plans for contributing to the creation of a robust and resilient U.S.-based offshore wind supply chain. The lessee must provide regular progress updates to BOEM on the achievement of those goals, and BOEM will make these updates publicly available.

6.3 Project Labor Agreements (Stipulation 6/6.1)

- BOEM has included a stipulation that encourages lessees to make every reasonable effort to enter into Project Labor Agreement(s) (PLAs) covering the construction stage of any project proposed for the leased area. Offshore wind projects are large complex construction efforts and are well suited for PLAs. PLAs generally require all contractors working on the construction stage of a project to adhere to collectively bargained terms and conditions of employment, whether the contractors are union or non-union contractors. PLA clauses typically include prevailing wages, no-strike clauses, dispute resolution procedures, and safety and training provisions.
- BOEM has concluded that the use of PLAs when developing the leases at issue will facilitate construction of the projects and potentially help achieve several of OCSLA's stated goals. Pursuant to 43 U.S.C. § 1332(6), operations on the OCS should be conducted in a safe manner by well-trained personnel using technology, precautions, and techniques sufficient to prevent occurrences that may cause damage to the environment or to property or endanger life or health. One way to promote the expansion of a workforce of well-trained personnel that is ready to construct offshore wind projects is through PLAs. OCSLA § 8(p)(4)(A) requires that OCS activities are carried out in a manner that provides for safety. The use of a PLA can help achieve this goal as well. PLAs typically contain provisions directly addressing safety, along with requiring training as to both the substantive aspects of a job and the management of the safety aspects of a job.

6.4 Surface Structure Layout and Orientation

BOEM has included an updated lease stipulation that requires each lessee to endeavor to implement a layout of surface structures that facilitates activities on the lease and allows for a structure layout that contains two common lines of orientation across the adjacent leases (as described in Navigation and Vessel Inspection Circular 01-19). Where such a design cannot be agreed upon among adjacent lessees, each lessee will be required to incorporate a 1 nm setback from the boundary with the neighboring lease where no surface structures will be permitted (a total of 2 nm separation between surface structures on the leases).

6.5 Endangered Species Act Programmatic Consultation

BOEM has completed a programmatic consultation with NMFS under section 7 of the Endangered Species Act (ESA). Federal partners that were co-action agencies on the programmatic consultation include the Bureau of Safety and Environmental Enforcement, U.S. Army Corp of Engineers, and the U.S. Environmental Protection Agency. On June 29, 2021, NMFS issued a Letter of Concurrence under the ESA (<https://www.boem.gov/renewable-energy/final-nlaa-osw-programmatic>) that covers site characterization (high resolution geophysical (HRG) and geotechnical and avian and marine mammal surveys" surveys) and site assessment/data collection (deployment, operation, and retrieval of meteorological and oceanographic data buoys) activities associated with Atlantic OCS leases. As a result of this

consultation, Project Design Criteria (PDCs) and Best Management Practices (BMPs) associated with the mitigation, monitoring, and reporting conditions have been developed for those data collection activities covered in the consultation. The PDCs and BMPs pertain to mitigation, monitoring, and reporting conditions for reducing noise exposure to protected species from HRG surveys, avoiding vessel interactions with protected species, and mooring design and marine debris requirements to avoid entanglement of listed species. Similar to the requirements for threatened and endangered species and critical habitat under the ESA, BOEM requires mitigation, monitoring, and reporting conditions for all marine mammals. All applicable PDCs and BMPs will become provisions of all leases issued for the Carolina Long Bay and are found in the document *Project Design Criteria and Best Management Practices for Data Collection Associated with Atlantic Offshore Wind Leases* found at <https://www.boem.gov/renewable-energy/nmfs-esa-consultations>. Further, section 5.1.5 of the leases to be awarded require the Lessee to perform additional consultations under the ESA if they intend to perform biological surveys that could result in take of ESA-listed species.

7. Auction Format

Among BOEM's goals is the goal to convey renewable energy leases to entities most likely to successfully develop the wind resources and BOEM must comply with the statutory requirement to obtain a fair return on leased acreage. For the Carolina Long Bay auction, BOEM has elected to utilize a multiple-factor auction format, with a multiple-factor bidding system under 30 CFR 585.220(a)(4) and 585.221(a)(6). Multiple-factor auction formats allow BOEM to balance fair return on leased acreage while incentivizing initiatives that will aid in the expeditious and orderly development of the Outer Continental Shelf or other priorities under BOEM's statutory requirements. Under this format, BOEM would consider a combination of a monetary (cash) bid and non-monetary factor (bidding credit) in determining the outcome of the auction. BOEM has selected a multiple-factor auction format to incentivize workforce training and domestic supply chain development. BOEM's decision to select these targeted factors is further addressed in Section 8, which describes in detail BOEM's decision to offer the bidding credit.

In addition, affiliated entities are not permitted to bid against one another. In the case of two or more affiliated entities qualifying for the auction, only one will be permitted to participate. BOEM is permitting a single bidder to win both lease areas. The acreage available for lease has been reduced to 110,091 acres and may impact efficiencies and economies of scale for offshore wind development. Allowing the competitive market to determine the value of each individual area or a combination of lease areas will facilitate efficient development of OCS wind resources and award leases to companies that can generate the greatest value in a timely manner.

8. Bidding Credits

The bidding credit would allow a bidder to receive a credit of 20 percent of its cash bid in exchange for financial commitments to an offshore wind workforce training program or to the development of an offshore wind domestic supply chain. To qualify for the credit, the winning bidder will be required to financially commit at least 80 percent of the bidding credit value toward an offshore wind workforce training program or development of an offshore wind domestic supply chain ("Contribution"). Prior to the auction, bidders will submit to BOEM a Bidder Financial Form (BFF), in which they will inform BOEM of their decision to commit to

the efforts for which the bidding credit can be awarded. Bidders will also need to submit a conceptual strategy at the time of the bid deposit. The Contribution to workforce training will result in a better trained, larger domestic offshore wind work force that would allow for more efficient operations via increasing the supply of fully trained personnel. The Contribution to domestic supply chain development will result in a more robust domestic supply chain by reducing the upfront capital or certification cost for manufacturing offshore wind components including the building of facilities, the purchasing of capital equipment, and the certifying of existing manufacturing facilities. The bidding credit offered in the Carolina Long Bay lease sale is designed to enhance, through training, the offshore wind workforce or stand-up the domestic supply chain for offshore wind manufacturing, assembly, or services. The Contribution is required to benefit the offshore wind supply chain for all potential purchasers of offshore wind services, components, or subassemblies, not solely the Lessee's project. This will allow for a more expeditious and orderly development of each offshore wind project.

As explained in the BFF Addendum, the following are examples of efforts in support of workforce training programs that would be eligible for the bidding credit:

- Contributions in support of union apprenticeships, labor management training partnerships, stipends for workforce training, or other technical training programs or institutions focused on providing skills necessary for the planning, design, construction, operation, maintenance, or decommissioning of offshore wind energy projects in the United States.
- Contributions toward maritime training necessary for the crewing of vessels to be used for the construction, servicing, and/or decommissioning of wind energy projects in the United States.
- Contributions toward training workers in skills or techniques necessary to manufacture or assemble offshore wind components, subcomponents or subassemblies. Examples of these skills and techniques include welding; wind energy technology; hydraulic maintenance; braking systems; mechanical systems, including blade inspection and maintenance; or computers and programmable logic control systems.
- Contributions toward training in any other job skills that the Lessee can demonstrate are necessary for the planning, design, construction, operation, maintenance, or decommissioning of offshore wind energy projects in the United States.
- All contributions must be made, and documentation in support be provided to BOEM, no later than the date in which the first Facility Design Report (FDR) for the project is submitted to BOEM.
- The lessee or its affiliates is not permitted to retain an equity position or directly receive goods or services in return for its contribution.

The following are examples of efforts in support of the development of a domestic supply chain that would be eligible for the bidding credit, as explained in the BFF Addendum:

- Contributions supporting the development of a domestic supply chain for the offshore wind industry, including manufacturing of components and sub-assemblies and the expansion of related services.
- Contributions to domestic tier-2 and tier-3 offshore wind component suppliers and domestic tier-1 supply chain efforts, including quay-side fabrication.

- Contributions for technical assistance grants to help U.S. manufacturers re-tool or certify (e.g., ISO-9001) for offshore wind manufacturing.
- Contributions for the development of Jones Act-compliant vessels for the construction, servicing, and/or decommissioning of wind energy projects in the United States.
- Contributions to establish a new or existing bonding support reserve or revolving fund available to all businesses providing goods and services to offshore wind energy companies, including disadvantaged businesses.
- Other Contributions to supply chain development efforts that the Lessee can demonstrate further the manufacture of offshore wind components or subassemblies, or the provision of offshore wind services, in the United States. .

In order to receive prospective bidding credits, bidders shall submit to BOEM a conceptual Strategy at the time of Bid Deposit. Strategies shall address plans to meet the criteria above and shall describe objective, quantifiable, and verifiable steps that would allow BOEM to confirm compliance with the bidding credit when the documentation is submitted.

Documentation demonstrating payment of the full commitment must be provided to BOEM no later than the date in which the first FDR for the project is submitted to BOEM. The documentation must contain the information called for in the conceptual Strategy submitted at the time of the bid deposit to allow BOEM to confirm compliance with the bidding credit criteria provided in subsections 7.2.1 and 7.2.2 of the Lease.

The Lessee, its parent company, or its affiliates are not permitted to retain an ownership interest in the entity receiving the Contribution or directly receive goods, services, or other compensation as a result of the Contribution itself.

9. Lease and Fiscal Terms

BOEM's regulations initially default to a 25-year operations term. However, BOEM has recognized an increased term length is appropriate due to increased longevity of projects and the time in the operations term that will be taken by construction and post-COP approval activities. Thus, in the CLB lease sale, BOEM is offering leases with a 33-year operations term. Minor changes to the fiscal terms for this lease sale are explained in Appendix II. Specifically, BOEM is simplifying the rental calculation language and simplifying the operating fee calculation. All leases issued under this auction will use the index for VACAR⁴ average wholesale price per MW from the Enerfax power prices dataset within Hitachi's ABB Velocity Suite or similar for operating payments.

⁴ VACAR means the Virginia-Carolinas sub region within the North American Electric Reliability Corporation's SERC Reliability Corporation (SERC).

Director Concurrence

Yes

No

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Director, Bureau of Ocean Energy Management

Date

Appendix I

Carolina Long Bay
 Visibility Levels from Onshore Viewing
 01/20/2022

A summary of results from the **2013 Offshore Wind Turbine Visibility and Visual Impact Threshold Distances Research Study** conducted by Argonne National Laboratory off the shorelines of the United Kingdom showed that small to moderately sized facilities (~500 feet tall) were visible to the unaided eye at distances greater than 42 km [26 miles (mi)], with turbine blade movement visible up to 39 km (24 mi).

The observed 500 feet wind turbines were judged to be a:

- major focus of visual attention at distances up to 16 km (10 statute mi),
- noticeable to casual observers at distances of almost 29 km (18 statute mi), and
- visible with extended or concentrated viewing at distances beyond 40 km (25 statute mi).

At night, aerial hazard navigation lighting was visible at distances greater than 39 km (24 statute mi). (*onshore observations extend to 36 statute miles or more*)

General observations from the most recent draft EIS for Ocean Wind off the New Jersey coastline (under internal review) with a project design envelope that allows for a tip of blade height of 906 feet and a 788 feet rotor blade diameter estimated the following visibility levels (based on photo simulations):

- 15 to 20 statute miles – moderate impact (Visibility Rating (VR) 4, see VR description below)
- 20 to 28 statute miles – minor impact (ranges from VR-1 to VR-3, see VR description below)
- beyond 34 statute miles – negligible impact (VR-1, see VR description below)

The transitional thresholds between the visibility level trend toward wind turbines located:

- from shoreline to 12 statute miles offshore having major visual dominance (VR-6 and VR-5)
- Offshore from 12 to 20 statute miles having moderate visual prominence (VR-4 to VR-3)
- Offshore from 20 miles to 33 statute miles having minor levels of visual prominence (VR-3 to VR-1)
- Offshore 33 statute miles and beyond having negligible visual prominence (VR-1)

The variation in visibility ratings within the same distance range are due to atmospheric clarity, color contrast between the simulated wind turbines and the sky backdrop, varying sun angles (front-lit, backlit, side-lit reflections off the wind turbine surfaces), and elevation of viewer.

The distance thresholds for visual prominence stated above represent approximated transition points between degree of wind turbine visibility, the perceived change is realized from the extremes between the closest to the furthest distance within each visibility rating and requires at least 6 miles to produce a perceived reduction in visual prominence. While 20 statute miles represents a transitional threshold, there would be no perceived difference in visual prominence between a photo simulation with wind turbines positioned at 20 statute miles versus 19 statute miles. This is an important consideration when considering adjusting lease area proximity to shoreline by a mile or two to produce a reduction in perceived visibility prominence. Careful evaluation of the actual value or measurable degree of visual impact reduction balanced against the loss in potential electrical energy production is important when making the final decision.

Description of Visibility Rating Levels

Visibility level 1. Visible only after extended, close viewing; otherwise, invisible.

An object/phenomenon that is near the extreme limit of visibility. It could not be seen by a person who was unaware of it in advance and looking for it. Even under those circumstances, the object can be seen only after looking at it closely for an extended period.

Visibility level 2. Visible when scanning in the general direction of the study subject; otherwise, likely to be missed by casual observers.

An object/phenomenon that is very small and/or faint, but when the observer is scanning the horizon or looking more closely at an area, can be detected without extended viewing. It could sometimes be noticed by casual observers; however, most people would not notice it without some active looking.

Visibility level 3. Visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers.

An object/phenomenon that can be easily detected after a brief look and would be visible to most casual observers, but without sufficient size or contrast to compete with major landscape/seascape elements.

Visibility level 4. Plainly visible, so could not be missed by casual observers, but does not strongly attract visual attention or dominate the view because of its apparent size, for views in the general direction of the study subject.

An object/phenomenon that is obvious and with sufficient size or contrast to compete with other landscape/seascape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's visual field.

Visibility level 5. Strongly attracts the visual attention of views in the general direction of the study subject. Attention may be drawn by the strong contrast in form, line, color, or texture, luminance, or motion.

An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources (such as lighting and reflections) and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements.

Visibility level 6. Dominates the view because the study subject fills most of the visual field for views in its general direction. Strong contrasts in form, line, color, texture, luminance, or motion may contribute to view dominance.

An object/phenomenon with strong visual contrasts that is so large that it occupies most of the visual field, and views of it cannot be avoided except by turning one's head more than 45° from a direct view of the object. The object/phenomenon is the major focus of visual attention, and its large apparent size is a major factor in its view dominance. In addition to size, contrasts in form, line, color, and texture, bright light sources and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject detracts noticeably from views of other landscape/seascape elements.

Appendix II
Memorandum

To: Office of Renewable Energy Programs

From: Economics Division, Office of Strategic Resources

Subject: Recommended Changes in Lease Terms for the Carolina Long Bay Lease Sale

The fiscal lease terms described below for the Carolina Long Bay sale are the same as described in the Proposed Sale Notice. This memorandum documents the rationale and fiscal effect of those changes.

A. Rent

1. The Carolina Long Bay leases include revised language to simplify the rental calculation. There is no impact on federal revenues from the changed rental language.

B. Operating Fee

1. BOEM made the changes below to the operating fee calculation to simplify and ease the administrative burden on the lessee and BOEM. The net result of these three changes may slightly advantage the lessee with lower operating fee payments but could also result in higher operating fee payments depending on the magnitude of the capacity factor adjustment in year 7. These minor changes do not impact the public's receipt of a fair return.
 - a) **Eliminated the inflation adjustment to the benchmark power price.** Since the operating fee is paid in advance, further adjusting the benchmark power price by a few (1 to 11) months of inflation introduced unnecessary complexity into the operating fee calculation. This change will slightly advantage the lessee with a lower operating fee payment.
 - b) **Changed the weighting of peak/off peak hourly calculation to a simple hourly average calculation.** A simple average hourly calculation will be easier for lessees to understand and should result in fewer inconsistencies with actual market or data sources. This will provide a very slight payment reduction for the lessee compared to the peak/off-peak weighting. BOEM decided the administrative simplicity

and reduced administrative burden is worth the minor loss of leasing revenues.⁵

- c) **Eliminate the 10 percent adjustment limit to the periodic capacity factor adjustment.** The 10 percent adjustment limit used in prior sales had no practical purpose. A full capacity factor adjustment after the 7th year is expected to provide higher operating fee payments for years 7 to 12 and potentially also for years 12 to 17. This change will provide greater operating fee revenue to the government.

C. The Index for VACAR average price per MW as the Pricing Hub for all CLB Leases

1. VACAR is a subregion of the Southeastern Electric Reliability Council and comprises the Carolinas and parts of Virginia. The VACAR average price per megawatt represents prices from Duke, Progress Energy's Carolina Power and Light, Santee Cooper, South Carolina Electric and Gas, Southeastern Power Administration, and APCI Yadkin Division.
 - a) This benchmark price provides certainty for developers, simplifies the calculation since there is only the possibility of one measurement point per lease, and accommodates a transmission backbone if employed in the Carolina Long Bay.
 - b) As utilities in the region are often vertically integrated and benchmark prices may be difficult to locate, VACAR represents an index price that is easy to source and calculate, reducing the administrative burden on the lessee and BOEM.

⁵ The change from peak/off-peak to the on-the-hour average is estimated to reduce a lessees' operating payment about \$20,000 per year for an 800 MW project which is about 0.7 percent of the estimated operating fee revenues.