THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 ◦ (617) 626-1200

November 9, 2023

Park City Wind, LLC
Mark Roll
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) - Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit Action; Massachusetts.

Conditional Concurrence

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (CZM) has reviewed the proposed New England Wind (NEW) offshore wind renewable energy project and issues this conditional concurrence. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the proponent of the project and will be responsible for the construction, operation, and decommissioning of NEW. NEW is the proposal to develop offshore renewable wind energy facilities in the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, referred to as the Southern Wind Development Area (SWDA), along with associated offshore and onshore cabling, onshore substations, electric service platforms (ESPs)and onshore Operations and Management facilities. NEW will be developed in two phases with a maximum of 130 wind turbine generator (WTG) and ESP positions. Phase 1, which includes Park City Wind, will be developed immediately southwest of the Vineyard Wind 1 project. Phase 2, which includes Commonwealth Wind, will be located southwest of Phase 1 and will occupy the remainder of the SWDA. The SWDA may be 101,590–111,939 acres (411–453 square kilometers (km^2)) in size depending upon the final footprint of the Vineyard Wind 1 project. In accordance with US Coast Guard recommendations, the WTGs and ESP(s) in the SWDA will be oriented in fixed east-to-west rows and north-to-south columns with one nautical mile (nm)(1.85 km) spacing between positions. This uniform grid layout provides 1 nm wide corridors in the east-west and north-south directions as well as 0.7 nm (1.3 km) wide corridors in the northwest-southeast and northeast-southwest directions. Five HVAC offshore export cables—two cables for Phase 1 and three cables for Phase 2—will transmit electricity from the SWDA to shore. Unless technical, logistical, grid interconnection or other unforeseen issues arise, all NEW offshore export cables will be installed within a shared Offshore Export Cable Corridor (OECC) that will travel from the northwestern corner of the SWDA along the northwestern edge of Lease Area OCS-A 0501 (through Vineyard Wind 1) and then northward along the eastern side of Muskeget Channel toward landfall sites in the Town of Barnstable.

Under Section 307 of the Coastal Zone Management Act (CZMA), 15 CFR § 930.57, and 15 CFR 930.54(f), Park City Wind voluntarily filed a federal consistency certification with CZM on September 14, 2022, for the proposed Park City Wind, LLC's NEW Project and the federal consistency review commenced on that date. However, stays of the CZMA review period have been

agreed to by CZM and Park City Wind, LLC changing the current date that the decision is due to November 10, 2023. CZM issued a three-month update and request for additional information on December 14, 2022. Park City Wind, LLC was notified that the final issued state licenses and certifications were required for those parts of the project that would occur in state waters and state lands during the discussions of needed stay agreements on February 3, 2023, June 12, 2023, and October 10, 2023.

To inform the federal consistency review, CZM reviewed the Construction and Operations Plan, Draft Environmental Impact Statement, and the Preliminary Final Environmental Impact Statement developed under the National Environmental Policy Act; the CZMA federal consistency certification; the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404/Section 10 permit application; and lease/easement/right-of-way application to BOEM under the Outer Continental Shelf Lands Act. Throughout the state and federal review process, CZM received data and information necessary to complete its consistency review. As a designated cooperating agency, CZM will continue to review and comment on future BOEM submissions for NEW including the Final Environmental Impact Statement, scheduled for release in February 2024.

In addition to the documents reviewed above, the NEW fisheries impact analysis acknowledged the need for mitigation to impacted fishermen to meet the CZM's enforceable policy under Ports and Harbors Policy #4. Because CZM cannot require monetary compensation for mitigation as part of CZMA federal consistency reviews, CZM could not object for failure to pay a compensation amount or include a condition that an applicant must pay a compensation amount. However, CZM and Park City Wind, LLC can mutually agree upon a monetary compensation package and CZM can then determine that the applicable enforceable policies are satisfied. As a result of extensive mitigation negotiations conducted between Park City Wind, LLC, CZM, the Massachusetts Division of Marine Fisheries (DMF), the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) Fisheries Working Group on Offshore Wind, and key stakeholders, Park City Wind, LLC has entered into an agreement with the EEA to provide funds totaling $7,359,471 for impacts over the life of the project. The agreement includes the Massachusetts Fisheries Compensatory Mitigation Fund and the Massachusetts Fisheries Innovation Fund. The Massachusetts Fisheries Compensatory Mitigation Fund ($5,859,471 net present value (NPV)) will be used to offset economic impacts to Massachusetts commercial and charter/for-hire fishing and is intended for claims of direct economic loss to compensate Massachusetts fishermen for loss of access or reduction of harvest. The Massachusetts Fisheries Innovation Fund ($1,500,000 NPV) will provide funding to programs and projects through grants to conduct studies on the impacts of offshore wind development on fishery resources and the recreational and commercial fishing industries as well as provide grants for technology and innovation upgrades for fishery participants (and vessels) actively fishing within a wind energy area. The and the Contribution to the Massachusetts Fisheries Innovation Fund is attached.nds

CZM conveyed to Park City Wind, LLC during the agreements for required federal consistency review stays on February 3, 2023, June 12, 2023, and October 10, 2023 that CZM needed the required final and issued Massachusetts Department of Environmental Protection's (MassDEP) §401 Water Quality Certifications, Chapter 91 Waterways authorizations (and associated Wetlands Protection Act Order of Conditions or Superseding Order of Conditions) to determine consistency for the parts of the project within state jurisdiction. These licenses and certifications have not yet been issued. Therefore, CZM issues this full concurrence for the NEW BOEM COP and a conditional concurrence with the following conditions regarding the USACE Section 10 permit.

1. The New England Wind Project Phase 1 – Park City Wind, LLC shall obtain and provide to CZM the required signed final MassDEP Chapter 91 license (and associated Wetlands Protection Act Order of Conditions or Superseding Order of Conditions) for the offshore export cable in state waters with a landfall site in Barnstable, Massachusetts.
2. The New England Wind Project Phase 2 – Park City Wind, LLC shall obtain and provide to CZM the required signed final MassDEP Chapter 91 license (and associated Wetlands Protection Act Order of Conditions or Superseding Order of Conditions) and the required signed final §401 Water Quality Certifications for the offshore export cable in state waters with a landfall site in Barnstable, Massachusetts.

If Park City Wind, LLC agrees with these conditions, then the CZMA process is complete. If Park City Wind, LLC does not agree with these conditions, then pursuant to 15 CFR 930.4, the conditional concurrence automatically becomes an objection. Park City Wind, LLC then has the right to appeal the state's conditional concurrence/objection to the U.S. Secretary of Commerce (with a copy to the National Oceanic and Atmospheric Administration's Office of General Council, Oceans and Coast Section) within 30 days of receipt of this letter. As per 15 CFR 930.125(d), the appellant shall send the Notice of appeal to the Secretary, Herbert C. Hoover Building, 14th Street and Constitution Avenue, NW., Washington, DC 20230; a copy of the notice of appeal to the objecting State agency; and to the Assistant General Counsel for Ocean Services (GCOS), 1305 East West Highway, Room 6111 SSMC 4, Silver Spring, Maryland 20910.

Thank you for your cooperation with CZM.

Sincerely,

Lisa Berry Engler
Director

RLB/pb
CZM # 4922

cc: Erin Harizi, Avangrid Renewables
Kenneth Kimmel, Avangrid Renewables
Hans Vanlingen, Avangrid Renewables
Michael Clayton, Avangrid Renewables
Caitlin Hamer, Epsilon Associates
Maria Hartnett, Epsilon Associates
Robert Vietri, USACE
Taylor Bell, USACE
Christine Jacek, USACE
Ruthann Brien, USACE
Lindy Nelson, BOEM
Emily Hildreth, BOEM
Zachary Jylkka, BOEM
Susan Tuxbury, NMFS
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Dan McKiernan, DMF
John Logan, DMF
Justin Bopp, DMF
Steve McKenna, CZM
Lisa Berry Engler, CZM
Sam Haines, CZM
Todd Callaghan, CZM
Hollie Emery, CZM
Robert Boeri, CZM
Sean Duffey, CZM
Kerry Kehoe, NOAA OCM
David Kaiser, NOAA OCM

AGREEMENT REGARDING THE MASSACHUSETTS FISHERIES COMPENSATORY MITIGATION FUND AND THE CONTRIBUTION TO THE MASSACHUSETTS FISHERIES INNOVATION FUND

This Agreement Regarding the Massachusetts Fisheries Compensatory Mitigation Fund and the Massachusetts Fisheries Innovation Fund, dated as of November 10, 2023, is made between Park City Wind LLC ("Park City Wind") and the Massachusetts Executive Office of Energy and Environmental Affairs ("EEA") (collectively the "Parties").

WHEREAS, Park City Wind holds a federal Commercial Lease of Submerged Lands for Renewable Energy Development with the U.S. Bureau of Ocean Energy Management ("BOEM"), OCS-A-0534 (the "Lease"), pursuant to the Outer Continental Shelf Lands Act ("OCSLA"), located in federal waters approximately 20 miles south of Martha's Vineyard, Massachusetts;

WHEREAS, the Lease grants Park City Wind the exclusive right to submit to BOEM a Construction and Operations Plan ("COP") for wind energy development and to conduct the activities described in the COP if approved by BOEM;

WHEREAS, on July 2, 2020, Vineyard Wind LLC submitted a COP to BOEM proposing to construct what was then the southern portion of lease OCS-A 0501 that was subsequently segregated and assigned to Park City Wind and renumbered as lease OCS-A 0534;

WHEREAS, Park City Wind intends to develop the Lease in two phases, with Phase 1 known as Park City Wind and Phase 2 known as Commonwealth Wind (together, the "Development");

WHEREAS, under OSCLA, BOEM, as part of its COP review, requires the submission of information on social and economic conditions, including recreational and commercial fishing that could be affected by the proposed activities and proposed measures for mitigating those impacts (30 CFR 585.627(a)(7); .626(b)(15)), including compensatory mitigation;

WHEREAS, the COP estimates the potential economic exposure of the Development on commercial and recreational fishers, including Massachusetts fishers;

WHEREAS, Park City Wind intends that export cables for both phases of the Development traverse Massachusetts state waters within the Massachusetts Ocean Planning Management Area, which is described in the Massachusetts Ocean Management Plan (the "Ocean Plan");

WHEREAS, the Ocean Plan reflects the importance of commercial and recreational fishing to the State and identifies areas of high commercial fishing activity and concentrations of recreational fishing activity;

WHEREAS, Section 307(c)(3) of the Coastal Zone Management Act, 16 U.S.C. 1451 et seq., ("CZMA"), as amended, requires that an applicant for a federal license or permit activity in or outside the coastal zone or an outer continental shelf plan affecting any land or water use or natural resource of a state coastal zone certify that the proposed activities comply with the

enforceable policies of the state's approved program and that such activities will be conducted in a manner consistent with the program;

WHEREAS, the enforceable policies of the Massachusetts Coastal Zone Management Program ("Coastal Program") require, to the maximum extent practicable, the avoidance, minimization, and mitigation of impacts to areas of high concentrations of existing water-dependent uses specified in the Ocean Plan, which include commercial and recreational fishing, including charter/for-hire fishing;

WHEREAS, portions of the Development are fished by Massachusetts commercial and charter/for hire fishers;

WHEREAS, Park City Wind has committed in the COP to implement measures to avoid, minimize, and mitigate potential impacts to Massachusetts fishers, including but not limited to adopting a uniform one nautical mile by one nautical mile spacing between wind turbines;

WHEREAS, on September 8, 2023, Park City Wind submitted a proposed Compensatory Mitigation Plan to EEA's Office of Coastal Zone Management ("CZM") to address potential impacts to Massachusetts commercial and charter/for hire fisheries from the Development, which was based on reports included in the COP and dated May 2023 (South Coast Variant) and June 2023 (Lease Area/OECC) prepared by an expert fisheries economist, Dr. Dennis King;

WHEREAS, Park City Wind and CZM subsequently negotiated in relation to the Compensatory Mitigation Plan, including by the soliciting and receiving feedback from the Massachusetts Fisheries Working Group on Offshore Wind Energy;

WHEREAS, the Office for Coastal Management of the National Oceanic and Atmospheric Administration has stated that Parties may agree to compensatory mitigation as a means of achieving federal consistency concurrence;

WHEREAS, Park City Wind agrees to establish a two-part compensatory mitigation program that totals $7,359,471 to (1) compensate Massachusetts fishers for reasonably foreseeable adverse impacts not eliminated by the avoidance and minimization measures within the Development area (the "Compensatory Mitigation Fund") and (2) to support Massachusetts fishers' continued fishing in its lease area (the "Massachusetts Fisheries Innovation Fund");

WHEREAS, the Compensatory Mitigation Fund will compensate Massachusetts fishers and associated businesses for economic losses directly related to the construction, operations, and decommissioning of Phase 1 and Phase 2 of the Development;

WHEREAS, the Compensatory Mitigation Fund will satisfy, in part, Park City Wind's obligations under its COP to mitigate impacts to recreational and commercial fishermen, making the Funds federally enforceable;

WHEREAS, the Massachusetts Fisheries Innovation Fund will provide funds to support Massachusetts fishers' continued fishing in and around the Development;

WHEREAS, Park City Wind has an already-established a Gear Loss Program that is separate and apart from the Compensatory Mitigation Funds and Massachusetts Fisheries Innovation Fund that provides compensation for loss or damage to fishing gear due to Development activities;

WHEREAS, Massachusetts CZM will reference the Compensatory Mitigation Fund and the Massachusetts Fisheries Innovation Fund as a condition of its federal consistency concurrence as a means by which the Development satisfies the enforceable policies of the Massachusetts Coastal Zone Management Program;

WHEREAS, Massachusetts has an already-established Fisheries Innovation Expendable Trust for the same purposes as the Massachusetts Fisheries Innovation Fund, as described herein;

NOW THEREFORE, the Parties agree as follows:

The Compensatory Mitigation Fund

1. The purpose of the Compensatory Mitigation Funds is to compensate claims by Massachusetts fishing businesses for impacts resulting in economic losses during each phase of development (construction, operations, decommission) of the Development (Phase 1 and Phase 2).

2. Park City Wind will provide a total of $5,859,471 (net present value) in funding to the Compensatory Mitigation Fund as compensatory mitigation as part of its overall Development modifications and mitigations to meet, in part, its mitigation obligations under the COP and achieve consistency with the enforceable policies of the Coastal Policies. The Compensatory Mitigation Fund will compensate Massachusetts commercial and for-hire charter fishers and shoreside businesses impacted by the Development in lease area OCS-A 0534 and its export cable areas in federal and state waters for direct economic losses arising from the construction, operation, decommissioning of each Phase of the Development, and unforeseen, extraordinary events that lead to later business interruption. The funds are based on the best available data, adjusted for lobster and Jonah crab, covers potential economic exposure to both lease area OCS-A 0534 and its proposed export cable corridors, and includes multipliers for upstream, downstream, and for-hire recreational fisheries.

3. The funds will be deposited into either: (1) an escrow account managed by a third-party administrator ("TPA"); or (2) if established and mutually agreed to by the Parties, a regional fund to compensate commercial fishing interests for impacts associated with offshore wind development on the East Coast, provided that the funds will be reserved to pay claims by Massachusetts fishers and businesses.

4. Park City Wind will deposit 40% of the Compensatory Mitigation Funds within 60 days of Phase 1 achieving financial close[1] and 60% of the Funds within 60 days of Phase 2

[1] For the purposes of this Agreement, financial close means the date upon which all financing documentation has been executed and becomes effective.

achieving financial close to either the escrow account or the regional fund, whichever is agreed to by the Parties pursuant to paragraph 3.

5. If the funds are deposited to an escrow account, Park City Wind will establish the account with a national bank, federal savings bank or federal savings and loan association (the "Trust Company"). The Trust Company shall serve as custodial administrator of the Compensatory Mitigation Fund. Park City Wind, in consultation with CZM, will select a TPA to establish a claims process and to independently evaluate and process claims against the Compensatory Mitigation Fund. The TPA shall be a person, institution, or business entity with fiduciary, accounting, and/or legal experience and where feasible knowledge of the fishing industry, including the commercial and charter/for-hire fishing industry, in New England. Absent fishing industry experience, the TPA would be supported by fishing advisors knowledgeable of Massachusetts commercial and for-hire charter fishers and shoreside businesses operating in the Development area.

6. Administrative costs associated with the Trust Company serving as the custodial administrator of the Fund and the costs associated with the TPA establishing a claims procedure, reviewing claims, and, dispersing financial compensation will be paid by Park City Wind directly and not deducted from the escrow funds.

7. The claims process will be aligned, to the extent practicable, with already established claims processes established by other offshore wind developers to decrease confusion and simplify the process for claimants. This may include retaining a TPA and/or fishing advisors that are also working on behalf of other developers, aligning the eligibility requirements for making claims, developing similar claims forms, and using similar criteria for claims payments. The selection of the TPA and the final claims process shall be subject to the approval of EEA, which approval shall not be unreasonably withheld, conditioned, or delayed.

8. Paid claims will be accompanied by a release of liability for only those claims that are resolved thereby, and not for other claims that may arise.

9. The Compensatory Mitigation Fund is not intended to address or provide compensation for any claims of lost or damaged gear or related economic loss. Those claims will be processed separately by Park City Wind's already established gear loss program. Under the program, gear loss claim forms are available on Park City Wind's website and claims are processed as quickly as possible to allow fishers to continue fishing.

Purpose of the Massachusetts Fisheries Innovation Fund

10. The purpose of the Massachusetts Fisheries Innovation Fund is to support programs and projects that ensure safe and profitable fishing continues as the Development and other offshore wind projects are constructed, operated, and decommissioned in Northern Atlantic waters. The Fund will provide support to programs and projects through grants to conduct studies on the impacts of offshore wind development on fishery resources and the recreational and commercial fishing industries as well as provide grants for technology and innovation upgrades for fishery participants (and vessels) actively fishing

within a wind energy area. These programs and projects may include, but are not limited to, studies on the impacts of offshore wind development on fishery resources and the recreational and commercial fishing industries, improvements in fishing vessels and gear, development of new technology to improve navigation in and around the wind farm area, the development of alternative gear and fishing methods, optimization of vessel systems, technology and innovation upgrades for fishery participants (and vessels) actively fishing within a wind energy area, and general fishing vessel safety improvements.

11. Park City Wind will provide $1,500,000 to support the Massachusetts Fisheries Innovation Fund. Park City Wind shall deposit 40% of the funds into the Massachusetts Fisheries Innovation Fund within 60 days of Park City Wind (Phase 1) achieving financial close; and shall deposit 60% of the funds into the Massachusetts Fisheries Innovation Fund within 60 days of Commonwealth Wind (Phase 2) achieving financial close.

12. The Massachusetts Fisheries Innovation Fund will also receive unspent funds rolled over from the Compensatory Mitigation Fund.

Precedent Conditions

13. On or before November 10, 2023 CZM issues a concurrence with Park City Wind's federal consistency certifications for both Phase 1 and Phase 2 of the Development.

14. All other final federal, state, and local permits, authorizations, concurrences and approvals necessary to construct and operate each Phase of the Development are received. Notwithstanding the proceeding sentence, the Parties acknowledge that Park City Wind may in the future seek modifications to the COP and additional state permits for an export cable route known as the South Coast Variant and that such modification is not a condition precedent for the Phase 2 payments to either the Compensatory Mitigation Fund or the Massachusetts Fisheries Innovation Fund.

15. Phase 1 and Phase 2 achieve their respective financial close.

Dispute Resolution

16. If either Party alleges that there exists a dispute or disagreement regarding the matters covered by this Agreement, it shall notify in writing the other Party of such alleged dispute or disagreement ("Dispute Notice"). The Parties shall attempt to resolve the alleged dispute or disagreement through good faith negotiations. If the Parties fail to resolve the alleged dispute or disagreement within sixty (60) days of the Dispute Notice, the Party alleging the dispute or disagreement may enforce this only by specific performance, injunctive relief or a declaratory judgment action pursuant to the laws of the Commonwealth of Massachusetts. The remedies of specific performance, injunctive relief and declaratory judgment shall be cumulative of all other rights and remedies at law or equity of the parties under this Agreement.

Governing Law

17. This Agreement shall be construed in accordance with laws of the Commonwealth of Massachusetts and all disputes hereunder shall be controlled by the laws of the Commonwealth of Massachusetts without regard to its conflict of laws principles. Massachusetts shall be the forum state for all forms of dispute resolution, including but not limited to judicial actions to enforce the Agreement.

Implementation

18. CZM shall implement this Agreement on behalf of the EEA.

Entire Agreement

19. This Agreement, including the attached exhibits constitutes the entire agreement of the parties as to the subject matter of compensatory mitigation for potential impacts to Massachusetts fisheries and businesses operating within the Development area and supersedes any and all prior oral or written agreements of the parties relating to this subject matter. This Agreement does not supersede any agreement regarding the payment of the Ocean Development Mitigation Fee for either phase of Park City Wind's Development. This Agreement cannot be changed or modified except in a written instrument mutually agreed-upon and signed by both parties.

Successors and Assigns

20. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.

Severability

21. If any part of this Agreement is found to be unenforceable, the rest will remain in full force and effect and shall be interpreted so as to give full effect to the intent of the parties.

Execution in Counterparts

22. This Agreement may be executed in counterparts and by the different parties hereto on separate counterparts, each of which when so executed and delivered shall be an original, but all counterparts shall together constitute one and the same instrument. This Agreement may be delivered by the exchange of signed signature pages by facsimile transmission, electronic signatures, or by attaching a pdf copy to an e-mail, and any printed or copied version of any signature page so delivered shall have the same force and effect as an originally signed version of such signature page.

Term; Termination

23. The term of this Agreement shall start as of the date of this Agreement and shall expire after all funds have been expended. Park City Wind shall be relieved of any obligations

hereunder, notwithstanding Park City Wind's commitment to pay administrative costs as set forth in paragraph 6, once Park City Wind has made all final payments to the Compensatory Mitigation Fund and the Massachusetts Fisheries Innovation Fund after reaching financial close for Phase 2 of the Development as set forth herein in paragraphs 4 and 11.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed as of the date first written above.

PARK CITY WIND, LLC

_____

Kenneth Kimmell
Vice President, Offshore Wind

MASSACHUSETTS EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

_____

Rebecca L. Tepper
Secretary

New England Wind

AVANGRID

New England Wind

Lease Area OCS-A 0534

Massachusetts Coastal Zone Management Act Consistency Certification

September 2022

Submitted by
Park City Wind LLC

Submitted to
Massachusetts Office of
Coastal Zone Management
251 Causeway Street
Suite 800
Boston, MA 02114-2138

Prepared by
Epsilon Associates, Inc.

Epsilon ASSOCIATES INC.

Massachusetts Coastal Zone Management Act Consistency Certifications

1. New England Wind Massachusetts Coastal Zone Management Act Consistency Certification
2. New England Wind Phase 2 OECC South Coast Variant Massachusetts Coastal Zone Management Act Consistency Certification

New England Wind
Massachusetts Coastal Zone Management Act Consistency Certification

Submitted to:

BUREAU OF OCEAN ENERGY MANAGEMENT
45600 Woodland Rd
Sterling, VA 20166

MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT
251 Causeway Street, Suite 800
Boston, MA 02114-2138

Prepared for:

Park City Wind LLC

Prepared by:

Epsilon Associates, Inc.

June 2022

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1.0 INTRODUCTION

New England Wind is the proposal to develop offshore renewable wind energy facilities in Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 along with associated offshore and onshore cabling, onshore substations, and onshore O&M facilities. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the Proponent and will be responsible for the construction, operation, and decommissioning of New England Wind. Figure 1.0-1 provides an overview of New England Wind. The Proponent has prepared this federal Consistency Certification to demonstrate that New England Wind will comply with and will be conducted in a manner consistent with the enforceable policies of the approved Massachusetts Coastal Management Programs (MA CMPs).

The Proponent filed its New England Wind Construction and Operations Plan (COP) with BOEM on July 2, 2020. New England Wind's offshore wind facilities within all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, referred to as the Southern Wind Development Area (SWDA), will be developed in two Phases. Phase 1 will be developed immediately south of the Vineyard Wind 1 project, followed by Phase 2, which will be developed immediately south of Phase 1. New England Wind's wind turbine generators (WTGs), electrical service platforms (ESPs), inter-array cables, inter-link cables, and portions of the offshore export cables are in federal waters. The remaining portions of the offshore export cables (approximately 19.5 nautical miles [36.1 kilometers] of each offshore export cable) are in Massachusetts waters. All onshore facilities are located in the Town of Barnstable, Massachusetts.

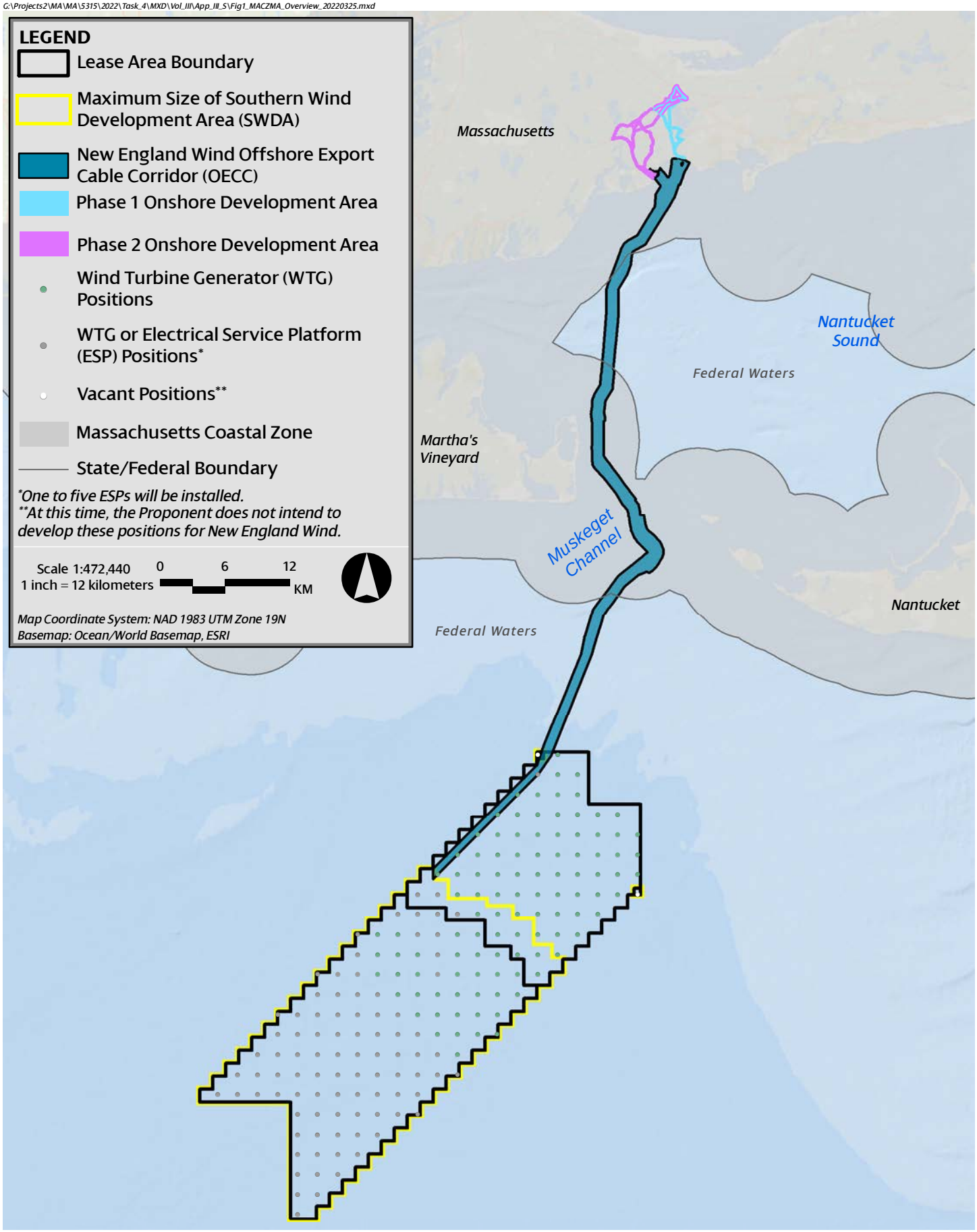
In June 2020, the Proponent submitted a statement of consistency with the Massachusetts Coastal Zone Management's (MA CZM) enforceable program policies to the Massachusetts Executive Office of Energy and Environmental Affairs (EEA #16231) and MA CZM as Attachment E of the New England Wind 1 Connector Environmental Notification Form (ENF)[1]. The consistency statement was prepared for the portions of Phase 1 in state jurisdiction (referred to as New England Wind 1 Connector). The following federal consistency review builds upon the previous consistency statement and also addresses both Phases 1 and 2 of New England Wind in state jurisdiction, as well as New England Wind activities in federal waters "with reasonably foreseeable effects on any land or water uses or natural resources of the Massachusetts coastal zone," in accordance with 301 CMR Part 20.04(1).

A summary of New England Wind's facilities and activities is provided in Section 2. Section 3 demonstrates how New England Wind, as described in Section 2 and more completely in the New England Wind COP, complies with each of the MA CMPs applicable enforceable policies. Based upon the analyses presented herein and, in the COP, the Proponent certifies to the MA CZM that:

> *The proposed activities described in detail in the New England Wind COP comply with Massachusetts' approved coastal management program and will be conducted in a manner consistent with such program.*

[1] At the time the ENF was filed, the proposed development was referred to by its previous name "Vineyard Wind Connector 2."

This certification is made in accordance with the requirements of the Federal Coastal Zone Management Act (16 U.S.C. 1451 et seq.) and implementing regulations at 15 CFR Part 930, Subparts D and E; 301 CMR 20.00; and the relevant statutory and regulatory authorities for the Commonwealth of Massachusetts' Coastal Zone Management Plan and Program Policies.



New England Wind

AVANGRID RENEWABLES

Figure 1.0-1

New England Wind Overview

2.0 SUMMARY OF NEW ENGLAND WIND FACILITIES AND ACTIVITIES

2.1 Overview

New England Wind is the proposal to develop offshore renewable wind energy facilities in Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 along with associated offshore and onshore cabling, onshore substations, and onshore O&M facilities. ("Lease Area OCS-A 0534 is within the Massachusetts Wind Energy Area (MA WEA) identified by BOEM, following a public process and environmental review, as suitable for wind energy development. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the Proponent of this Construction and Operations Plan (COP) and will be responsible for the construction, operation, and decommissioning of New England Wind.

New England Wind's offshore renewable wind energy facilities are located immediately southwest of Vineyard Wind 1, which is located in Lease Area OCS-A 0501. New England Wind will occupy all of Lease Area OCS-A 0534 and potentially a portion of Lease Area OCS-A 0501 in the event that Vineyard Wind 1 does not develop "spare" or extra positions included in Lease Area OCS-A 0501 and Vineyard Wind 1 assigns those positions to Lease Area OCS-A 0534. For the purposes of the COP, the Southern Wind Development Area (SWDA) is defined as all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, as shown in Figure 1.0-1.

New England Wind will be developed in two Phases with a maximum of 130 wind turbine generator (WTG) and electrical service platform (ESP) positions. Phase 1, also known as Park City Wind, will be developed immediately southwest of Vineyard Wind 1. Phase 2, also known as Commonwealth Wind, will be located southwest of Phase 1 and will occupy the remainder of the SWDA. Each Phase of New England Wind will be developed and permitted using a Project Design Envelope (the "Envelope"). This allows the Proponent to properly define and bracket the characteristics of each Phase for the purposes of environmental review while maintaining a reasonable degree of flexibility with respect to the selection of key components (e.g. WTGs, foundations, submarine cables, and ESPs). To assess potential impacts and benefits to various resources, a "maximum design scenario," or the design scenario with the maximum impacts anticipated for that resource, is established (see Section 3 of COP Volume III).

The SWDA may be 411–453 square kilometers (km^2) (101,590–111,939 acres) in size depending upon the final footprint of the Vineyard Wind 1 project. At this time, the Proponent does not intend to develop the two positions in the separate aliquots located along the northeastern boundary of Lease Area OCS-A 0501 as part of New England Wind. The SWDA (excluding the two separate aliquots that are closer to shore) is just over 32 kilometers (km) (20 miles [mi]) from the southwest corner of Martha's Vineyard and approximately 38 km (24 mi) from Nantucket.[2] In accordance with US Coast Guard (USCG) recommendations, the WTGs and ESP(s) in the SWDA

[2] Within the SWDA, the closest WTG is approximately 34 km (21 mi) from Martha's Vineyard and 40 km (25 mi) from Nantucket.

will be oriented in fixed east-to-west rows and north-to-south columns with one nautical mile (1.85 km) spacing between positions. This uniform grid layout provides 1 NM wide corridors in the east-west and north-south directions as well as 0.7 NM (1.3 km) wide corridors in the northwest-southeast and northeast-southwest directions.

Four or five offshore export cables—two cables for Phase 1 and two or three cables for Phase 2—will transmit electricity from the SWDA to shore. Unless technical, logistical, grid interconnection, or other unforeseen issues arise, all New England Wind offshore export cables will be installed within a shared Offshore Export Cable Corridor (OECC) that will travel from the northwestern corner of the SWDA along the northwestern edge of Lease Area OCS-A 0501 (through Vineyard Wind 1) and then head northward along the eastern side of Muskeget Channel toward landfall sites in the Town of Barnstable (see Figure 2.3-1 of COP Volume I).[3] The OECC for New England Wind is largely the same OECC proposed in the approved Vineyard Wind 1 COP, but it has been widened to the west along the entire corridor and to the east in portions of Muskeget Channel. The two Vineyard Wind 1 offshore export cables will also be installed within the New England Wind OECC. To avoid cable crossings, the Phase 1 cables are expected to be located to the west of the Vineyard Wind 1 cables and, subsequently, the Phase 2 cables are expected to be installed to the west of the Phase 1 cables.

Each Phase of New England Wind will have a separate onshore transmission system located in the Town of Barnstable.[4] The Phase 1 onshore facilities will ultimately include one of two potential landfall sites, one of two potential Onshore Export Cable Routes, one new onshore substation, and one of two potential Grid Interconnection Routes, which are identified in Figure 2.4-1 of COP Volume I. Phase 2 will include one or two landfall sites, one or two Onshore Export Cable Routes, one or two onshore substation sites, and one or two Grid Interconnection Routes. The potential landfall sites, Onshore Export Cable Routes, and Grid Interconnection Routes are illustrated on Figure 2.4-1 of COP Volume I. The Phase 2 onshore substation site(s) will be located generally along the Phase 2 onshore routes identified in Figure 2.4-1 of COP Volume I.

New England Wind has significant environmental benefits. The electricity generated by the WTGs, which do not emit air pollutants, will displace electricity generated by fossil fuel power plants and significantly reduce emissions from the ISO New England (ISO-NE) electric grid over the lifespan of New England Wind. New England Wind is expected to reduce carbon dioxide equivalent (CO_2e) emissions from the ISO-NE electric grid by approximately 3.93 million tons per year (tpy), or the

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[3] As described further in Section 4.1.3 of COP Volume I, the Proponent has identified two variations of the Phase 2 OECC in the event that technical, logistical, grid interconnection, or other unforeseen issues arise during the COP review and engineering processes that preclude one or more Phase 2 offshore export cables from being installed within all or a portion of the OECC.

[4] One or more Phase 2 offshore export cables may deliver power to a second grid interconnection point if technical, logistical, grid interconnection, or other unforeseen issues arise. Under this scenario, Phase 2 could include one onshore transmission system in Barnstable and/or an onshore transmission system(s) in proximity to the second grid interconnection point (see Section 4.1.4 of COP Volume I).

equivalent of taking 775,000 cars off the road.[5] New England Wind will significantly decrease the region's reliance on fossil fuels and enhance the reliability and diversity of regional energy supply. In addition to these important environmental and energy reliability benefits, New England Wind is expected to result in significant long-term economic benefits and high-quality jobs.

2.2 Organization of the COP

The New England Wind COP, upon which this Federal Consistency Certification relies, describes all planned activities and facilities associated with the construction and operation of each Phase of New England Wind. The COP is comprised of three volumes:

- Volume I provides a detailed description of New England Wind's location, offshore and onshore facilities, and construction, O&M, and decommissioning activities. Phase 1 is described in Section 3 of COP Volume I and Phase 2 is described separately in Section 4.

- Volume II provides a comprehensive analysis of the data collected during geophysical and geotechnical surveys conducted for New England Wind.

- Volume III details the benefits and potential impacts of both Phases to physical, atmospheric, biological, economic, cultural, and historic resources based on the "maximum design scenario" for each resource.

The remainder of this section summarizes the facilities and activities for each Phase as described in COP Volume I. Potential environmental impacts and avoidance, minimization, and mitigation measures are summarized in Section 4 of COP Volume III.

2.3 Phase 1 of New England Wind

Phase 1 of New England Wind, also known as Park City Wind, will deliver power to one or more Northeastern states and/or other offtake users, including but not limited to 804 MW of power to the ISO-NE electric grid to meet the Proponent's obligations under long-term contracts with Connecticut electric distribution companies. Assuming the necessary permits are issued and financial close is achieved, construction of Phase 1 would likely begin in late 2023 onshore and 2025 offshore. The Envelope for Phase 1 is summarized in Table 2.3-1 below.

[5] The avoided emissions analysis conservatively assumes a minimum total capacity for both Phases of New England Wind of approximately 2,000 MW; however, it is likely that benefits will be greater than those reported. The analysis is based on Northeast Power Coordinating Council (NPCC) New England 2018 emission rates from EPA's Emissions & Generation Resource Integrated Database eGRID2018(v2) released in March 2020. See Section 5.1.2.2 of COP Volume III for additional details.

2.3.1 Phase 1 Construction and Installation

2.3.1.1 Wind Turbine Generators

Phase 1 will consist of 42–62 WTGs oriented in a 1 x 1 NM layout. The potential footprint of Phase 1 within the SWDA includes a portion of Lease Area OCS-A 0501 (see Figure 3.1-4 of COP Volume I), in the event that Vineyard Wind 1 does not develop some or all of its 10 spare positions and Vineyard Wind 1 assigns those positions to Lease Area OCS-A 0534. Similarly, the potential footprint of Phase 1 overlaps with the potential footprint of Phase 2 to account for the range in the number of WTGs that may be developed for Phase 1 (see Figure 3.1-4 of COP Volume I).

The WTG parameters for Phase 1 are provided in Table 2.3-1 and shown on Figure 3.2-1 of COP Volume I. The WTGs will be no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey in color; the Proponent anticipates that the WTGs will be painted off-white/light grey to reduce their visibility against the horizon. The WTGs will include one or two levels of red flashing aviation obstruction lights in accordance with Federal Aviation Administration (FAA) and/or BOEM requirements. The Proponent expects to use an Aircraft Detection Lighting System (ADLS) that automatically activates all aviation obstruction lights when aircraft approach the Phase 1 WTGs, subject to BOEM approval. Each WTG will be maintained as a Private Aid to Navigation (PATON) and will contain marine navigation lighting and marking in accordance with the USCG's PATON marking guidance for offshore wind facilities in First District-area waters.

The WTGs will be installed using jack-up vessels, anchored vessels, or dynamic positioning (DP) vessels along with necessary support vessels and supply vessels. The tower will first be erected followed by the nacelle and finally the hub, inclusive of the blades. Alternatively, the nacelle and hub could be installed in a single operation followed by installation of individual blades.

Table 2.3-1 Phase 1 of New England Wind Design Envelope Summary

Layout and Size of Phase 1	WTGs	WTG Foundations
• 41–62 wind turbine generators (WTGs) installed • One or two electrical service platforms (ESPs) installed • Windfarm layout in E-W & N-S grid pattern with 1 NM (1.85 km) spacing between WTG/ESP positions • Area of Phase 1 SWDA: 150–231 km^2 (37,066–57,081 acres)	• 41–62 WTGs • Maximum rotor diameter of 285 m (935 ft) • Maximum tip height of 357 m (1,171 ft) • Minimum tip clearance of 27 m (89 ft) • Installation with a jack-up vessel, anchored vessel, or dynamic positioning (DP) vessel and components likely supplied by feeder vessels	• Each WTG installed on a monopile or piled jacket foundation • Scour protection may be used around all foundations • Maximum pile driving energy of 6,000 kJ for monopiles and 3,500 kJ for jackets • Installation with a jack-up vessel, anchored vessel, or DP vessel and components potentially supplied by feeder vessels
ESPs (Topside and Foundation)	**Inter-Array & Inter-Link Cables**	**Offshore Export Cables**
• One or two ESP(s) • Each ESP installed on a monopile or jacket foundation (ESPs installed on monopiles may be co-located) • Maximum pile driving energy of 6,000 kJ for monopiles and 3,500 kJ for jackets • Scour protection may be installed around the foundations • Installation with a jack-up vessel, anchored vessel, or DP vessel	• 66–132 kV inter-array cables buried beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft) • Maximum total inter-array cable length of ~225 km (~121 NM) • Up to one 66–275 kV inter-link cable buried at a target depth of 1.5–2.5 m (5–8 ft) • Maximum total inter-link cable length of ~20 km (~11 NM) • Example layout identified, not finalized • Pre-lay grapnel run and pre-lay survey • Typical installation techniques include jetting (e.g. jet plow or jet trenching) and mechanical plow • Use of cable protection (rock, gabion rock bags, concrete mattresses, half-shell pipes [or similar]) on areas of minimal cable burial	• Two 220–275 kV offshore export cables buried beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft) • Maximum total offshore export cable length of ~202 km (~109 NM) • Cables installed in one Offshore Export Cable Corridor • Pre-lay grapnel run, pre-lay survey, and possibly boulder clearance • Typical installation techniques include jetting (e.g. jet plow or jet trenching) and mechanical plow, possibly with dredging in some locations to achieve burial depth • Use of cable protection (rock, gabion rock bags, concrete mattresses, half-shell pipes [or similar]) on areas of minimal cable burial

Note: Elevations are relative to Mean Lower Low Water (MLLW).

2.3.1.2 Wind Turbine Generator Foundations

At this time, the Proponent expects to use all monopiles for the Phase 1 WTG foundations. However, a combination of monopiles and/or piled jackets may be used, pending the outcome of a foundation feasibility analysis. The monopiles will have a maximum diameter of 12 m (39 ft) and will be driven into the seabed to a maximum penetration depth of 55 m (180 ft). The Envelope of dimensions for each Phase 1 WTG foundation type are shown on Figures 3.2-2 and 3.2-3 of COP Volume I. Scour protection consisting of rock material will be used for the larger diameter monopiles but may or may not be needed for the smaller diameter piles used for jacket foundations.

The foundations are expected to be installed by one or two DP, anchored, or jack-up vessels, along with necessary support vessels and supply vessels. Pile driving would begin with a "soft-start" (i.e., the hammer energy level will be gradually increased) to ensure the pile remains vertical and allow any motile marine life to leave the area before pile driving intensity is increased. It is anticipated that a maximum of two monopiles or one complete piled jacket (3–4 piles) can be driven into the seabed per day.

2.3.1.3 Electrical Service Platforms

One or two ESP(s) will serve as the common interconnection point(s) for the Phase 1 WTGs. The ESP(s) will be supported by either a monopile or piled jacket foundation (with 3–12 piles) that may be surrounded by scour protection, if needed. If two ESPs are used, they may be located at two separate positions or co-located at one of the potential ESP positions shown on Figure 3.1-4 of COP Volume I (co-located ESPs would be smaller structures installed on monopile foundations). The approximate size and design of the ESP topside and foundation are depicted in Figures 3.2-6 and 3.2-7 of COP Volume I. If necessary, the ESP(s) will include an aviation obstruction lighting system in compliance with FAA and/or BOEM requirements, which would be activated by ADLS, subject to BOEM approval. The ESP(s) will include marine navigation lighting and marking similar to the lighting and marking described for the WTGs. ESP foundation and topside installation may be performed by a DP, anchored, or jack-up vessel. ESP foundation installation is similar to WTG foundation installation described above. Following topside installation, the ESP(s) will be commissioned.

2.3.1.4 Offshore Export Cables

Phase 1 includes two offshore export cables, which will transmit electricity from the Phase 1 ESP(s) to the selected landfall site. Each offshore export cable is expected to be comprised of a three-core 220–275 kV high voltage alternating current (HVAC) cable and one or more fiber optic cables. Between the Phase 1 ESP(s) and the northwestern corner of the SWDA, the offshore export cables may be installed in any area of the SWDA. From the northwestern corner of the SWDA, the Phase 1 offshore export cables will be installed within the OECC to reach either the Craigville Public Beach Landfall Site or the Covell's Beach Landfall Site (see Figure 3.1-6 of COP Volume I). The maximum length of offshore export cables (assuming two cables) is ~202 km (~109 NM).

Prior to cable laying, a pre-lay grapnel run, and pre-lay survey will be performed to clear obstructions and inspect the route. Large boulders along the route may need to be relocated and some dredging of the upper portions of sand waves may be required prior to cable laying to achieve sufficient burial depth below the stable sea bottom. Each offshore export cable will be installed beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft). Offshore export cable laying is expected to be performed primarily via simultaneous lay and bury using jetting techniques or mechanical plow. However, other specialty techniques may be used in certain areas to ensure sufficient burial depth (see Section 3.3.1.3.6 of COP Volume I). To facilitate cable installation, anchored vessels may be used along the entire length of the offshore export cables. While the Proponent intends to avoid or minimize the need for cable protection to the greatest extent feasible, the Proponent conservatively estimates that approximately 6% of the offshore export cables within the OECC could require cable protection (or up to 7% of the offshore export cables within the OECC for both Phases if the Western Muskeget Variant is used for one or two Phase 2 export cables).

2.3.1.5 Inter-Array and Inter-Link Cables

Strings of multiple WTGs will be connected to the Phase 1 ESP(s) via 66–132 kV inter-array cables. The maximum anticipated length of the Phase 1 inter-array cables is approximately 225 km (121 NM). In addition, if two ESPs are used, the ESPs may be connected together by an up to ~20 km (~11 NM) long 66–275 kV inter-link cable. The Phase 1 inter-array and inter-link cable layout will be designed and optimized during the final design of Phase 1.

The inter-array and inter-link cables will be buried beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft), likely using jetting techniques. However, in some cases, a mechanical plow may be better suited to certain site-specific conditions and other specialty techniques may be used more rarely. The Proponent conservatively estimates that up to 2% of the total length of the inter-array and inter-link cables could require cable protection.

2.3.1.6 Landfall Site and Onshore Export Cables

The offshore export cables will make landfall within paved parking areas at either the Craigville Public Beach Landfall Site or the Covell's Beach Landfall Site in the Town of Barnstable. The ocean to land transition at either landfall sites will be made using horizontal directional drilling (HDD), which will avoid or minimize impacts to the beach, intertidal zone, and nearshore areas and achieve a burial significantly deeper than any expected erosion. From the landfall site, the onshore export cables would follow one of two approximately 6.5-10.5 km (4.0-6.5 mi) potential Onshore Export Cable Routes (with variants) in the Town of Barnstable to the new onshore substation (see Figure 3.2-11 of COP Volume I).

The onshore export cables will be primarily installed in an underground duct bank (i.e., an array of plastic conduits encased in concrete) along the selected Onshore Export Cable Route; the duct bank will typically be within public roadway layouts although portions of the duct bank may be within existing utility rights-of-way (ROWs).

2.3.1.7 Onshore Substation and Grid Interconnection

Phase 1 will require the construction of a new onshore substation on a 0.027 km^2 (6.7 acre) privately-owned parcel located at 8 Shootflying Hill Road. From the onshore substation, grid interconnection cables will be installed within an underground duct bank along one of two potential Grid Interconnection Routes (with variants) to the grid interconnection point at Eversource's existing West Barnstable Substation. The Proponent may construct an access road to the onshore substation site on 6 Shootflying Hill Road, which is adjacent the onshore substation site. The Proponent may also use an approximately 0.011 km^2 (2.8 acre) parcel of land, assessor map parcel #214-001 ("Parcel #214-001"), located immediately southeast of the West Barnstable Substation for a segment of the grid interconnection cables and/or to house some onshore substation equipment (see Figure 3.1-2 of COP Volume I).

2.3.1.8 Port Facilities

The Proponent has identified several port facilities in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey that may be used for frequent crew transfer, offloading/loading shipments of components, storage, preparing components for installation, and potentially some component fabrication and assembly. In addition, some components, materials, and vessels could come from Canadian and European ports. See Section 3.2.2.5 of COP Volume I for a complete list of possible ports that may be used for major construction staging. It is not expected that all the ports identified would be used; it is more likely that only some ports would be used during construction depending upon final construction logistics planning.

2.3.2 Phase 1 Operations and Maintenance

The Phase 1 WTGs will be designed to operate without attendance by any operators. Continuous monitoring will be conducted remotely using a supervisory control and data acquisition (SCADA) system. Routine preventive maintenance and proactive inspections (e.g. multi-beam echosounder inspections, side scan sonar inspections, magnetometer inspections, depth of burial inspections, etc.) will be performed for all offshore facilities.

To execute daily O&M activities offshore, the Proponent expects to use a service operation vessel (SOV) to provide offshore accommodations and workspace for O&M workers. Daughter craft and/or crew transfer vessels (CTVs) would be used to transfer crew to and from shore. Although less likely, if an SOV is not used, several CTVs and helicopters would be used to frequently transport crew to and from the offshore facilities. In addition to the SOV, CTVs, and/or daughter craft, other larger support vessels (e.g. jack-up vessels) may be used infrequently to perform some routine maintenance and repairs (if needed).

The Proponent expects to use one or more facilities in support of Phase 1 O&M activities. For Phase 1, the Proponent will likely establish a long-term SOV O&M base in Bridgeport, Connecticut. Current plans anticipate that CTVs and/or the SOV's daughter craft would operate out of Vineyard

Haven and/or New Bedford Harbor. Although the Proponent plans to locate the Phase 1 O&M facilities in Bridgeport, New Bedford Harbor, and/or Vineyard Haven, the Proponent may use other ports listed in Table 3.2-8 of COP Volume I to support O&M activities.

2.3.3 Phase 1 Decommissioning

As currently envisioned, the decommissioning process for Phase 1 is essentially the reverse of the installation process. Decommissioning of the offshore facilities is broken down into several steps:

- Retirement in place (if authorized by BOEM) or removal of the offshore cable system (i.e., inter-array, inter-link, and offshore export cables) and any associated cable protection.
- Dismantling and removal of WTGs. Prior to dismantling the WTGs, they would be properly drained of all lubricating fluids and chemicals, which would be brought to port for proper disposal and/or recycling.
- Cutting and removal of foundations and removal of scour protection. In accordance with BOEM's removal standards (30 CFR § 585.910(a)), the foundations would likely be cut at least 4.5 m (15 ft) below the mudline; the portion below the cut will likely remain in place.
- Removal of ESP(s). The ESP(s) and their foundations will be disassembled in a similar manner as the WTGs. Before removing the ESP(s), the offshore export cables, inter-array cables, and inter-link cables would be disconnected.

The onshore facilities could be retired in place or retained for future use. The extent of onshore decommissioning is subject to discussions with the Town of Barnstable on the approach that best meets the Town's needs and has the fewest environmental impacts.

2.4 Phase 2 of New England Wind

Phase 2 of New England Wind, also known as Commonwealth Wind, will deliver power to one or more Northeastern states and/or to other offtake users, including 1,232 MW of power to the ISO-NE electric grid to meet the Proponent's obligations under long-term contracts with Massachusetts electric distribution companies. Phase 2 may be developed as one or more projects. The full build-out of Phase 2 development is largely dependent on market conditions and the advancement of WTG technology. It is likely that a portion of Phase 2 construction could begin immediately following Phase 1[6] with the remainder following by a number of years. The Envelope for Phase 2 of New England Wind is summarized in Table 2.4-1.

[6] In this scenario, each major construction activity would be sequential for the two Phases (e.g. Phase 2 foundation installation would immediately follow Phase 1 foundation installation). However, there could be some overlap of different offshore activities between Phase 1 and Phase 2 (e.g. Phase 2 foundation installation could occur at the same time as Phase 1 WTG installation). There will be no concurrent/simultaneous pile driving of foundations.

2.4.1 Phase 2 Construction and Installation

2.4.1.1 Wind Turbine Generators

Phase 2 will occupy the remainder of the SWDA that is not developed for Phase 1. As described in Section 2.3.1.1, the potential footprint of Phase 2 within the SWDA overlaps with the potential footprint of Phase 1 to account for the range in the number of WTGs that may be developed for Phase 1 (see Figure 4.1-4 of COP Volume I). Depending on the final footprint of Phase 1, the total number of WTG/ESP positions expected to be available for Phase 2 ranges from 64 to 88. Up to 88 of those positions may be used for WTGs. The Phase 2 WTGs will be oriented in a 1 x 1 NM layout. The WTG parameters for Phase 2 are provided in Table 2.4-1 and shown on Figure 4.2-1 of COP Volume I.

Table 2.4-1 Phase 2 of New England Wind Design Envelope Summary

Layout and Size of Phase 2	WTGs	WTG Foundations

• 64–88 total wind turbine generator (WTG) and electrical service platform (ESP) positions expected to be available
  ○ Up to 79 WTGs installed
  ○ Up to 3 ESPs installed
• Windfarm layout in E-W & N-S grid pattern with 1 NM (1.85 km) spacing between positions
• Area of Phase 2 SWDA: 222–303 km^2 (54,857–74,873 acres)
	• Up to 88 WTGs
	• Maximum rotor diameter of 285 m (935 ft)
	• Maximum tip height of 357 m (1,171 ft)
	• Minimum tip clearance of 27 m (89 ft)
	• Installation likely with a jack-up vessel, anchored vessel, or dynamic positioning (DP) vessel and components potentially supplied by feeder vessels
		• Each WTG installed on a monopile, jacket, or bottom-frame foundation
		• Scour protection may be used around all foundations
		• Maximum pile driving energy of 6,000 kJ for monopiles and 3,500 kJ for jackets and bottom-frames
		• Installation likely with a jack-up vessel, anchored vessel, or DP vessel and components potentially supplied by feeder vessels

ESP(s) (Topside and Foundation)	**Inter-Array & Inter-Link Cables**	**Offshore Export Cables**
• Up to 3 ESPs • Each ESP installed on a monopile or jacket foundation (ESPs installed on monopiles may be co-located) • Maximum pile driving energy of 6,000 kJ for monopiles and 3,500 kJ for jackets • Scour protection may be installed around the foundations • Installation likely with a jack-up vessel, anchored vessel, or DP vessel	• 66–132 kV inter-array cables buried beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft) • Maximum total inter-array cable length of ~325 km (~175 NM) • 66–345 kV inter-link cables buried at a target depth of 1.5–2.5 m (5–8 ft) • Maximum total inter-link cable length of ~60 km (~32 NM) • Example layout identified, not finalized • Pre-lay grapnel run and pre-lay survey • Typical installation techniques include jetting (e.g. jet plow or jet trenching) and mechanical plow • Use of cable protection (rock, gabion rock bags, concrete mattresses, half-shell pipes [or similar]) on areas of minimal cable burial	• Two or three 220–345 kV high voltage alternating current (HVAC) cables buried beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft) • Cables installed in an Offshore Export Cable Corridor (OECC) with potential variations • Maximum total offshore export cable length of ~356 km (~192 NM) • Pre-lay grapnel run, pre-lay survey, and possibly boulder clearance • Typical installation techniques include jetting (e.g. jet plow or jet trenching) and mechanical plow, possibly with dredging in some locations to achieve burial depth • Use of cable protection (rock, gabion rock bags, concrete mattresses, half-shell pipes [or similar]) on areas of minimal cable burial

Note: Elevations are relative to Mean Lower Low Water (MLLW).

Unless BOEM and FAA guidance is modified before Phase 2 proceeds, the WTGs will be no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey in color; the Proponent anticipates that the WTGs will be painted off-white/light grey to reduce their visibility against the horizon. Unless current guidance is modified by the FAA and BOEM, the WTGs will include one or two levels of red flashing aviation obstruction lights. The Proponent expects to use the same or similar approaches used for Vineyard Wind 1 and/or Phase 1, including the use of an ADLS that is activated automatically by approaching aircraft. Each WTG will be maintained as a PATON and will contain marine navigation lighting and marking in accordance with the USCG's PATON marking guidance for offshore wind facilities in First District-area waters.

The WTGs are expected to be installed using jack-up vessels, anchored vessels, or DP vessels along with necessary support vessels and supply vessels. The tower will first be erected followed by the nacelle and finally the hub, inclusive of the blades. Alternatively, the nacelle and hub could be installed in a single operation followed by installation of individual blades.

2.4.1.2 Wind Turbine Generator Foundations

Commercial and technical considerations at the time Phase 2 is ready to proceed will determine the types of WTG foundations used for Phase 2. Monopiles, jackets (with piles or suction buckets), bottom-frame foundations (with piles or suction buckets), or a combination of those foundation types may be used for Phase 2 pending the outcome of a foundation feasibility analysis.

If used, monopiles would have a maximum diameter of 13 m (43 ft) and would be driven into the seabed to a maximum depth of 55 m (180 ft). The dimensions for each Phase 2 WTG foundation type are shown on Figures 4.2-2 through 4.2-6 of COP Volume I. Scour protection consisting of rock material may be placed around the foundations; it is anticipated that scour protection will be needed for the larger diameter monopiles and suction buckets but may or may not be needed for the smaller diameter piles used for jacket and bottom-frame foundations.

The foundations are expected to be installed by one or two DP, anchored, or jack-up vessels, along with necessary support vessels and supply vessels. Pile driving will begin with a "soft-start" to ensure the pile remains vertical and allow any motile marine life to leave the area before pile driving intensity is increased. It is anticipated that a maximum of two monopiles, one complete piled jacket (3–4 piles), or one complete piled bottom-frame (3 piles) can be driven into the seabed per day. If suction buckets are used, pumps attached to the top of each bucket would pump water and air out of the space between the suction buckets and seafloor, pushing the buckets down into the seafloor.

2.4.1.3 Electrical Service Platforms

Up to three ESP(s) will serve as the common interconnection point(s) for the Phase 2 WTGs. The ESP(s) would be supported by a monopile, piled jacket (with 3–12 piles), or suction bucket jacket foundation, which may be surrounded by scour protection, if needed. If two or three ESPs are used, they may be located at separate positions or two of the ESPs may be co-located at one of the potential ESP positions shown on Figure 4.1-4 of COP Volume I (co-located ESPs would be smaller structures installed on monopile foundations). The approximate size and design of the ESP(s) are depicted in Figures 4.2-10 through 4.2-12 of COP Volume I. The ESP(s) will include an aviation obstruction lighting system in compliance with FAA and/or BOEM requirements in effect at the time Phase 2 proceeds, if necessary. The aviation obstruction lights would be activated by ADLS (or similar), subject to BOEM approval. Marine navigation lighting and marking on each ESP will follow USCG and BOEM regulations and guidance in effect at the time Phase 2 proceeds.

ESP foundation and topside installation may be performed by a DP, anchored, or jack-up vessel. ESP foundation installation is similar to WTG foundation installation described above. Following topside installation, the ESP(s) will be commissioned. As an alternative to installing separate ESP(s) situated on their own foundation(s), the ESP(s) could potentially be integrated onto a WTG foundation, which entails placing ESP equipment on one or more expanded WTG foundation platforms (see Figure 4.2-9 of COP Volume I).

2.4.1.4 Offshore Export Cables

Two or three 220-345 kV HVAC offshore export cable(s) will transmit electricity from the Phase 2 ESP(s) to the selected landfall site(s). Between the Phase 2 ESP(s) and the northwestern corner of the SWDA, the offshore export cables may be installed in any area of the SWDA. The Proponent intends to install all Phase 2 offshore export cables within the OECC that travels from the northwestern corner of the SWDA to the Dowses Beach Landfall Site and/or Wianno Avenue Landfall Site in the Town of Barnstable (see Figure 4.1-6 of COP Volume I). Under this scenario, the maximum length of Phase 2 offshore export cables (assuming three cables) is ~356 km (~192 NM). However, as described further in Section 4.1.3 of COP Volume I, the Proponent has also identified two variations of the Phase 2 OECC in the event that technical, logistical, grid interconnection, or other unforeseen issues arise during the COP review and engineering processes that preclude one or more Phase 2 offshore export cables from being installed within all or a portion of the OECC. As described in Section 4.1.3 of COP Volume I, these variants include the Western Muskeget Variant (located along the western side of Muskeget Channel) and the South Coast Variant (which travels west-northwest from Lease Area OCS-A 0501 to the Massachusetts state waters boundary near Buzzards Bay). The Proponent is reserving the option

to install one or two Phase 2 export cables within the Western Muskeget Variant[7] and one or more Phase 2 export cables within the South Coast Variant (see Figure 2.4-1 and Section 4.1.3 of COP Volume I). The Proponent intends to provide additional information on the South Coast Variant in its February 2022 COP Addendum.

Prior to cable laying, a pre-lay grapnel run and pre-lay survey are expected to be performed to clear obstructions and inspect the route. Large boulders along the route may need to be relocated and some dredging of the upper portions of sand waves may be required prior to cable laying to achieve sufficient burial depth below the stable sea bottom. Each offshore export cable will be installed beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft). Offshore export cable laying is expected to be performed primarily via simultaneous lay and bury using jetting techniques (e.g. jet plow or jet trenching) or mechanical plow. However, other specialty techniques may be used in certain areas to ensure sufficient burial depth (see Section 4.3.1.3.6 of COP Volume I). To facilitate cable installation, anchored vessels may be used along the entire length of the offshore export cables. While the Proponent intends to avoid or minimize the need for cable protection to the greatest extent feasible, the Proponent conservatively estimates that approximately 6% of the Phase 2 offshore export cables within the OECC could require cable protection (or 7-8% of the offshore export cables within the OECC for Phase 2 if the Western Muskeget Variant is used for one or two Phase 2 export cables).

2.4.1.5 Inter-Array and Inter-Link Cables

Strings of multiple WTGs will be connected to the Phase 2 ESP(s) via 66–132 kV inter-array cables. The maximum anticipated length of the Phase 2 inter-array cables is approximately 325 km (175 NM). In addition, the Phase 2 ESPs may be connected to each other (if two or three ESPs are used) or to a Phase 1 ESP by up to two 66–345 kV inter-link cables. The maximum total length of inter-link cables for Phase 2 is ~60 km (~32 NM). The Phase 2 inter-array and inter-link cable layout is highly dependent upon the final number of Phase 2 WTGs and the location and number of ESPs. The design and optimization of the inter-array and inter-link cable system will occur during the final design of Phase 2.

The inter-array and inter-link cables will be buried beneath the seafloor at a target depth of 1.5–2.5 m (5–8 ft). Based on currently available technologies, the inter-array and inter-link cables will likely be installed using jetting techniques. However, in some cases, a mechanical plow may be better suited to certain site-specific conditions and other specialty techniques may be used more rarely. The Proponent conservatively estimates that up to 2% of the total length of the inter-array and inter-link cables could require cable protection.

[7] The Western Muskeget Variant is the same exact corridor as the western Muskeget option included in the Vineyard Wind 1 COP and has already been thoroughly reviewed and approved by BOEM as part of that COP.

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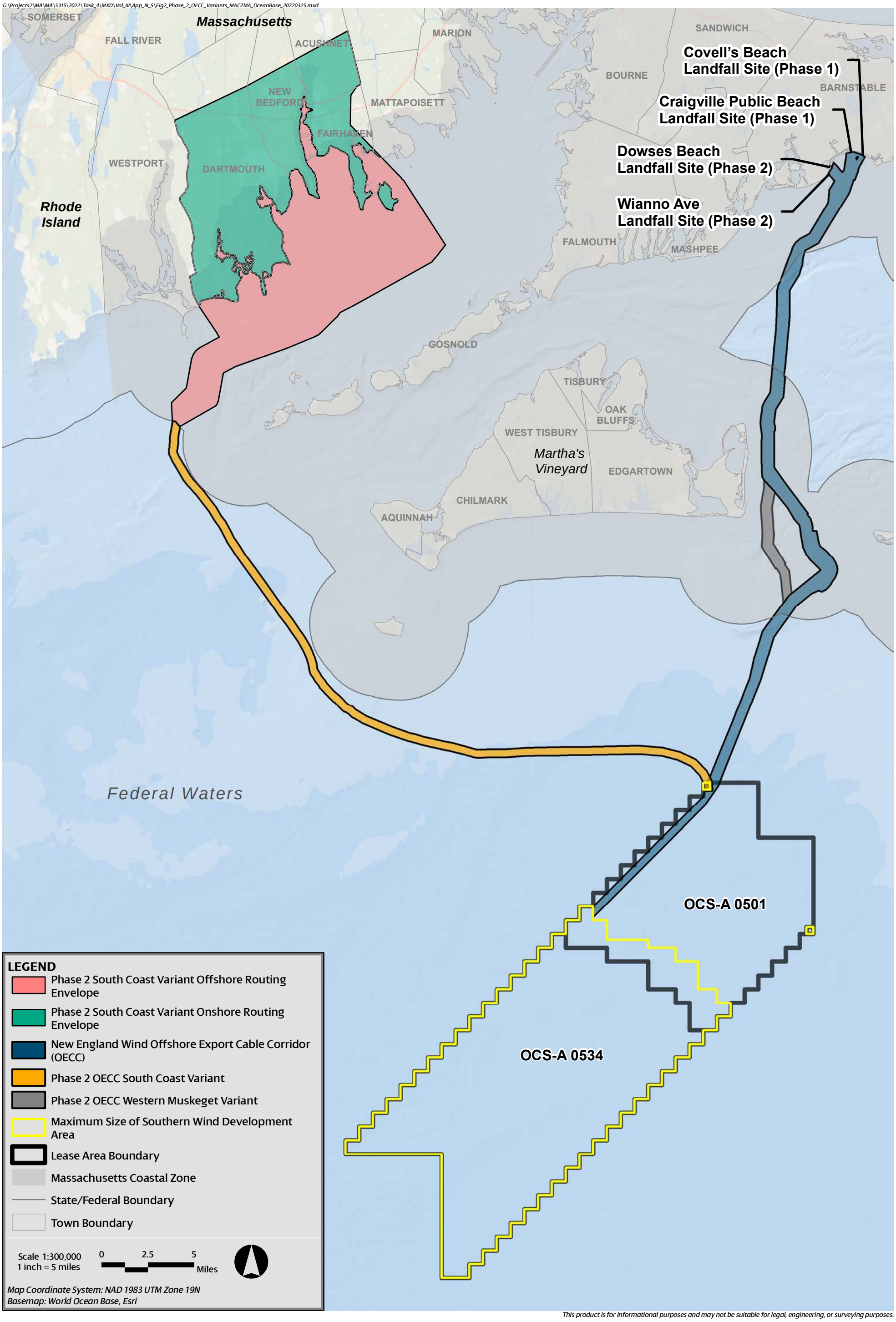

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New England Wind
AVANGRID RENEWABLES

Figure 2.4-1
Phase 2 Offshore Export Cable Corridor Variants

2.4.1.6 Landfall Site(s), Onshore Cable Route(s), Onshore Substation(s), and Grid Interconnection

The Phase 2 offshore export cables will come ashore within paved parking areas at the Dowses Beach Landfall Site and/or Wianno Avenue Landfall Site in Barnstable, unless unforeseen technical, logistical, or grid interconnection issues arise that preclude the Proponent from installing one or more Phase 2 offshore export cables within the OECC and a second grid interconnection point is needed (see Section 4.1.3.3 of COP Volume I). The ocean to land transition at the Dowses Beach Landfall Site will be made using HDD, which will avoid or minimize impacts to the beach, intertidal zone, and nearshore areas and achieve a burial significantly deeper than any expected erosion. HDD or open trenching may be used at the Wianno Avenue Landfall Site.

Upon making landfall, the onshore export cables would follow one or two Onshore Export Cable Routes to one or two new onshore substations. Grid interconnection cables installed along one or two Grid Interconnection Routes would connect the Phase 2 onshore substations to the grid interconnection point at Eversource's existing 345 kV West Barnstable Substation. The onshore export and grid interconnection cables are expected to be installed underground within public roadway layouts and utility ROWs. From each landfall site to the grid interconnection point, the maximum combined length of the Phase 2 Onshore Export Cable Route and Grid Interconnection Route is up to 17 km (10.6 mi). The properties needed for the Phase 2 onshore substation site(s) have not yet been secured, but the site(s) will be located generally along the potential onshore routes illustrated on Figure 4.1-2 of COP Volume I.

In the event that one or more Phase 2 HVAC offshore export cables deliver power to a second grid interconnection point, Phase 2 could include one onshore transmission system in Barnstable (using either the Dowses Beach Landfall Site or Wianno Avenue Landfall Site) and/or an onshore transmission system(s) in proximity to the alternative grid interconnection point. See Section 4.1.1 of COP Volume I for additional details.

2.4.1.7 Port Facilities

The Proponent has identified several port facilities in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey that may be used for frequent crew transfer, offloading/loading shipments of components, storage, preparing components for installation, and potentially some component fabrication and assembly. In addition, some components, materials, and vessels could come from Canadian and European ports. See Section 4.2.2.5 of COP Volume I for a complete list of possible ports that may be used for major Phase 2 construction staging activities. It is not expected that all the ports identified would be used; it is more likely that only some ports would be used during construction depending upon final construction logistics planning.

2.4.2 Phase 2 Operations and Maintenance

The Phase 2 WTGs will be designed to operate without attendance by any operators. Continuous monitoring is typically conducted remotely using a SCADA system. Routine preventive maintenance and proactive inspections (e.g. multi-beam echosounder inspections, side scan sonar inspections, magnetometer inspections, depth of burial inspections, etc.) will be performed for all offshore facilities.

Once Phase 2 becomes operational, the Proponent expects to use a SOV to provide offshore accommodations and workspace for O&M workers. Under this scenario, daughter craft and/or CTVs would be used to transfer crew to and from shore. If an SOV or similar accommodation vessel is not used, several CTVs and helicopters could be used to frequently transport crew to and from the offshore facilities. In addition to the SOV, CTVs, and/or daughter craft, other larger support vessels (e.g. jack-up vessels) may be used infrequently to perform some routine maintenance and repairs (if needed).

In support of O&M activities for Phase 2, the Proponent will likely use O&M facilities in Bridgeport, Vineyard Haven, and/or New Bedford Harbor. The O&M facilities may include management and administrative team offices, a control room, office and training space for technicians and engineers, warehouse space for parts and tools, and/or pier space for vessels used during O&M. The Proponent may use any of the ports listed in Table 4.2-8 of COP Volume I to support O&M activities.

2.4.3 Phase 2 Decommissioning

As currently envisioned, the decommissioning process for Phase 2 is essentially the reverse of the installation process. Decommissioning of the offshore facilities is broken down into several steps:

- Retirement in place (if authorized by BOEM) or removal of the offshore cable system (i.e., inter-array, inter-link, and offshore export cables) and any associated cable protection.

- Dismantling and removal of WTGs. Prior to dismantling the WTGs, they would be properly drained of all lubricating fluids and chemicals, which would be brought to port for proper disposal and/or recycling.

- Cutting and removal of foundations and removal of scour protection. In accordance with BOEM's removal standards (30 CFR § 585.910(a)), the foundations would likely be cut at least 4.5 m (15 ft) below the mudline; the portion below the cut will likely remain in place. Suction buckets (if used) are anticipated to be removed by injecting water into the space between the suction bucket and seafloor to reduce the suction pressure that holds the foundation in place.

- Removal of ESP(s). The ESP(s), and their foundations are expected to be disassembled in a similar manner as the WTGs. Before removing the ESP(s), the offshore export cables, inter-array cables, and inter-link cables would be disconnected.

The onshore facilities could be retired in place or retained for future use. The extent of onshore decommissioning is subject to discussions with the Town of Barnstable on the approach that best meets the Town's needs and has the fewest environmental impacts.

3.0 NEW ENGLAND WIND CONSISTENCY WITH MASSACHUSETTS ENFORCEABLE POLICIES

3.1 Jurisdiction for Federal Consistency Certification

Section 307(c)(3)(B) of the federal Coastal Zone Management Act (CZMA), as amended, requires any applicant who submits an Outer Continental Shelf (OCS) plan[8] to the Department of the Interior to also provide a certification that each activity described in the OCS plan affecting any land or water use or natural resource of a state's coastal zone complies with the enforceable policies of that state's approved coastal management program and will be carried out in a manner consistent with such program (see 16 U.S.C. § 1456(c)(3)(B)). On July 2, 2020, the Proponent submitted an OCS plan— the New England Wind COP— to the Department of Interior's Bureau of Ocean Energy Management for approval. Thus, the portions of New England Wind, both within and outside of the Massachusetts coastal zone, that have reasonably foreseeable effects on the coastal zone's uses and natural resources are subject to federal consistency review by MA CZM under 15 CFR Part 930, Subparts D and E (see Figure 1).

The official Massachusetts coastal zone includes the lands and waters within an area defined by the seaward limit of the state's territorial sea, extending from the Massachusetts-New Hampshire border south to the Massachusetts-Rhode Island border, and landward to 100 feet inland of specified major roads, rail lines, other visible rights-of-way, or in the absence these, at the coordinates specified by MA CZM. The coastal zone includes all of Cape Cod, Nantucket, Martha's Vineyard, and the Elizabeth Islands. As such, the portions of New England Wind within the Massachusetts coastal zone include the segment of the OECC within state waters, the landfall sites, the Onshore Export Cable Routes, the onshore substations, and the Grid Interconnection Routes. The offshore WTGs, ESPs, their foundations, inter-array cables, inter-link cables, and the remainder of the OECC are located in federal waters outside the Massachusetts coastal zone (see Figure 1.0-1). However, the Proponent has voluntarily agreed to having CZM's federal consistency review address the portions of New England Wind (both Phases 1 and 2) in federal waters as well as within the Massachusetts coastal zone.

[8] *OCS plan* means "any plan for the exploration or development of, or production from, any area which has been leased under the Outer Continental Shelf Lands Act (43 U.S.C. 1331 et seq.), and the regulations under that Act, which is submitted to the Secretary of the Interior or designee following management program approval and which describes in detail federal license or permit activities." The New England Wind Construction and Operations Plan submitted to BOEM is an OCS plan.

3.2 Consistency with MA CZM Enforceable Policies

The following sections demonstrate New England Wind's compliance with the enforceable policies of the Massachusetts Coastal Program as set forth in the 2011 MA CZM Policy Guide. The sections below rely on detailed information provided in the New England Wind COP. The New England Wind COP will be provided to MA CZM following BOEM's completeness and sufficiency review and is incorporated by reference.

Coastal Hazards

Coastal Hazard Policy #1

Preserve, protect, restore, and enhance the beneficial functions of storm damage prevention and flood control provided by natural coastal landforms, such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under the ocean.

The coastal wetland resource areas located in and near the New England Wind landfall sites for both Phase 1 and Phase 2 include dunes, beaches, salt marsh, land subject to coastal storm flowage, and land under the ocean, as well as barrier beach (for the Dowses Beach Landfall Site only). These wetland resource areas are generally not degraded and provide the beneficial functions that are protected interests of the Massachusetts Wetlands Protection Act (WPA). Through careful route selection, compliance with the municipal Conservation Commission's Order of Conditions (once issued), and proper use of construction techniques such as HDD and other trenchless crossings where appropriate, Phase 1 and Phase 2 will avoid potential wetlands impacts to the maximum extent practicable and will minimize and mitigate unavoidable impacts.

All proposed landfall sites for Phase 1 (Craigville Public Beach or Covell's Beach) and Phase 2 (Dowses Beach and/or Wianno Avenue) are located within paved parking lots. At the Phase 1 landfall site (either Craigville Public Beach or Covell's Beach), HDD is proposed to accomplish the offshore-to-onshore transition. This will avoid impacts to the most sensitive resource areas along and near the shoreline. At the Phase 2 landfall site (either Dowses Beach and/or Wianno Avenue), HDD is expected to be used, though open trenching may also be used during Phase 2 if it is not feasible to use the Dowses Beach Landfall Site and open trenching is needed at the Wianno Avenue Landfall Site.

While some work in the paved parking lots of either Phase 1 landfall site may be located within 100 feet of coastal dune, Phase 1 will have no impacts to coastal dune itself except perhaps a very narrow strip of dune located between the paved Craigville Beach parking lot and Craigville Beach Road; the duct bank route may need to cross through this narrow strip, in which case the dune would be fully restored following burial of the duct bank. Similarly, Phase 1 will have no direct impacts to coastal beach, with the only impacts to the beach system being within and beneath paved roadways. In addition, Phase 1 will cross the Centerville River and several crossing methods

are under consideration. Trenchless crossing alternatives would avoid any direct impacts to the tidal river or salt marsh and will be used if feasible. The parallel utility bridge option would have some direct impacts, but all disturbed areas would be restored upon completion of construction.

One of the Phase 2 landfall sites (Dowses Beach) is located on a barrier beach and some work in the paved parking lot may be located near coastal dune and salt marsh. (The Wianno Avenue Landfall Site is not located on a barrier beach and does not include coastal dune or salt marsh.) From Dowses Beach, the onshore export cables would either continue beneath public roadway layouts or, using a trenchless crossing, travel beneath East Bay to one of two potential locations on East Bay Road. Phase 2 will have no impacts to coastal dune or salt marsh due to the planned use of HDD for the offshore-to-onshore transition at the Dowses Beach Landfall Site and the planned use of a trenchless crossing beneath Easy Bay (if required). Likewise, while Coastal Beach is present at or near both Phase 2 landfall sites, no direct impacts are expected to Coastal Beach at the Dowses Beach Landfall Site since all HDD activities will be staged from a paved parking lot. The Wianno Avenue Landfall Site is less suited for HDD than open trenching due to the elevated onshore topography and slope of the parking lot. This landfall site is suitable for open trenching because the coastal beach has already been altered by the installation of a riprap seawall, a portion of which would be temporarily removed and replaced following cable installation. The Proponent only expects to use the Wianno Avenue Landfall Site if unforeseen challenges arise that make it infeasible to use the Dowses Beach Landfall Site to accommodate all or some of the Phase 2 offshore export cables. Any disturbed areas of Coastal Beach would be restored following construction.

The Phase 1 and Phase 2 onshore routes will require some work within wetland resource areas, principally land subject to coastal storm flowage (LSCSF). No significant changes to topography are proposed within LSCSF. Further, no above-ground structures are proposed except for the Centerville River crossing for Phase 1, where a parallel utility bridge may be constructed (see Section 3.3.1.10.2 of COP Volume I). As noted previously, construction footprints will be returned to pre-existing grade following installation. Therefore, New England Wind will have no effect on flood velocities or floodplain storage capacity.

For both Phases, the offshore export cables will each be buried within the OECC in Land Under the Ocean. As described in Section 3.3.1.3.6 of COP Volume I, impacts from cable installation are expected to include an up to 1 m (3.3 ft) wide cable installation trench and an up to 3 m (10 ft) wide temporary disturbance zone from the skids/tracks of the cable installation equipment that will slide over the surface of the seafloor (each skid/track is assumed to be approximately 1.5 m [5 ft] wide). Following installation, marine sediments will naturally settle and fill the trench. Limited dredging of the tops of mobile sand waves may also be required in certain locations. Nonetheless, New England Wind activities along the OECC in Land Under the Ocean are not expected to alter existing bathymetry in a way that would result in any significant or long-term changes to hydrodynamics.

Coastal Hazard Policy #2

Ensure construction in water bodies and contiguous land areas will minimize interference with water circulation and sediment transport. Flood or erosion control projects must demonstrate no significant adverse effects on the project site or adjacent or downcoast areas.

New England Wind will not adversely interfere with water circulation or sediment transport because it will not significantly alter the morphology or composition of the seafloor or coastal wetland resource areas. As noted above, the offshore-to-onshore transition is expected to be made using HDD for Phase 1 and Phase 2, though open trenching may also be used during Phase 2 if it is not feasible to use the Dowses Beach Landfall Site and open trenching is needed at the Wianno Avenue Landfall Site. The export cables have a target burial depth of 1.5–2.5 m (5–8 ft) below the seafloor.

Any dredging performed for New England Wind will be discontinuous and limited to the tops of sand wave features where it may be necessary to remove material to achieve sufficient cable burial within the stable seabed. These existing sand waves are in high-energy areas where morphological changes occur constantly; therefore, any bathymetric changes due to dredging are expected to be temporary.

Coastal Hazard Policy #3

Ensure that state and federally funded public works projects proposed for locations within the coastal zone will: (1) not exacerbate existing hazards or damage natural buffers or other natural resources; (2) be reasonably safe from flood and erosion related damage; (3) not promote growth and development in hazard-prone or buffer areas, especially in velocity zones and Areas of Critical Environmental Concern; and (4) not be used on Coastal Barrier Resource Units for new or substantial reconstruction of structures in a manner inconsistent with the Coastal Barrier Resource/Improvements Acts.

New England Wind is not a state or federally funded public works project; therefore, this policy does not apply.

Coastal Hazard Policy #4

Prioritize public funds for acquisition of hazardous coastal areas for conservation or recreation use, and relocation of structures out of coastal high hazard areas, giving due consideration to the effects of coastal hazards at the location to the use and manageability of the area.

New England Wind does not involve public funds, and therefore this policy does not apply.

Energy

Energy Policy #1

For coastally dependent energy facilities, consider siting in alternative coastal locations. For non-coastally dependent energy facilities, consider siting in areas outside of the coastal zone. Weigh the environmental and safety impacts of locating proposed energy facilities at alternative sites.

Large-scale offshore wind energy generation, and the transmission of that energy to shore, is by nature a coastally dependent energy facility. Accordingly, New England Wind is coastally dependent, since it is necessary to bring the energy generated offshore to an interconnection point onshore. In its analysis of routing alternatives, the Proponent considered and evaluated numerous potential landfall sites and offshore routes for New England Wind before selecting the proposed OECC (see Section 2.4 and Appendix I-G of COP Volume I). As previously noted, New England Wind's offshore renewable wind energy facilities are within the offshore MA WEA in federal waters of the OCS, an area designated by BOEM for offshore wind development due in large part to its distance from coastal locations.

Energy Policy #2

Encourage energy conservation and the use of alternative sources such as solar and wind power in order to assist in meeting the energy needs of the Commonwealth.

New England Wind Phase 1 will deliver power to one or more Northeastern states and/or to other offtake users, including but not limited to 804 MW of power to the ISO-NE electric grid. Phase 2 will deliver power to one or more Northeastern states and/or to other offtake users, including 1,232 MW of power to the ISO-NE electric grid to meet the Proponent's obligations under long-term contracts with Massachusetts electric distribution companies. The purpose of this is to assist in meeting renewable energy targets, to enhance energy security by increasing the reliability and diversity of the energy supply, to reduce greenhouse gas emissions, and to achieve significant health and environmental benefits.

Growth Management

Growth Management Policy #1

Encourage sustainable development that is consistent with state, regional, and local plans and supports the quality and character of the community.

As described above, New England Wind is a sustainable development of renewable energy and is consistent with the goals of Massachusetts' Global Warming Solutions Act (GWSA). New England Wind is located in the MA WEA, which was identified by BOEM as suitable for offshore wind energy development and sited far from shore to minimize visual impacts. Within the SWDA, the

closest WTG is approximately 34 km (21 mi) off the coast of Martha's Vineyard (Squibnocket Point) and 40 km (25 mi) off the coast of Nantucket (Madaket). A Visual Impacts Assessment for New England Wind has been prepared and is included as Appendix III-H.a.

All offshore cables will be submerged and will not be visible. The Phase 1 onshore export cables and grid interconnection cables will be installed entirely underground and will not be visible, except for except for at-grade manhole covers and possibly at the Phase 1 Centerville River crossing. The Phase 2 onshore cables are also expected to be installed underground. New onshore substations will be constructed in the Town of Barnstable. The Phase 1 onshore substation will include vegetated screening (see Section 3.2.2.3 of COP Volume I). The need for vegetative or other screening will be determined for the Phase 2 substation once the site is selected.

Growth Management Policy #2

Ensure that state and federally funded infrastructure projects in the coastal zone primarily serve existing developed areas, assigning highest priority to projects that meet the needs of urban and community development centers.

New England Wind involves private development of wind energy generation; therefore, this policy does not apply.

Growth Management Policy #3

Encourage the revitalization and enhancement of existing development centers in the coastal zone through technical assistance and federal and state financial support for residential, commercial, and industrial development.

New England Wind consists of two or more privately financed projects, which will bring substantial economic benefits to the region. Phase 1, also known as Park City Wind, will deliver power to one or more Northeastern states and/or other offtake users, including but not limited to 804 MW of clean, renewable power to the ISO-NE electric grid, thus improving the reliability of the New England's energy mix. Phase 2 will deliver clean, renewable energy to one or more Northeastern states and/or to other offtake users, including 1,232 MW of power to the ISO-NE electric grid to meet the Proponent's obligations under long-term contracts with Massachusetts electric distribution companies. The Proponent has committed to providing substantive technical assistance in the form of workforce training and job opportunities in existing development centers in the coastal zone to support Phases 1 and 2. The Proponent will continue to work cooperatively with southeastern Massachusetts educational institutions, such as the Massachusetts Maritime Academy, University of Massachusetts Dartmouth, Bristol Community College, Cape Cod Community College and others to maintain and further evolve training and educational opportunities for their students and faculty throughout each Phase of New England Wind (see Section 7.1.2.1 of COP Volume III).

Unless technical, logistical, grid interconnection, or other unforeseen issues arise, both Phases will make landfall within the Town of Barnstable. A Host Community Agreement (HCA) with the Town of Barnstable was executed on May 6, 2022, which provides funding to the Town to offset potential impacts associated with hosting the onshore facilities for Park City Wind. See Section 4.1.2 of COP Volume III for additional details.

Both Phases will use regional port facilities for frequent crew transfer, offloading/loading shipments of components, storing components, and possibly some component fabrication and assembly, thus generating local employment and spurring others to perform related infrastructure improvements, as needed. These activities will help revitalize existing ports. See Sections 3.2.2.5 and 4.2.2.5 of COP Volume I for addition information related to port usage.

Additional information related to the revitalization and enhancement of existing infrastructure is presented in Section 7.1 (Demographics, Employment, and Economics); Section 7.2 (Environmental Justice Assessment); Section 7.6 (Commercial Fisheries and For-Hire Recreational Fishing); Section 7.7 (Land Use and Coastal Infrastructure); and Appendix III-O (Community and Environmental Benefits) of COP Volume III.

Habitat

Habitat Policy #1

Protect coastal, estuarine, and marine habitats – including salt marshes, shellfish beds, submerged aquatic vegetation, dunes, beaches, barrier beaches, banks, salt ponds, eelgrass beds, tidal flats, rocky shores, bays, sounds, and other ocean habitats – and coastal freshwater streams, ponds, and wetlands to preserve critical wildlife habitat and other important functions and services including nutrient and sediment attenuation, wave and storm damage protection, and landform movement and processes.

As described below, New England Wind is designed to avoid impacts to marine, coastal, and wetland habitats to the maximum extent practicable and to minimize and mitigate unavoidable impacts in accordance with applicable federal, state, and local regulations.

<u>*Coastal, Estuarine, and Marine Habitats*</u>

The Proponent has conducted an extensive analysis of coastal habitats that may be impacted by New England Wind. Section 6.4 of COP Volume III describes the habitats within the Commonwealth of Massachusetts' coastal zone that are located around the New England Wind landfall sites and within the portion of the OECC in State waters (including the Western Muskeget Variant). Section 6.5 (Benthic Resources) of COP Volume III and Appendix III-F (Essential Fish Habitat) provide a thorough analysis of New England Wind's potential impacts to benthic habitat as well as measures to mitigate those impacts. Section 6.6 of COP Volume III contains an extensive discussion of fish and invertebrate species within the Offshore Development Area. Popular and other important areas to commercial and recreational fisheries are discussed in Sections 7.5 and 7.6 of COP Volume III.

The Proponent has conducted surveys of epifauna and infauna along the OECC using underwater video transects and sediment grab samples, respectively. Soft Bottom habitats are the most common along the OECC and make up approximately 59% of the entire corridor. These areas typically contain a sandy surficial layer that is either highly mobile and comprised of migrating bedforms or flat and stable, mostly void of active sediment transport features. Several locations within Massachusetts waters (i.e. primarily within Muskeget Channel, including the Western Muskeget Variant) contained coarse deposits and hard bottom habitats consisting of pebble-cobble habitat with sulfur sponge (*Cliona celata*) communities. See COP Volume II for a comprehensive analysis of the data collected during geophysical and geotechnical surveys conducted for New England Wind. Section 5.2 of COP Volume II describes how benthic habitats have been classified according to the Coastal and Marine Ecological Classification Standard (CMECS) modified by National Marine Fisheries Service (NMFS) (2021).

The Proponent has routed the proposed OECC to avoid and minimize impacts to sensitive habitats where feasible. The preliminary routing of the Phase 1 and Phase 2 cables has avoided sensitive habitats including eelgrass, hard bottom, and complex bottom (i.e., sand waves) where feasible, but avoidance of all sensitive habitats is not always possible. A single eelgrass bed has been identified within the OECC. Video transects and a diver survey delineated a patch of eelgrass offshore that is co-located within the OECC and associated with an area of hard bottom (a rock pile) known as Spindle Rock (see Figure 6.4-1 of COP Volume III). Patches of grass intertwined with macroalgae inhabit the discontinuous sandy bottom in and around the rock pile. It is expected that the identified eelgrass resources near Spindle Rock in proximity to the landfall sites will be avoided. It is also expected that isolated areas of hard bottom may be avoided, such as at Spindle Rock; however, in areas such as Muskeget Channel where hard bottom extends across the entire corridor, it will not be possible to avoid hard bottom (see Section 3.3.4.2 below for further discussion of potential impacts from cable installation).

The Phase 2 landfall sites have similarly been surveyed to identify any sensitive nearshore habitats. As described in Section 5.2.3 of COP Volume II, a patch of eelgrass was found to the southwest, outside the OECC landfall area of Dowses Beach, at the very end of a video transect. This may indicate the edge of a bed that extends to the southwest or inshore, but does not occur within the OECC.

For each Phase, prior to the start of construction, contractors will be provided with a map of sensitive habitats to allow them to plan their mooring positions accordingly. Vessel anchors and legs will be required to avoid known eelgrass beds and will also be required to avoid other sensitive seafloor habitats (hard/complex bottom) as long as such avoidance does not compromise the vessel's safety or the cable's installation. Where it is considered impossible or impracticable to avoid a sensitive seafloor habitat when anchoring, use of mid-line anchor buoys will be considered, where feasible and considered safe, as a potential measure to reduce and minimize potential impacts from anchor line sweep. Such sensitive habitats are largely absent from the SWDA and are primarily located within portions of the OECC.

Based on information provided by MA Division of Marine Fisheries (DMF), local shellfish constables, commercial fishermen, maps, and studies, the OECC will transverse over suitable shellfish habitat for Atlantic surf clam, blue mussel (*Mytilus edulis*), bay scallop (*Argopecten irradians*), and quahog (*Mercenaria mercenaria*) (NEODP 2021). It has also been reported that species of large gastropod whelks (*Busycon carica* and *Busycotypus canaliculatum*) are abundant in Nantucket Sound coastal waters (Davis and Sisson 1988; USDOE MMS 2009). Impacts to shellfish would result primarily from direct disturbance to the seafloor within the footprint of cable installation activities, as well as temporary sediment suspension and deposition during cable installation and dredging (if required). Shellfish in the direct path of the 1 m (3 ft) wide cable installation trench, the 3 m (10 ft) wide disturbance zone from the cable installation equipment's skids/tracks, areas of dredging (if required), anchors, and vessel legs would also experience direct mortality or injury. Burial and mortality of some shellfish may occur where sediment deposition exceeds 20 mm (0.8 in). Sediment dispersion modeling results indicate that lethal deposition levels are not expected from cable installation activities and are only expected from dredging and dumping in small, localized areas along the OECC extending up to 900 m (0.49 NM) from the route centerline. Modeling showed that suspended sediments from dredging and cable installation activities within the OECC (including the Western Muskeget Variant) settle out of suspension within three to six hours, which is well below lethal thresholds (see Appendix III-A of COP Volume III and Sections 6.5 and 6.6 of COP Volume III).

To assess impacts to marine and coastal benthic habitat, the Proponent is committed to developing an appropriate benthic monitoring framework for New England Wind, should it be necessary, in consultation with BOEM and other agencies as appropriate (see Section 3.3.3). See Appendix III-U for the draft framework.

Coastal Freshwater Streams, Ponds, and Wetlands

Wetlands impacts along the Phase 1 and Phase 2 onshore routes will largely be limited to LSCSF, riverfront area (RFA), and paved areas within the beach system. Additionally, Variant 2 of the Phase 1 Oak Street Onshore Export Cable Route may affect bordering vegetated wetland (BVW), but a trenchless crossing would likely be used to avoid any impact if that variant is used. The Phase 1 Onshore Export Cable Route from the landfall site to the onshore substation site will cross the Centerville River; the parallel utility bridge option would have some direct impacts within and adjacent to the river, but the trenchless crossing options would avoid any direct impacts to the river. The Phase 2 onshore cables may traverse wetlands or waterbodies, depending on the final Onshore Export Cable Route(s) and Grid Interconnection Route(s) selected. Specialty trenchless crossing methods are expected to be used if the Phase 2 Onshore Export Cable Route(s) and Grid Interconnection Route(s) traverse wetlands or waterbodies in order to avoid impacts to those features.

To protect wetlands and waterways, it is expected that nearly all vehicle fueling, and all major equipment maintenance, will be performed offsite at commercial service stations or a contractor's yard. Field refueling will not be performed within 30 meters (m) (100 feet [ft]) of wetlands or waterways, within 30 m (100 ft) of known private or community potable wells, or

within any Town of Barnstable water supply Zone I area. Proper spill containment gear and absorption materials will be maintained for immediate use in the event of any inadvertent spills or leaks.

No changes to topography are proposed within LSCSF, except the limited permanent footprint of the utility bridge abutments for the Centerville River crossing (if used for Phase 1). Further, no above-ground structures are proposed except for the Centerville River crossing, where a parallel utility bridge may be constructed (see Section 3.3.1.10.2 of COP Volume I). Phase 1 and Phase 2 will have no effect on flood velocities or floodplain storage capacity. Further, New England Wind will protect wetland interests by complying with all performance standards identified in the Massachusetts WPA and the terms and conditions of the applicable municipal Conservation Commissions. Further detail can be found in Section 6.1 of COP Volume III.

Habitat Policy #2

Advance the restoration of degraded or former habitats in coastal and marine areas.

As noted above, the coastal and marine resource areas located in and near New England Wind are generally not degraded and provide the beneficial functions that are protected interests of the Massachusetts WPA. As described under Habitat Policy #1, New England Wind is designed to avoid impacts to wetland resource areas to the maximum extent practicable and to minimize and mitigate unavoidable impacts in accordance with applicable federal, state, and local regulations. Through careful route selection and the use of proper construction techniques such as HDD and other trenchless crossings, New England Wind will not permanently degrade any wetland resource areas.

Ocean Resources

Ocean Resources Policy #1

Support the development of sustainable aquaculture, both for commercial and enhancement (public shellfish stocking) purposes. Ensure that the review process regulating aquaculture facility sites (and access routes to those areas) protects significant ecological resources (salt marshes, dunes, beaches, barrier beaches, and salt ponds) and minimizes adverse effects on the coastal and marine environment and other water-dependent uses.

New England Wind is not an aquaculture project; therefore, this policy does not apply.

Ocean Resources Policy #2

Except where such activity is prohibited by the Ocean Sanctuaries Act, the Massachusetts Ocean Management Plan, or other applicable provision of law, the extraction of oil, natural gas, or marine minerals (other than sand and gravel) in or affecting the coastal zone must protect marine resources, marine water quality, fisheries, and navigational, recreational, and other uses.

New England Wind does not involve extracting oil, natural gas, or marine minerals; therefore, this policy does not apply.

Ocean Resources Policy #3

Accommodate offshore sand and gravel extraction needs in areas and in ways that will not adversely affect marine resources, navigation, or shoreline areas due to alteration of wave direction and dynamics. Extraction of sand and gravel, when and where permitted, will be primarily for the purpose of beach nourishment or shoreline stabilization.

New England Wind does not involve offshore sand and gravel extraction; therefore, this policy does not apply.

Port and Harbors

Ports and Harbors Policy #1

Ensure that dredging and disposal of dredged material minimize adverse effects on water quality, physical processes, marine productivity, and public health and take full advantage of opportunities for beneficial re-use.

New England Wind involves some limited dredging within the OECC[9] to ensure sufficient cable burial depth in areas of the seafloor affected by sand waves (see Section 3.3.4.2). For both offshore export cables combined (Phase 1), dredging may impact approximately 0.21 km^2 (52 acres)[10] along ~15.3 km (~8.3 NM) and may include up to approximately 134,800 cubic meters (176,300 cubic yards) of dredged material. For three offshore export cables combined (Phase 2), dredging may impact approximately 0.27 km^2 (67 acres)[11] along ~19.4 km (~10.5 NM) and may include up to approximately 180,000 cubic meters (235,400 cubic yards) of dredged material. If the Western Muskeget Variant is used for Phase 2, there will be either (1) one export cable installed in the Western Muskeget Variant and two export cables installed in the OECC or (2) two export cables installed in the Western Muskeget Variant and one export cable installed in the OECC. In either scenario involving the Western Muskeget Variant, dredging may impact

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9 Based on preliminary survey data for the SWDA, dredging may not be necessary prior to inter-array or inter-link cable laying, but this will be confirmed through additional data analyses.

10 Since the dredging area will overlap with the 1 m (3.3 ft) wide cable installation trench and 3 m (10 ft) wide temporary disturbance zone from the tracks or skids during cable installation (see Section 3.3.1.3.6 of COP Volume I), these areas have been subtracted from the dredging area to avoid double-counting impacts. The total dredging area including the cable installation trench is approximately 0.27 km^2 (67 acres).

11 Since the dredging area will overlap with the 1 m (3.3 ft) wide cable installation trench and 3 m (10 ft) wide temporary disturbance zone from the tracks or skids during cable installation (see Section 4.3.1.3.6 of COP Volume I), these areas have been subtracted from the dredging area to avoid double-counting impacts. The total dredging area including the cable installation trench is approximately 0.35 km^2 (86 acres).

approximately up to 0.30 km^2 (73 acres)[12] along up to ~21.1 km (~11.3 NM) and may include up to approximately 210,100 cubic meters (274,800 cubic yards) of dredged material. Actual dredge volumes will depend on the final offshore export cable alignments and cable installation method(s); a cable installation method that can achieve a deeper burial depth will require less dredging. As described in Section 3.3.4.2, bottom dumping of dredged material would only occur within sand waves.

Simulations of sand wave dredging using a trailing suction hopper dredge (TSHD) and associated disposal activities along the OECC (including the Western Muskeget Variant) show that above-ambient total suspended solids (TSS) originating from the source is intermittent along the route, matching the intermittent need for dredging. Above-ambient TSS concentrations may be present throughout the entire water column since sediments are released at or near the water surface.

Above-ambient TSS concentrations of 10 mg/L extend up to a maximum of 16 kilometers (km) (8.6 NM) from the area of activity for the TSHD model scenarios; however, concentrations greater than 10 mg/L persist less than six hours, which is well below any lethal thresholds. Deposition greater than 1 mm (0.04 in) associated with the TSHD drag arm is mainly constrained to within 150 m (492 ft) of the area of activity, whereas the same deposition thickness associated with overflow and dredged material release extends greater distances from the source, resulting in deposition mainly within 1 km (0.6 mi) but extending up to 2.3 km (1.4 mi) in isolated patches when subject to swift currents through Muskeget Channel. TSHD disposal, which releases the entire hopper of sediment in one location, results in areas with deposition of 100 mm (4 in) or greater, which is substantially greater than the cable installation scenarios.

Due to the largely coarse-grained nature of surficial sediments within the OECC, any New England Wind-generated turbidity related to cable installation or HDD at the landfall sites is expected to be temporary and limited in spatial scope (see the discussion under Water Quality Policy #2). Additional discussion of sediment dispersion modeling is provided in Section 5.2.2 of COP Volume III and Appendix III- A.

Ports and Harbors Policy #2

Obtain the widest possible public benefit from channel dredging and ensure that Designated Port Areas and developed harbors are given highest priority in the allocation of resources.

New England Wind does not involve dredging any navigation channels or Designated Port Areas (DPAs); therefore, this policy does not apply. However, although New England Wind itself is not located in a DPA, the Proponent may utilize a number of port facilities, some of which are located

[12] Since the dredging area will overlap with the 1 m (3.3 ft) wide cable installation trench and 3 m (10 ft) wide temporary disturbance zone from the tracks or skids during cable installation (see Section 4.3.1.3.6 of COP Volume I), these areas have been subtracted from the dredging area to avoid double-counting impacts.

within DPAs. Ports that may be utilized to support Phase 1 and Phase 2 activities are identified in Sections 3.2.2.5, 3.2.2.6, 4.2.2.5, and 4.2.2.6 of COP Volume I. It should be noted that not all listed ports will be utilized for New England Wind activities.

Ports and Harbors Policy #3

Preserve and enhance the capacity of Designated Port Areas to accommodate water-dependent industrial uses and prevent the exclusion of such uses from tidelands and any other DPA lands over which an EEA agency exerts control by virtue of ownership or other legal authority.

Although New England Wind itself is not located within a DPA, it may utilize a number of port facilities, some of which are located within DPAs (see Ports and Harbors Policy #2 for more information).

Ports and Harbors Policy #4

For development on tidelands and other coastal waterways, preserve and enhance the immediate waterfront for vessel-related activities that require sufficient space and suitable facilities along the water's edge for operational purposes.

New England Wind will have no impact on the availability of the waterfront for vessel-related activities except for brief periods during construction. The Proponent is identifying a wide range of ports that could be used for each Phase. It is not expected that all the ports identified would be used; it is more likely that only some ports would be used during construction depending upon final commercial agreements and construction logistics planning. By identifying a wide range of ports, the Proponent expects to avoid or minimize any potential conflicts over port usage with other northeast offshore wind developers. See Section 7.7 of COP Volume III for further discussion of New England Wind's potential impacts on coastal infrastructure.

Ports and Harbors Policy #5

Encourage, through technical and financial assistance, expansion of water-dependent uses in Designated Port Areas and developed harbors, re-development of urban waterfronts, and expansion of physical and visual access.

New England Wind's facilities are not located in a DPA, developed harbor, or urban waterfront; therefore, this policy does not apply. However, although New England Wind itself is not located within a DPA, it may utilize a number of port facilities, some of which are located within DPAs.

Protected Areas

Protected Areas Policy #1

Preserve, restore, and enhance coastal Areas of Critical Environmental Concern, which are complexes of natural and cultural resources of regional or statewide significance.

New England Wind is not located within or in the immediate vicinity of any ACECs and will therefore not have any adverse impacts on ACECs. Thus, New England Wind complies with this policy.

Protected Areas Policy #2

Protect state designated scenic rivers in the coastal zone.

New England Wind is not located in or near any state designated scenic rivers; therefore, this policy does not apply.

Protected Areas Policy #3

Ensure that proposed developments in or near designated or registered historic places respect the preservation intent of the designation and that potential adverse effects are minimized.

Terrestrial and marine cultural resources management (CRM) archaeological studies, field investigations, and assessments of the visual impact assessments of New England Wind on historic resources have been conducted by qualified independent CRM professionals on behalf of the Proponent. The studies are designed to identify cultural and historic resources that may be affected by New England Wind activities and are approved in advance by applicable regulatory agencies. Details of relevant studies and findings can be found in Section 7.3 (Cultural, Historical, and Archaeological Resources); Section 7.4 (Visual Resources), Appendix III-G (Preliminary Terrestrial Archaeological Resources Report and Permit Applications), Appendix III-H.a (Visual Impact Assessment), Appendix III-H.b (Historic Properties Visual Impact Assessment), and Volume II-D (Marine Archaeological Resources Assessment).

Avoidance, minimization, and mitigation measures for terrestrial and submarine historical and archaeological resources will be determined in consultation with BOEM, Massachusetts Historical Commission (MHC), tribes, and other relevant consulting parties through the Section 106 and NEPA processes.

Public Access

Public Access Policy #1

Ensure that development (both water-dependent or nonwater-dependent) of coastal sites subject to state waterways regulation will promote general public use and enjoyment of the water's edge, to an extent commensurate with the Commonwealth's interests in flowed and filled tidelands under the Public Trust Doctrine.

Other than the construction of new onshore substations located several kilometers inland from the shoreline, New England Wind does not involve above-ground development of coastal sites and will only use coastal sites at the water's edge for landfall sites (see Coastal Hazard Policy #1 for a description of potential crossing options at the Centerville River). Construction at the Phase

1 and Phase 2 landfall sites and along the onshore cable routes may temporarily limit pedestrian access to limited areas and cause temporary noise and dust. To mitigate temporary impacts, the Proponent will adhere to the general summer limitations on construction activities on Cape Cod for Phase 1 and Phase 2. Activities at the landfall site where transmission will transition from offshore to onshore are not expected to be performed during the months of June through September unless authorized by the Town of Barnstable. Activities along the Onshore Export Cable Route and Grid Interconnection Route (particularly where the route follows public roadway layouts) will also likely be subject to significant construction limitations from Memorial Day through Labor Day unless authorized by Barnstable but could extend through June 15 subject to consent from the Department of Public Works (DPW). The Proponent will also consult with the Town of Barnstable regarding the construction schedules for both Phases.

For Phase 1, beach disturbance at the landfall site will largely be avoided through the use of HDD, which will allow the cables to pass under the beach, intertidal zone, and nearshore areas. The cables will come ashore in an existing paved parking area or other previously disturbed area and further avoid disturbing the beach. For Phase 2, For Phase 2, the Dowses Beach Landfall Site would also use HDD and the Wianno Avenue Landfall Site would use HDD or open trenching. However, the Proponent only expects to use the Wianno Avenue Landfall Site if unforeseen challenges arise that make it infeasible to use the Dowses Beach Landfall Site to accommodate all of some of the Phase 2 offshore export cables. Wianno Avenue is less suited for HDD due to the elevated onshore topography and slope of the parking lot. This landfall site is suitable for open trenching because the shoreline has already been altered by the installation of a riprap seawall, a portion of which would be temporarily removed and replaced following cable installation. Because the infrastructure proposed at the landfall site and in nearshore areas will be buried, New England Wind is not expected to cause any long-term impacts to the public's use or enjoyment of the area.

Public Access Policy #2

Improve public access to existing coastal recreation facilities and alleviate auto traffic and parking problems through improvements in public transportation and trail links (land- or water-based) to other nearby facilities. Increase capacity of existing recreation areas by facilitating multiple use and by improving management, maintenance, and public support facilities. Ensure that the adverse impacts of developments proposed near existing public access and recreation sites are minimized.

The Proponent's onshore construction schedule minimizes impacts to existing public access and recreation sites to the greatest extent practicable by limiting onshore construction activities during peak summer months and other times when demands on these resources are elevated. Specifically for Phase 1 and Phase 2, temporary construction activities at the landfall site are not expected to be performed during the months of June through September, unless authorized by the Town of Barnstable, which would minimize impacts to recreational use by the public. The Proponent will restore the Phase 1 and Phase 2 landfall sites to match existing conditions. Any paved areas that have been disturbed will be properly repaved.

Prior to construction, the Proponent will work closely with the Town of Barnstable to develop a Traffic Management Plan (TMP) for construction for Phase 1 and Phase 2. The TMP will be submitted for review and approval by appropriate municipal authorities (typically DPW/Town Engineer and Police). The TMP will be a living document such that any unanticipated change in construction location, timing, or method previously identified will result in revision of the TMP and approval by the appropriate authorities before any construction changes are implemented. The Proponent will utilize various methods of public outreach prior to and during construction to keep residents, business owners, and officials updated on the construction schedules, vehicular access, lane closures, detours, and other traffic management information, local parking availability, emergency vehicle access, construction crew movement and parking, laydown areas, staging, and equipment delivery, nighttime or weekend construction, and road repaving.

An HCA with the Town of Barnstable was executed on May 6, 2022, which provides funding to the Town to offset potential impacts associated with hosting the onshore facilities for Park City Wind. See Section 4.1.2 of COP Volume III for additional information regarding the HCA.

Public Access Policy #3

Expand existing recreation facilities and acquire and develop new public areas for coastal recreational activities, giving highest priority to regions of high need or limited site availability. Provide technical assistance to developers of both public and private recreation facilities and sites that increase public access to the shoreline to ensure that both transportation access and the recreation facilities are compatible with social and environmental characteristics of surrounding communities.

New England Wind will not significantly interfere with existing recreational facilities. See Public Access Policy #2.

Water Quality

Water Quality Policy #1

Ensure that point-source discharges and withdrawals in or affecting the coastal zone do not compromise water quality standards and protect designated uses and other interests.

New England Wind does not propose any new point-source discharges within state waters. Limited withdrawals during construction may include water for offshore cable installation and vessel functions (e.g. for bilge/ballast water). These modest and temporary water withdrawals are not anticipated to have any meaningful impact on water quality. The Proponent will comply with the conditions contained in each Phase's Water Quality Certification under Section 401 of the Clean Water Act.

Water Quality Policy #2

Ensure the implementation of nonpoint source pollution controls to promote the attainment of water quality standards and protect designated uses and other interests.

New England Wind will not alter existing stormwater volumes or drainage patterns. Onshore construction-period sedimentation and erosion controls will be implemented. Since Phase 1 onshore construction will disturb more than one acre of land, a National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater will be obtained. A NPDES General Permit for Stormwater will likely be obtained for Phase 2 as well. As noted under Habitat Policy #1, field refueling will not be performed within 30 meters (m) (100 feet [ft]) of wetlands or waterways, within 30 m (100 ft) of known private or community potable wells, or within any Town of Barnstable water supply Zone I area. Proper spill containment gear and absorption materials will be maintained for immediate use in the event of any inadvertent spills or leaks. Any Phase 1 or Phase 2 onshore substation equipment will be equipped with full containment for any components containing dielectric fluid.

The Proponent will require all vessels to comply with regulatory requirements related to the prevention and control of discharges and the prevention and control of accidental spills. The Proponent has also developed a draft Oil Spill Response Plan for New England Wind, which is included in Appendix I-F. Measures to minimize the already-remote potential for seafloor disturbance through HDD drilling fluid seepage (i.e., frac-out) are described in Section 8.6 of COP Volume III.

Offshore cable installation and dredging will result in some temporary elevated turbidity, but sediment is expected to remain relatively close to the installation activities. For offshore export cable installation within the OECC (including the Western Muskeget Variant), TSS concentrations greater than 10 mg/L typically stayed within 200 m (656 ft) of the alignment but could extend a maximum distance of approximately 2.1 km (1.1 NM). The modeling showed that most of the sediment settles out in less than three to four hours. Simulations of typical cable installation parameters (without sand wave removal) in the OECC indicated that deposition of 1 mm (0.04 in) or greater (i.e., the threshold of concern for demersal eggs) was constrained to within 100 m (328 ft) from the route centerline and maximum deposition was typically less than 5 mm (0.20 in), though there was a small isolated area associated with the vertical injector model scenario with deposition between 5 to 10 mm (0.2 to 0.4 in). A summary of the sediment dispersion modeling results for dredging is provided under Ports and Harbors Policy #1. Additional discussion of sediment dispersion modeling is provided in Section 5.2.2 of COP Volume III and Appendix III-A.

Water Quality Policy #3

Ensure that subsurface waste discharges conform to applicable standards, including the siting, construction, and maintenance requirements for on-site wastewater disposal systems, water quality standards, established Total Maximum Daily Load limits, and prohibitions on facilities in high-hazard areas.

New England Wind does not propose any subsurface waste discharges; therefore, this policy is not applicable.

3.3 Supplemental Information Related to the Massachusetts Ocean Management Plan

The Massachusetts Ocean Management Plan (OMP) is incorporated into the Massachusetts Coastal Zone Management Plan. Thus, New England Wind activities with reasonably foreseeable effects on the Massachusetts coastal zone must also comply with and be conducted in a manner consistent with the OMP.

In consultation with MA CZM, the Proponent is providing supplemental information related to key Special, Sensitive, or Unique (SSU) resources and concentrations of water-dependent uses for community-scale wind facilities such as commercial fishing, recreational fishing, and important bird habitat. A full review of consistency with the OMP is provided for Phase 1 as part of the New England Wind 1 Connector Energy Facilities Siting Board (EFSB) Petition and is expected to be provided for Phase 2 as part of a future EFSB petition.

3.3.1 Commercial Fishing

We understand from MA CZM that a principal coastal effect of concern associated with the New England Wind development is to Massachusetts-based commercial fishing interests (a coastal use). Section 7.6 of COP Volume III (Commercial Fisheries and For-Hire Recreational Fishing) provides a thorough analysis of New England Wind's potential impacts to commercial fisheries and measures to mitigate those impacts. Impact producing factors evaluated include habitat alteration, vessel traffic, cable installation/maintenance (including impacts from cable protection), navigation hazard, and fish aggregation.

Other sections of the New England Wind COP most relevant to these issues are located in Volume III and include Section 6.5 (Benthic Resources), Section 6.6 (Finfish and Invertebrates), Section 7.5 (Recreation and Tourism [Including Recreational Fishing]), Section 7.8 (Navigation and Vessel Traffic), Section 7.9 (Other Uses), Appendix III-E (Fisheries Communication Plan), Appendix III-F (Essential Fish Habitat), Appendix III-I (Navigation Safety Risk Assessment), and Appendix III-N (Economic Exposure of Commercial Fisheries).

As summarized in Section 4 and detailed in Section 7.6 of COP Volume III, the Proponent is already implementing measures to avoid and minimize impacts to commercial fishing interests, including adopting the east-west 1 x 1 NM layout strongly recommended by commercial fishermen, minimizing the potential need for cable protection, and conducting fisheries studies to obtain baseline data against which to measure potential short and long-term fisheries impacts. In addition, Appendix III-N of the COP contains a draft analysis of the value of commercial fishing harvest from New England Wind based on the most recent available data. Each of these measures is discussed in more detail below. Accordingly, it is anticipated that New England Wind will not have a significant adverse impact on commercial fishing in the Massachusetts coastal zone.

3.3.1.1 WTG and ESP Siting

The SWDA is within the MA WEA. The original siting of the MA WEA by BOEM included a significant public engagement process. Through this process, and in response to stakeholder concerns, the MA WEA was extensively modified. BOEM excluded areas of high fisheries value from the MA WEA to reduce potential conflict with commercial and recreational fishing activities. This careful siting of MA WEA, which includes the SWDA, avoids many impacts to commercial fisheries.

3.3.1.2 WTG and ESP Layout

In direct response to input from regional commercial fishermen and maritime users during review of the adjacent Vineyard Wind 1 project, the WTGs, and ESPs in the SWDA will be oriented in fixed east-to-west rows and north-to-south columns with one nautical mile (1.85 km) spacing between WTG/ESP positions. This uniform grid layout provides 1 NM wide corridors in the east-west and north-south directions as well as 0.7 NM (1.3 km) wide corridors in the northwest-southeast and northeast-southwest directions. The Proponent expects this 1 x 1 NM layout to be adopted by other developers throughout the MA WEA and Rhode Island/Massachusetts Wind energy Area (RI/MA WEA) as described in the November 1, 2019, letter sent by New England offshore wind leaseholders to the USCG.

It is important to note that offshore renewable wind energy facilities are typically designed to maximize the amount of energy that can be generated within a given area. In general, the most optimal WTG layout for wind energy production is a non-grid WTG layout with closer turbine spacing and a higher density of WTGs around the edges of the wind farm; such a design maximizes the number of WTGs per area while minimizing wake effects that impact the efficiency of downwind turbines. Thus, the Proponent has modified the WTG/ESP layout from a more typical, optimized non-grid design to minimize adverse impacts to commercial fishing operations.

In addition to minimizing adverse impacts to commercial fisheries, the 1 x 1 NM WTG/ESP layout of New England Wind minimizes potential impacts to navigation within the SWDA. The 1 x 1 NM layout of New England Wind is consistent with the USCG's recommendations contained in the Massachusetts Rhode Island Port Access Route Study (MARIPARS) published in the Federal Register on May 27, 2020 (USCG-2019-0131). The final MARIPARS found that, "After considering all options and the vessel traffic patterns within the MA/RI WEA, a standard and uniform grid pattern with at least three lines of orientation throughout the MA/RI WEA would allow for safe navigation and continuity of USCG missions through seven adjacent wind farm lease areas over more than 1400 square miles of ocean." More specifically, USCG recommended:

- "Lanes for vessel transit should be oriented in a northwest to southeast direction, 0.6 NM to 0.8 NM wide. This width will allow vessels the ability to maneuver in accordance with the COLREGS while transiting through the MA/RI WEA.

- Lanes for commercial fishing vessels actively engaged in fishing should be oriented in an east to west direction, 1 NM wide.

- Lanes for USCG SAR operations should be oriented in a north to south and east to west direction, 1 NM wide. This will ensure two lines of orientation for USCG helicopters to conduct SAR operations."

The USCG specifically recognized traditional commercial fishing patterns when making their recommendations on WTG layouts within the MA WEA and RI/MA WEA (together the "WEAs"). As stated in MARIPARS:

> "Based on fishing vessel tracks, specifically squid, mackerel, and butterfish vessels, there is significant east to west fishing activity in the WEA, particularly in August and September, following the north to south migration of the fish. Based on comments received on this report, there is a 'gentlemen's agreement' between the fixed gear fishermen and the mobile gear fishermen to prevent gear entanglement. The fixed gear fishermen set their gear along traditional LORAN-C lines that are generally in an east to west direction. The mobile gear fishermen fish in functional lanes between the set fixed gear, in a general east to west direction."

Based on these findings and recommendations from the USCG, the proposed layout is expected to accommodate traditional fishing patterns, including the "gentlemen's agreement" regarding the placement of mobile and fixed gear within the WEAs.

As described in Section 7.8.1 of COP Volume III and the Navigation Safety Risk Assessment, analyses of automatic identification system (AIS) data from 2016 to 2019 have indicated that historical vessel traffic levels within the SWDA are relatively low. From 2016 to 2019, the average number of annual fishing vessel transits through the SWDA was 422 (see Appendix III-I). AIS data indicate that most of the vessels transiting the Offshore Development Region[13] currently choose to navigate outside of the MA WEA and RI/MA WEA even when no WTGs or ESPs are present (see Section 7.8.1.1 of COP Volume III; Baird 2019). Of those vessels transiting the WEAs, many travel just inside the edge of the WEAs. Overall, based on this historical low level of traffic in the SWDA, the risk of collision between vessels is relatively low (see Section 8.1 of COP Volume III and Appendix III-I).

With the exception of New Bedford, key Massachusetts commercial fishing ports described in Section 7.6.1.1 of COP Volume III are not expected to be used for New England Wind activities and should not experience direct impacts such as increased traffic congestion or competition for dockside services. Near port facilities or adjacent waterways, New England Wind vessels may require other vessels transiting navigation channels or other areas of confined navigation (e.g. the

[13] With respect to navigation and vessel traffic, the Offshore Development Region is the broader offshore geographic region surrounding the SWDA, the OECC, and ports that could be affected by New England Wind-related activities. This includes Nantucket Sound, areas south of Martha's Vineyard and Nantucket, the MA WEA, the RI/MA WEA, and waters surrounding potential vessel routes to the ports identified for use by New England Wind.

New Bedford hurricane barrier) to adjust course, where possible, or adjust their departure/arrival times to avoid navigational conflicts. However, with the mitigation measures described in Section 3.3.1.6, the increased vessel traffic is not anticipated to result in significant disruption of vessel traffic in and around the ports.

3.3.1.3 Scour Protection and Cable Protection

Scour protection consisting of rock material may be placed around the base of each WTG and ESP foundation. It is anticipated that scour protection will be needed for the larger diameter monopiles and suction buckets, but may or may not be needed for the smaller diameter piles used for jacket and bottom-frame foundations. Scour protection will have a maximum height of 3 m (9.8 ft). Depending on the foundation type(s) selected, the maximum area of scour protection around each foundation ranges from 4,072–9,754 m^2 (1.0-2.4 acres) for the WTG foundations and 4,072–21,316 m^2 (1.0–5.3 acres) for one to five ESP foundations. Details of the specific area of scour protection for each foundation type are found in Sections 3.2.1.4 and 4.2.1.4 of COP Volume I. For WTG monopile foundations, which are expected to be used for Phase 1 and may also be used for Phase 2, the maximum expected radius of scour protection is 36–39 m (118–128 ft) compared to the 1,852 m (1 NM) spacing between foundations. The total maximum area of scour protection for both Phases is 1.04 km^2 (258 acres), which is approximately 0.23% of the maximum size of the SWDA. Thus, scour protection will cover an extremely limited portion of the SWDA.

The installation of submarine cables within the SWDA and along the OECC is not anticipated to adversely impact commercial fishing activities. The target burial depth for all inter-array, inter-link, and offshore export cables is 1.5–2.5 m (5–8 ft) below the seafloor, which engineers have determined is more than twice the burial depth that is required to protect the cables from potential fishing activities and also provides a maximum of 1 in 100,000 year probability of anchor strike, which is considered a negligible risk. Except for limited areas where the sufficient cable burial is not achieved and placement of cable protection on the seafloor is required, the inter-array, export, and offshore cables are not anticipated to interfere with any typical fishing practices.

If sufficient burial depths cannot be achieved, the cables need to cross other infrastructure (e.g. existing cables, pipes, etc.), or a cable joint requires protection, cable protection may be necessary. Based on initial survey data for the SWDA, it is conservatively estimated that up to 2% of the total length of the inter-array and inter-link cables (~11 km [6 NM]) for both Phases may potentially require cable protection, with the majority of any needed cable protection likely located immediately adjacent to the foundation's scour protection. The Proponent conservatively estimates that approximately 6% of the offshore export cables within the OECC for both Phases (or up to 7% of the offshore export cables within the OECC for both Phases if the Western Muskeget Variant is used for one or two Phase 2 export cables) and approximately 2% of the offshore export cables within the SWDA (~27 km [15 NM] total) could require cable protection. The Proponent intends to avoid or minimize the need for cable protection to the greatest extent feasible through careful site assessment and thoughtful selection of the most appropriate cable installation tool to achieve sufficient burial; therefore, the estimates of cable protection are

expected to be conservative. Given that little bottom trawling or dredging occurs along the OECC, the risk of bottom fishing gear snagging on cable protection in the OECC is low. The use of pots and traps, predominantly deployed along the OECC within Nantucket Sound in Massachusetts waters, is not expected to be impacted by New England Wind.

Fishermen have expressed concerns about fishing gear becoming entangled on scour protection and cable protection. Should cable protection be required in the SWDA and OECC, it will be designed to minimize impacts to fishing gear to the extent feasible, and fishermen will be informed of the areas where cable protection is used. Upon decommissioning, scour protection would be removed. Furthermore, the Proponent is developing and implementing procedures for handling compensation to fishermen for potential gear loss. See the Fisheries Communication Plan, which is included as Appendix III-E of the COPs, for additional discussion of gear loss compensation.

The addition of foundations and scour protection, as well as cable protection in some areas, which may act as an artificial reef and provide rocky habitat previously absent from the area, could result in modest, positive impacts to recreational fisheries. In the event WTGs aggregate recreationally-targeted species, based on the intensity of recreational fishing within the SWDA and its geographic scale, neither congestion effects nor gear conflicts are expected.

3.3.1.4 Access to the SWDA and OECC

For each Phase of New England Wind, construction and installation activities will occur within very limited and well-defined areas of the SWDA and along the OECC. During construction, fishing vessels will not be precluded from operating in or transiting through the SWDA or the OECC other than where temporary safety buffer zones are established in the immediate vicinity around construction and installation vessels. Accordingly, the majority of the SWDA and OECC will remain accessible to commercial fishing vessels throughout the construction of New England Wind.

During O&M, the SWDA will be open to marine traffic, and no permanent vessel restrictions are proposed within the SWDA or along the OECC. If in-water maintenance activities are required, there could be temporary safety buffer zones established around work areas in limited areas of the SWDA or along the OECC. However, it is expected that most maintenance activities will not require in-water work but will instead be based on the WTGs and ESP structures themselves.

3.3.1.5 Economic Exposure and Impacts to Massachusetts Commercial Fisheries

While the Proponent is implementing several key measures to minimize impacts to commercial fisheries (such as the adoption of a 1 x 1 NM WTG/ESP layout and efforts to minimize cable protection), New England Wind may lead to potential changes in commercial fishing practices in the SWDA and OECC. The economic exposure and potential economic impacts to commercial fisheries, including Massachusetts-based commercial fisheries, are analyzed in detail in Appendix III-N. This draft analysis considers the potential direct impacts to commercial fisheries, as well as fisheries-related indirect and induced shoreside economic impacts, which are characterized as

either upstream (related to businesses that supply inputs used in fishing) or downstream (related to businesses that buy fish for processing or distribution). The analysis is based on the most current available revenue data, including the National Oceanic and Atmospheric Administration's (NOAA) Fisheries' "Socioeconomic Impacts of Atlantic Offshore Wind Development," which indicates that the SWDA does not include high-value commercial fishing grounds. It also shows that approximately 45.21% of the landings revenue from the SWDA is from Massachusetts.

A number of factors suggest that any economic impact from New England Wind will be only a small percentage of the estimated economic exposure (i.e., a measure of fishing that occurs within the SWDA). Commercial fishing vessels will continue to have access to the SWDA and OECC as currently permitted by regulation and the east-west 1 x 1 NM layout is expected to accommodate traditional fishing patterns, including the "gentlemen's agreement" regarding the placement of mobile and fixed gear within the WEA. In addition, alternative fishing grounds with a demonstrated higher fishery revenue density are available nearby and may be fished at little to no additional cost.

Fishing congestion impacts could occur when a high concentration of vessels operating in a fishing area causes fishing vessels and gear to interfere with one another resulting in increases in fleetwide or vessel-specific fishing costs or reductions in fishing revenues, or both. As described in Appendix III-N, any modification of fishing in the SWDA and OECC or shifts in fishing effort from those areas to other areas would not be sufficient to cause fishing congestion impacts. Commercial fishing activity in the SWDA and OECC is low to modest, and fishing trips that transect the SWDA and OECC already spend most of their time and generate most of their revenues in nearby fishing areas outside the SWDA and OECC.

3.3.1.6 Avoidance, Minimization, and Mitigation Measures

As noted above, vessel restrictions are not generally proposed other than temporary safety buffer zones in the immediate vicinity of construction and installation vessels. Accordingly, the majority of the SWDA and OECC will remain accessible to commercial fishing vessels throughout the construction and O&M.

New England Wind's 1 x 1 NM WTG/ESP layout is the result of input from numerous stakeholders, including the USCG and fishermen who use or transit the SWDA, and is expected to accommodate traditional fishing patterns. To aid mariners navigating the SWDA, each WTG/ESP will be maintained as a PATON in accordance with USCG's PATON marking guidance for offshore wind facilities in First District-area waters. The Proponent will implement a uniform system of marine navigation lighting and marking for New England Wind's offshore facilities, which is currently expected to include yellow flashing lights on every WTG foundation, ESP, unique alphanumeric identifiers on the WTGs, ESPs, and/or their foundations, and high-visibility yellow paint on each foundation. The lights and alphanumeric identifiers would be visible from all directions. Mariner Radio Activated Sound Signals (MRASS) and AIS transponders are included in the offshore facilities' design to enhance marine navigation safety.

To minimize hazards to navigation, all New England Wind vessels and equipment will display the required navigation lighting and day shapes. The Proponent will issue Offshore Wind Mariner Update Bulletins and coordinate with the USCG to provide Notices to Mariners (NTMs) to notify recreational and commercial vessels of their intended operations within the Offshore Development Area (i.e., where New England Wind's offshore facilities are physically located, which includes the SWDA and the OECC).

To further minimize impacts, the Proponent has developed a Fisheries Communication Plan (FCP) (included as Appendix III-E of the COP). The purpose of the FCP is to define outreach and engagement to potentially affected fishing interests during design, development, construction, operation, and final decommissioning of offshore wind projects. Fisheries communication is conducted through several roles, including Fisheries Liaisons (FLs) and Fisheries Representatives. FLs are employed by the Proponent and are responsible for the implementation of the FCP whereas FRs represent the interests of different fisheries and fishing communities to the Proponent. The Proponent also employs a Marine Operations Liaison Officer, who is responsible for safe marine operations by the Proponent. In addition, in an effort to provide fishermen with the most accurate and precise information on work within the SWDA and along the OECC, the Proponent is currently providing and will continue to provide portable digital media with electronic charts depicting locations of New England Wind-related activities. Each WTG and ESP will also be clearly identified on NOAA charts. Finally, as stated above, the Proponent is developing and implementing procedures for handling compensation to fishermen for potential gear loss. Additional information is provided in Appendix III-E.

As described in Section 3.3.3 below, the Proponent is committed to fisheries science and research as it relates to offshore wind energy development. The Proponent is already collecting pre-construction fisheries data (via trawl and drop camera surveys) within the SWDA.

In summary, the Proponent is already implementing multiple measures to avoid and minimize impacts to commercial fisheries, most notably the adoption of an east-west 1 x 1 NM layout.

3.3.2 Recreational Fishing

Section 7.5 (Recreation and Tourism [Including Recreational Fishing]) and Section 7.6 (Commercial Fisheries and For-Hire Recreational Fishing) of COP Volume III provide a thorough analysis of New England Wind's potential impact to recreational fisheries, including for-hire reactional fishing, and measures to mitigate those impacts. A brief summary is provided below.

3.2.2.1 Potential Impacts

With respect to recreational fishing, impact producing factors evaluated include habitat alteration, vessel traffic, cable installation/maintenance (including impacts from cable protection), navigation hazard, and fish aggregation.

During construction of New England Wind, the construction vessels operating in the SWDA and along the OECC may temporarily preclude recreational boating and fishing activities in the immediate vicinity of construction vessels or cause recreational fishermen to slightly alter their navigation routes. Construction activities may affect recreational fishing activities by impacting recreationally-important species. While the SWDA is targeted by recreational fishermen, other areas within and outside the MA WEA and RI/MA WEA have higher concentrations of recreational fishing activity (Kneebone and Capizzano 2020). The proximity of the SWDA and OECC to numerous productive recreational fishing areas suggests that the highly localized impacts of construction and installation activities will result in only minimal impacts to recreational species.

During O&M, recreational fisheries may be impacted by fish aggregation and potential navigation hazards due to the presence of structures in the Offshore Development Area. As noted under Section 3.3.1.2, the 1 x 1 NM WTG/ESP layout will facilitate safe navigation through the SWDA. Given the typically smaller size of recreational vessels, navigation impacts through the SWDA are not anticipated.

In fact, New England Wind could result in modest, positive impacts to recreational fisheries. The addition of foundations and scour protection, as well as cable protection in some areas, may act as an artificial reef and provide rocky habitat previously absent from the area. Increases in biodiversity and abundance of fish have been observed around WTG foundations due to attraction of fish species to new structured habitat (Riefolo et al. 2016; Raoux et al. 2017). In the event WTGs aggregate recreationally targeted species, based on the intensity of recreational fishing within the SWDA and its geographic scale, neither congestion effects nor gear conflicts are expected. Anglers' interest in visiting the SWDA may also lead to an increased number of fishing trips out of nearby ports which could support an increase in angler expenditures at local bait shops, gas stations, and other shoreside dependents (Kirkpatrick et al. 2017).

3.2.2.2 Avoidance, Minimization, and Mitigation Measures

As discussed under Section 3.3.1.6, the Proponent will implement measures to avoid, minimize, and mitigate potential impacts to recreational fisheries, including:

- Adopting a 1 x 1 NM WTG/ESP layout to facilitate vessel navigation through the SWDA.
- Maintaining all WTGs/ESPs as PATONs in accordance with USCG guidance.
- Equipping all New England Wind-related vessels and equipment with the required marine navigation lighting and day shapes.
- Using temporary safety buffer zones to improve safety in the vicinity of active work areas.
- Issuing Offshore Wind Mariner Update Bulletins and coordinating with the USCG to provide NTMs.

- Implementing an FCP to facilitate regular and productive communication with fishermen, including recreational fishermen (see Appendix III-E).

3.3.3 Fisheries Studies and Monitoring Plans

As described in Section 6.5, Section 6.6, and Appendix III-F of COP Volume III, impacts to finfish and invertebrates within the SWDA and along the OECC from construction of each Phase of New England Wind, including those species targeted by commercial fishermen, are expected to be short-term and localized. Only a small portion of available habitat in the area will be impacted by New England Wind construction activities and recovery is expected. Nevertheless, the Proponent will conduct fisheries and benthic habitat monitoring to assess the potential impacts of New England Wind on finfish, invertebrates, and their habitats.

Working with the Massachusetts School for Marine Science and Technology (SMAST), the Proponent is already developing and implementing fisheries studies. Specific to New England Wind, the Proponent is currently collecting pre-construction fisheries data within the SWDA. The surveys are being conducted by SMAST scientists onboard commercial fishing vessels.

Pre-construction surveys began in spring 2019. The primary goal of the pre-construction surveys is to provide data on seasonal fish abundance, distribution, population structure and community composition for a future environmental assessment using a beyond Before-After-Control-Impact (BACI) framework as recommended by BOEM (BOEM 2013). The pre-construction surveys in the SWDA[14] include trawl surveys and drop camera surveys.

- Trawl surveys are planned to occur each season (spring, summer, winter, fall) within the SWDA until the start of New England Wind construction. A demersal otter trawl, further referred to as a trawl, is a net that is towed behind a vessel along the seafloor expanded horizontally by a pair of otter boards or trawl doors. Trawls tend to be relatively indiscriminate in the fish and invertebrates they collect; hence trawls are a general tool for assessing the biological communities along the seafloor and are widely used by institutions worldwide for ecological monitoring. The methodology for the trawl survey was adapted from the Atlantic States Marine Fisheries Commission's (ASMFC) Northeast Area Monitoring and Assessment Program (NEAMAP) nearshore trawl survey. Tow locations within the SWDA were selected using a systematic random sampling design. The study area (369 km^2) was sub-divided into 10 sub-areas (each ~36.9 km^2), and one trawl tow was made in each of the 10 sub-areas to ensure adequate spatial coverage

[14] The geographic area studied for the New England Wind pre-construction fisheries studies is currently referred to as the "501 South Study Area."

throughout the survey area. As of August 2021, a total of eight trawl surveys have been conducted: spring 2019, summer 2019, fall 2019, winter 2020, summer 2020, fall 2020, winter 2021, and spring 2021.[15]

- Drop camera surveys are planned to occur twice per year in the SWDA until the start of New England Wind construction. The minimally invasive, image-based drop camera surveys allow for practical data collection of the epibenthic community without causing a disturbance to the seafloor. The SMAST drop camera surveys can be used to better understand benthic macrofaunal community characteristics, substrate, and the spatial and temporal scales of potential impacts on these communities and habitats. Samples are taken at 13 stations placed 5.6 km apart following a grid design. As of August 2021, five drop camera surveys have been completed (in July 2019, October 2019, July 2020, October 2020, and May 2021).

In partnership with Vineyard Wind 1, the New England Aquarium's Anderson Cabot Center for Ocean Life studied highly migratory species presence across the Massachusetts Wind Energy Area (MA WEA) and Rhode Island/Massachusetts Wind Energy Area (RI/MA WEA) based on a desktop review and input from the pelagic recreational fleet. The study determined that recreational effort for highly migratory species is widespread throughout southern New England, with the highest levels of recreational fishing activity occurring to the west of the MA WEA and RI/MA WEA in the waters south and east of Montauk Point and Block Island (Kneebone and Capizzano 2020). The results of this effort are included in Sections 7.5 and 7.6 of Volume III of the COP. This study resulted in an additional funding proposal from INSPIRE Environmental in partnership with the New England Aquarium to the Massachusetts Clean Energy Center (MassCEC) to support a two-year acoustic tagging and tracking study of highly migratory species at recreational fishing hotspots in the MA WEA and RI/MA WEA that were identified in the initial study. The Proponent, in conjunction with other offshore wind developers, plans to further support this study effort by deploying additional receivers in their lease areas. For more information on the highly migratory species surveys and New England Wind fisheries surveys (as well as several seasons of survey reports), see https://www.parkcitywind.com/fisheries.

The Proponent also plans to develop a framework for fisheries studies within the SWDA during and post-construction. In recognition of the regional nature of fisheries science, the Proponent expects that such during- and post-construction studies will involve coordination with other offshore wind energy developers in the MA WEA and RI/MA WEA, especially since there may be some offshore wind energy construction occurring concurrently in multiple lease areas. The Proponent is already engaging in collaboration with other developers, fishing industry representatives, and state and federal agencies through its participation in the Responsible Offshore Science Alliance (ROSA) and a Regional Wildlife Science Entity (RWSE). The Proponent

[15] The spring 2020 trawl survey did not occur due to concerns regarding risk of exposure to COVID-19 onboard the planned vessel.

also expects the development of the fisheries studies will be undertaken in coordination with BOEM, federal and state agencies such as NOAA Fisheries and the Massachusetts Division of Marine Fisheries, fisheries stakeholders, academic institutions, and other stakeholders. The Proponent has collaborated and will continue to collaborate with federal and state agencies to design surveys that align with established survey methods so that the data generated can be compared to previous data and ongoing regional studies to support a regional, longer-term study program to monitor the regional impacts of offshore wind development.

In addition, the Proponent is committed to developing an appropriate benthic monitoring framework for New England Wind, should it be necessary, in consultation with BOEM and other agencies as appropriate (See Appendix III-U for the draft framework). The framework for New England Wind will consider the draft Benthic Habitat Monitoring Plan for Vineyard Wind 1 in Lease Area OCS-A 0501. Due to the similarities in habitat across Lease Areas OCS-A 0501 and OCS-A 0534, the monitoring data collected during the Vineyard Wind 1 monitoring effort may also inform expected impacts to and recovery of benthic communities within the SWDA.

The survey and monitoring work conducted by the Proponent will generate a substantial body of environmental, fisheries, and other data, which will be available in the public domain in a manner consistent with other academic research. Much of the data is publicly available through the federal and state permitting process, as well as reports or academic publications that may come out of the survey or monitoring work. The Proponent also plans to make all fisheries monitoring data generated publicly available on its website. For other environmental and fisheries data, the Proponent will explore cost-effective and appropriate ways to store and make data publicly available and easy to access. Through ROSA and an RWSE, the Proponent will work with fishermen, regulators, stakeholders, and neighboring developers to find ways to streamline and standardize available data across all offshore efforts.

3.3.4 Cable Installation and Monitoring

As described in Section 2, four to five offshore export cables will be installed for New England Wind. Offshore export cable installation is described in detail in Sections 3.3.1.3 and 4.3.1.3 of COP Volume I for Phases 1 and 2, respectively. The following section provides a discussion of key concerns identified by MA CZM in relation to offshore export cable installation activities.

3.3.4.1 Co-Location of New England Wind and Vineyard Wind 1 Offshore Export Cables

As described in Section 2.3 of COP Volume I, based upon careful consideration of multiple technical, environmental, and commercial factors, the Proponent identified the OECC for New England Wind that is largely the same OECC included in the approved Vineyard Wind 1 COP, but it has been widened by approximately 300 m (984 ft) to the west along the entire corridor and by approximately 300 m (984 ft) to the east in portions of Muskeget Channel, for a total width of approximately 950–1,700 m (3,100–5,500 ft).

It is expected that the Vineyard Wind 1 offshore export cables will be located in the central or eastern portion of the OECC. To avoid cable crossings, the two Phase 1 cables are expected to be located to the west of the Vineyard Wind 1 cables and, subsequently, the two to three Phase 2 cables are expected to be installed to the west of the Phase 1 cables. The cables will typically be separated by a distance of 50–100 m (164–328 ft) to provide appropriate flexibility for routing and installation and to allow for maintenance or repairs, although this distance could be further adjusted pending ongoing routing evaluation (see Figure 2.3-1 of COP Volume I). While the Phase 1 and Phase 2 cable(s) are expected to be physically located west of the Vineyard Wind 1 cables, temporary construction impacts (e.g. use of anchors) during installation of the Phase 1 or Phase 2 cables may occur anywhere within the OECC.

For both New England Wind and Vineyard Wind 1, given currently available technology, the Proponent is using the fewest number of HVAC offshore export cables that can reliably deliver power from the projects to shore. Co-locating the Vineyard Wind 1 and New England Wind offshore export cables within a common OECC provides several benefits:

1. The OECC provides for an efficient, technically feasible connection of the SWDA to the grid interconnection point in West Barnstable. There are limited substations within reasonable proximity to Lease Area OCS-A 0534 that can accommodate power from Phase 1 and/or Phase 2, so Eversource's 345 kV West Barnstable Substation has been selected as the grid interconnection point for each Phase of New England Wind.[16] Accordingly, the offshore export cables must bring power from the SWDA to a landfall site within reasonable proximity to the West Barnstable grid interconnection, and the Proponent has identified that landfall sites will be located in Barnstable for both Phases. Further, because the SWDA is bordered to the northwest and southeast by other developers' lease areas[17], the only suitable route to shore is from the northeastern border of the SWDA. Given these considerations, there are limited options available to route cables from the northeastern boundary of the SWDA to landfall sites in Barnstable. As described in Appendix I-G, multiple route options were evaluated when siting the OECC for Vineyard Wind 1 and it was determined that the current OECC allows for less impacts than other alternatives evaluated, less electrical line losses, and lower installation and operational costs. Accordingly, using substantially the same OECC for New England Wind as Vineyard Wind 1 provides a viable route from the SWDA to the grid interconnection point that minimizes environmental, operational, and commercial impacts relative to longer alternative routes.

[16] As described in Section 4.1.3.3, one or more Phase 2 HVAC offshore export cables may deliver power to an alternative grid interconnection point if unforeseen technical, logistical, or grid interconnection issues arise.

[17] The SWDA is bordered to the northeast by Vineyard Wind 1, which is a joint venture between Avangrid Renewables and Copenhagen Infrastructure Partners.

2. The geological conditions within the OECC are well understood and the site geology and conditions are suitable for cable installation. Through the OECC survey work completed as part of Vineyard Wind 1, a large amount of survey data was collected. By the end of 2019, more than 4,272 km (2,307 NM) of geophysical trackline data, 123 vibracores, 83 cone penetrometer tests (CPTs), 82 benthic grab samples with still photographs, and 50 underwater video transects were gathered to support the characterization of the OECC.[18] Additionally, reconnaissance survey work for Vineyard Wind 1 (see Appendix I-G), which included coverage of the western portion of Muskeget Channel and routes to the east of Horseshoe Shoal in Nantucket Sound, did not identify areas where conditions appeared more favorable for cable installation. To the contrary, such reconnaissance survey work identified features outside of the OECC such as shoals, large concentrations of boulders, deep channels, and high currents that would make cable installation and maintenance in an alternate location more challenging. These factors would increase health and safety risk during installation and maintenance, risk of not achieving sufficient burial depths, and risk of cable exposure. The Proponent has also assessed the OECC for installation feasibility, which includes ensuring that water depths are suitable for fully-loaded cable installation vessels, slopes are workable for typical cable installation tools, sufficient room is available for anchoring, etc. Based on these detailed geotechnical and installation feasibility analyses, the Proponent has determined that the identified cable corridor is the most suitable for cable installation and the needs of New England Wind.

3. The use of a shared OECC has important commercial considerations while also helping to minimize environmental impacts. By utilizing a shared OECC, the Proponent is able to leverage the existing survey work already performed for Vineyard Wind 1, which means less survey vessel work and equipment usage, fewer man hours at sea and associated health and safety risks, fewer air emissions, and lower risk of potential impacts to marine species, as well as decreased survey costs, which are a significant portion of pre-construction costs. Lessons learned during the installation of Vineyard Wind 1's cables specific to the conditions within the OECC will undoubtedly inform and benefit the installation of New England Wind's offshore export cables. The use of the same OECC for Vineyard Wind 1 and New England Wind also limits the disturbed areas to a single corridor. The Proponent proposes a target burial depth below potential conflict with fishing gear. The Proponent will prioritize achieving sufficient cable burial depth; however, where sufficient burial depth cannot be achieved and cable protection is required, or should marine users elect to avoid these areas, co-locating the Vineyard Wind 1 and New England Wind cables within a shared OECC would limit the potential area of impact.

[18] Additional survey data was collected for the expanded portions of the OECC in 2020; this data, in conjunction with the data already collected, will be used by the cable installation contractor (once selected) to further assess conditions present in the OECC, determine cable alignments within the OECC, and select cable installation tools that are appropriate for the site conditions.

4. The Vineyard Wind 1 OECC was thoroughly evaluated and approved by the Commonwealth of Massachusetts and BOEM. BOEM has also already reviewed all existing geophysical and geotechnical data for the Vineyard Wind 1 OECC.

To assess the feasibility of using the same OECC for Vineyard Wind 1 and New England Wind, the Proponent commissioned a preliminary route design study for the New England Wind cables, which is provided as Appendix III-P. This report includes a comprehensive assessment of the geophysical and geotechnical conditions along the route, including the presence of seabed features and considerations such as sand waves, magnetic anomalies, coarse deposits, rocks or boulders, water depths, and seabed slopes. Recommendations for cable installation tools that are appropriate for the site conditions are also included. Ultimately, the preliminary route design study demonstrates that it is technically feasible to place the additional New England Wind cables within the OECC. However, the preliminary cable alignments are expected to be refined following detailed engineering.

Thus, the Proponent is effectively achieving a cost-effective solution which looks much like "shared transmission" but with none of the attendant drawbacks (from a wind energy developer's perspective) including substantial technological, development, and regulatory risks.

3.3.4.2 Offshore Export Cable Installation

Prior to offshore export cable laying, a pre-lay grapnel run, and pre-lay survey will be performed to clear obstructions, such as abandoned fishing gear and other marine debris, and inspect the route. Large boulders along the route may need to be relocated prior to cable installation.

Some dredging of the upper portions of sand waves may also be required prior to cable laying to achieve sufficient burial depth below the stable sea bottom (see Sections 3.3.1.3.5 and 4.3.1.3.5 of COP Volume I). Dredging will be limited only to the extent required to achieve adequate cable burial depth during cable installation. Where dredging is necessary, it is conservatively assumed that the dredge corridor will typically be 15 m (50 ft) wide at the bottom (to allow for equipment maneuverability) with approximately 1:3 sideslopes for each of the two cables. However, the depth of dredging will vary with the height of sand waves; hence the dimensions of the sideslopes will likewise vary with the depth of dredging and sediment conditions. This dredge corridor includes the up to 1 m (3.3 ft) wide cable installation trench and the up to 3 m (10 ft) wide temporary disturbance zone from the tracks or skids of the cable installation equipment. The average dredge depth is approximately 0.5 m (1.6 ft) and may range up to 5.25 m (17 ft) in localized areas. The total vertical disturbance within sand waves is up to 8 m (26 ft), which includes dredging and cable installation.

For the two Phase 1 offshore export cables combined, dredging may impact approximately 0.21 km^2 (52 acres)[19] along ~15.3 km (~8.3 NM) and may include up to approximately 134,800 cubic meters (176,300 cubic yards) of dredged material. For the three Phase 2 offshore export cables combined, dredging may impact approximately 0.27 km^2 (67 acres)[20] along ~19.4 km (~10.5 NM) and may include up to approximately 180,000 cubic meters (235,400 cubic yards) of dredged material. If the Western Muskeget Variant is used for Phase 2, there will be either (1) one export cable installed in the Western Muskeget Variant and two export cables installed in the OECC or (2) two export cables installed in the Western Muskeget Variant and one export cable installed in the OECC. In either scenario involving the Western Muskeget Variant, dredging may impact approximately up to 0.30 km^2 (73 acres)[21] along up to ~21.1 km (~11.3 NM) and may include up to approximately 210,100 cubic meters (274,800 cubic yards) of dredged material. Actual dredge volumes will depend on the final cable alignments and cable installation method(s); a cable installation method that can achieve a deeper burial depth will require less dredging. Appendix III-P provides the maximum extent of dredging.

Dredging could be accomplished by several techniques. European offshore wind projects have typically used a TSHD. A TSHD vessel contains one or more drag arms that extend from the vessel, rest on the seafloor, and suction up sediments. Dredges of this type are also commonly used in the US for channel maintenance, beach nourishment, and other projects. For New England Wind, a TSHD would be used to remove enough of the top of a sand wave to allow subsequent cable installation into the stable seabed using one of the techniques described below. Should a TSHD be used, it is anticipated that the TSHD would dredge along the cable alignment until the hopper was filled to an appropriate capacity; then, the TSHD would sail several hundred meters away and deposit the dredged material within the OECC. Bottom dumping of dredged material would only occur within sand waves (see Figure 3.3-3 of COP Volume I).

A second dredging technique involves jetting by controlled flow excavation. Controlled flow excavation uses a pressurized stream of water to push sediments to the side. The controlled flow excavation tool draws in seawater from the sides and then propels the water out from a vertical downpipe at a specified pressure and volume. The downpipe is positioned over the cable alignment, enabling the stream of water to fluidize the sediments around the cable, which allows

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[19] Since the dredging area will overlap with the 1 m (3.3 ft) wide cable installation trench and 3 m (10 ft) wide temporary disturbance zone from the tracks or skids during cable installation (see Section 3.3.1.3.6), these areas have been subtracted from the dredging area to avoid double-counting impacts. The total dredging area including the cable installation trench is approximately 0.27 km^2 (67 acres).

[20] Since the dredging area will overlap with the 1 m (3.3 ft) wide cable installation trench and 3 m (10 ft) wide temporary disturbance zone from the tracks or skids during cable installation (see Section 4.3.1.3.6), these areas have been subtracted from the dredging area to avoid double-counting impacts. The total dredging area including the cable installation trench is approximately 0.35 km^2 (86 acres).

[21] Since the dredging area will overlap with the 1 m (3.3 ft) wide cable installation trench and 3 m (10 ft) wide temporary disturbance zone from the tracks or skids during cable installation (see Section 4.3.1.3.6 of COP Volume I), these areas have been subtracted from the dredging area to avoid double-counting impacts.

the cable to settle into the trench. This process causes the top layer of sediments to be sidecast to either side of the trench. In this way, controlled flow excavation simultaneously removes the top of the sand wave and bury the cable. Typically, a number of passes are required to lower the cable to the minimum sufficient burial depth.

A TSHD can be used in sand waves of most sizes, whereas the controlled flow excavation technique is most likely to be used in areas where sand waves are less than 2 m (6.6 ft) high. Therefore, sand wave dredging could be accomplished entirely by the TSHD on its own or through a combination of controlled flow excavation and TSHD, with controlled flow excavation used for smaller sand waves and TSHD used to remove larger sand waves.

Following the route clearance activities and any required dredging, the offshore export cables will be installed. The offshore export cables will have a target burial depth of 1.5 to 2.5 m (5 to 8 ft) below the seafloor, which the Proponent's engineers have determined is more than twice the burial depth required to protect the cables from fishing activities and also provides a maximum of 1 in 100,000 year probability of anchor strike, which is considered a negligible risk (see Appendix III-P of COP Volume III).

Several possible techniques may be used during cable installation to achieve the target burial depth (see further description below). Generally, jetting methods are better suited to sands or soft clays whereas a mechanical plow or mechanical trenching tool is better suited to stiffer soil conditions (but is also effective in a wide range of soil conditions). While the actual offshore export cable installation method(s) will be determined by the cable installer based on site-specific environmental conditions and the goal of selecting the most appropriate tool for achieving adequate burial depth, the Proponent will prioritize the least environmentally impactful cable installation alternative(s) that is/are practicable for each segment of cable installation. No blasting is proposed for cable installation.

In addition to selecting an appropriate tool for the site conditions, the Proponent will work to minimize the likelihood of insufficient cable burial. For example, if the target burial depth is not being achieved, operational modifications may be required. Subsequent attempts with a different tool (such as controlled flow excavation) may be required where engineering analysis indicates subsequent attempts may help achieve sufficient burial. As discussed in Sections 3.3.1.3.10 and 4.3.1.3.10 of COP Volume I, while every effort will be made to achieve sufficient burial, it is conservatively estimated that approximately 6% of the offshore export cables within the OECC may not achieve sufficient burial depth and will require cable protection (or up to 7% of the offshore export cables within the OECC for both Phases if the Western Muskeget Variant is used for one or two Phase 2 export cables).

The majority of the offshore export cables are expected to be installed using simultaneous lay and bury via jetting techniques (e.g. jet plow or jet trenching) or mechanical plow. Both cable installation methods are described below under "Typical Techniques." However, additional specialty techniques are retained as options to maximize the likelihood of achieving sufficient burial depth (such as in areas of coarser or more consolidated sediment, rocky bottom, or other

difficult conditions) while minimizing the need for possible cable protection and accommodating varying weather conditions. Additional techniques that may be used more rarely are described below under "Other Possible Specialty Techniques."

Typical Techniques

- **Jetting techniques (e.g. jet plowing or jet trenching):** Jetting tools may be deployed using a seabed tractor, a sled, or directly suspended from a vessel. Jetting tools typically have one or two arms that extend into the seabed (or alternatively a share that runs through the seabed) equipped with nozzles which direct pressurized seawater into the seafloor. As the tool moves along the installation route, the pressurized seawater fluidizes the sediment allowing the cable to sink by its own weight to the appropriate depth or be lowered to depth by the tool. Once the arm or share moves on, the fluidized sediment naturally settles out of suspension, backfilling the narrow trench. Depending on the actual jet-plowing/jet-trenching equipment used, the width of the fluidized trench could vary between 0.4–1 m (1.3–3.3 ft). While jet-plowing will fluidize a narrow swath of sediment, it is not expected to result in significant sidecast of materials from the trench. Offshore cable installation will therefore result in some temporary elevated turbidity, but sediment is expected to remain relatively close to the installation activities (see Section 5.2.2 of COP Volume III and Appendix III-A for a discussion of sediment dispersion modeling).

- **Mechanical plowing:** A mechanical plow is pulled by a vessel (or barge) and uses cutting edge(s) and moldboard, possibly with water jet assistance, to penetrate the seabed while feeding the cable into the trench created by the plow. While the plow share itself would likely only be approximately 0.5 m (1.6 ft) wide, a 1 m (3.3 ft) wide trench disturbance is also conservatively assumed for this tool. This narrow trench will infill behind the tool, either by slumping of the trench walls or by natural infill, usually over a relatively short period of time.

Other Possible Specialty Techniques

- **Mechanical trenching:** Mechanical trenching is typically only used in more resistant sediments. A rotating chain or wheel with cutting teeth/blades cuts a trench into the seabed. The cable is laid into the trench behind the trencher and the trench collapses and backfills naturally over time.

- **Shallow-water cable installation vehicle:** While any of the "Typical Techniques" described above could be used in shallow water, the Phase 1 Envelope also includes specialty shallow-water tools (if needed). These entail deployment of "Typical Technique" from a vehicle that operates in shallow water in places where larger cable laying vessels cannot efficiently operate. The cable is first laid on the seabed, and then a vehicle drives over or alongside the cable while operating an appropriate burial tool to complete installation. The vehicle is controlled and powered from a shallower-draft vessel that holds equipment and operators above the waterline.

- **Pre-pass jetting:** Prior to cable installation, a pre-pass jetting run using a jet plow or jet trencher may be conducted along targeted sections of the cable route with stiff or hard sediments. A pre-pass jetting run is an initial pass along the cable route by the cable installation tool to loosen sediments without installing the cable. A pre-pass jetting run maximizes the likelihood of achieving sufficient burial during a subsequent pass by the cable installation tool when the cable is installed. Pre-pass jetting run impacts are largely equivalent to the cable installation impacts from jetting, which are described under "Typical Techniques" above.

- **Pre-trenching:** Pre-trenching is typically used in areas of very stiff clays. A plow or other device is used to excavate a trench, the excavated sediment is placed next to the trench, and the cable is subsequently laid into the trench. Separately or simultaneously to laying the cable, the excavated sediment is returned to the trench to cover the cable. It is unlikely that the Proponent will use a pre-trench method because site conditions are not suitable (i.e., sandy sediments would simply fall back into the trench before the cable-laying could be completed).

- **Pre-lay plow:** In limited areas of resistant sediments or high concentrations of boulders, a larger tool may be necessary to achieve cable burial. One option is a robust mechanical plow that would push boulders aside while cutting a trench into the seabed for subsequent cable burial and trench backfill. Similar to pre-trenching, this tool would only be used in limited areas if needed to achieve sufficient cable burial.

- **Precision installation:** In situations where a large tool is not able to operate or where another specialized installation tool cannot complete cable installation, a diver or ROV may be used to complete installation. The diver or ROV may use small jets or other small tools to complete installation.

- **Jetting by controlled flow excavation:** As described in Section 3.3.1.3.5 of COP Volume I, jetting by controlled flow excavation can be used for cable installation as well as dredging. A controlled flow excavation tool draws in seawater from the sides and then propels pressurized water downward over the cable alignment, enabling the stream of water to fluidize the sediments around the cable and allowing the cable to settle into the trench. This process causes the top layer of sediments to be sidecast to either side of the trench. This method will not be used as the conventional burial method for the offshore export cables, but may be used in limited locations, such as to bury cable joints or bury the cable deeper and minimize the need for cable protection where initial burial of a section of cable does not achieve sufficient depth. Typically, a number of passes are required to lower the cable to the minimum sufficient burial depth, resulting in a wider disturbance than use of a jet-plow or mechanical plow. Jetting by controlled flow excavation is not to be confused with jet plowing or jet trenching (a typical cable installation method described above).

Impacts from cable installation are expected to include an up to 1 m (3.3 ft) wide cable installation trench and an up to 3 m (10 ft) wide temporary disturbance zone from the skids/tracks of the cable installation equipment that will slide over the surface of the seafloor (each skid/track is assumed to be approximately 1.5 m [5 ft] wide). The skids or tracks have the potential to disturb benthic habitat; however, because they are not expected to dig into the seabed, the impact is expected to be minor relative to the trench. The trench is expected to naturally backfill as sediments settle out of suspension and no separate provisions to facilitate restoration of a coarse substrate are required.

Typical cable installation speeds are expected to range from 100 to 200 meters per hour (5.5 to 11 feet per minute) and it is expected that offshore export cable installation activities will occur 24 hours per day. Once offshore export cable installation has begun, to preserve the integrity of the cable, cable installation will ideally be performed as a continuous action along the entire cable alignment between splices.

Anchored cable laying vessels may be used along the entire length of the offshore export cables due to varying water depths throughout the OECC and SWDA. Anchoring during installation of the offshore export cables is expected to require the use of a nine-point anchoring system. A nine-point anchor spread provides greater force on the cable burial tool than a spread with fewer anchors thereby enabling greater burial depth. On average, anchors are assumed to reposition approximately every 400 m (1,312 ft); however, anchor resetting is highly dependent on final contractor selection and the contractor's specific vessel(s). Anchored vessels may be equipped with spud legs that are deployed to secure the cable laying vessels while its anchors are being repositioned. To install the cable close to shore using tools that are best optimized to achieve sufficient cable burial, the cable laying vessel may temporarily ground nearshore. A jack-up vessel may be used to facilitate pulling the offshore export cables through HDD conduits installed at the landfall site. Any anchoring, jacking-up, spud leg deployment, or grounding will occur within areas of the OECC and SWDA that will have been surveyed.

Prior to the start of construction, contractors will be provided with a map of sensitive habitats with areas to avoid so they can plan their mooring positions accordingly (see the discussion under Habitat Policy #1).

3.3.4.3 Cable Monitoring

The export cables will be regularly monitored to assess depth of burial. The specific, as-built cable alignment will be monitored by the cable installation tool during installation to record the precise location (x and y) of each offshore export cable as well as the achieved burial depth (z). If the depth of burial cannot be clearly established from any of the installation techniques, additional survey work may be undertaken. While development of a final monitoring schedule is ongoing, it is expected that the cable will be surveyed with a higher frequency in the early post-construction years It is expected that the cables will be surveyed within six months of commissioning, at years one and two, and every three years thereafter. This monitoring schedule may be adjusted over time based on results of the ongoing surveys. Additionally, the cable design may include a

Distributed Temperature System (DTS), so that the temperature of the cable is monitored at all times; significant changes in temperature recorded by this system may also be used to indirectly indicate cable exposure.

3.3.5 Coastal and Marine Birds

The Proponent has conducted extensive studies, including desktop research and field surveys, to identify coastal and marine birds that may be affected by New England Wind and potential impacts to those species. These efforts have included conducting one year of monthly boat surveys in the SWDA (from October 2018 to September 2019). Section 6.2 of COP Volume III provides a detailed assessment of potential impacts to coastal and marine birds from New England Wind activities within the SWDA, along the OECC, and at the landfall site, along with avoidance, minimization, and mitigation measures. This analysis concludes that New England Wind activities are unlikely to cause population level impacts to any avian species or species group. The following section provides a summary of this assessment, with a focus on potential impacts along the OECC and at the landfall site.

3.3.5.1 Potential Impacts

Offshore export cables for both Phases will be installed within an OECC that travels north from the SWDA, passes through the eastern side of Muskeget Channel, and traverses Nantucket Sound to make landfall in the Town of Barnstable. The majority of the offshore export cables are expected to be installed using simultaneous lay and bury via jetting techniques (e.g. jet plow or jet trenching) or mechanical plow. Additionally, as described in Sections 3.3.1 and 4.3.1 of COP Volume I, sections of the OECC contain sand waves, which may need to be removed by dredging prior to cable installation.

A previous study (Veit et al. 2016) identified Muskeget Channel as a "hotspot" for common eiders, black scoters, long-tailed ducks, common and red-throated loons, and common and roseate terns. While the installation of four to five offshore export cables for New England Wind will temporarily impact only a tiny fraction of the identified "hotspot," a further assessment of potential impacts to roseate terns was conducted.

Roseate terns, particularly those nesting in southern New England and the Gulf of Maine are highly reliant on sand lance as their primary food source. For example, chick diets at a nesting colony in Long Island Sound, New York (Great Gull Island) consisted of 97% sand lance species, while those on Bird Island in Buzzard's Bay, Massachusetts averaged 69% (Goyert et al. 2015; Staudinger et al. 2020). Roseate terns generally feed by shallow plunge-diving or surface-dipping. A concern has been expressed that disturbance to sand lance during cable installation may in turn potentially impact roseate terns.

To assess potential disturbance to marine organisms, including fish such as sand lance, from cable installation activities, a sediment dispersion modeling study of dredging and cable installation activities was conducted and is provided in Appendix III-A of COP Volume III. The sediment

dispersion modeling study includes the portion of the OECC that falls within the avian hot spot identified by Veit et al. (2016) in Muskeget Channel (including the Western Muskeget Variant). Suspended sediments generated during dredging and disposal activities and subsequent cable installation activities within Muskeget Channel will be temporary and localized. During these activities, a very limited portion (<1%) of the avian hot spot identified by Veit et al. (2016) is impacted at any one time. Excess suspended sediments at any given point are only present for a short duration (typically less than 6 hours, and only 1-3 hours for cable installation), and will only occupy the bottom few meters of the water column during and after cable installation. As described in Sections 6.5 (Benthic Resources) and 6.6 (Finfish and Invertebrates) of COP Volume III, these concentrations and durations of exposure from suspended sediments are below those causing sub-lethal or lethal effects to fish and benthic organisms, including sand lance. Accordingly, suspension of sediments from dredging and cable installation operations are expected to have little to no effect on mobile organisms such as sand lance.

As roseate terns generally feed by shallow plunge-diving or surface-dipping, temporary increased turbidity in the bottom few meters of the water column caused by offshore export cable installation is unlikely to adversely affect foraging behavior or efficiency. Furthermore, of the two sand lance species most prevalent in the region (American sand lance and Northern sand lance [*Ammodyte dubius*]), the American sand lance is more likely to occupy nearshore, shallow habitats (<20 m [66 ft] but often <2 m [6.6 ft]) (Staudinger et al. 2020) outside the deeper parts of the channel where the cables will be installed. This predicted shallower distribution of the American sand lance matches the observed distribution of breeding and staging terns in the area, which appear to spend most of their time foraging close to the shores of Tuckernuck and Muskeget Island, and surrounding shoals, not in the deeper waters of the Muskeget Channel itself (Veit and Perkins 2014).

In summary, exposure of roseate terns to offshore export cable installation activities will be temporary and localized. Because of the limited extent and short-term duration of cable installation, the loss or disturbance of individual roseate terns is unlikely.

At the landfall site, the beach and some of the dunes may be used by piping plovers. The Natural Heritage and Endangered Species Program (NHESP) has established Priority Habitat along the Centerville Harbor shoreline that includes the beach and some of the dunes adjacent to the paved parking lots at the potential Phase 1 and Phase 2 landfall sites, which include Craigville Public Beach or Covell's Beach for Phase 1 and Dowses Beach or Wianno Avenue for Phase 2 (see Figure 6.1-2 of COP Volume III). NHESP has confirmed that the mapped Priority Habitat is for piping plover at the Phase 1 landfall sites. It is expected that the mapped Priority Habitat near the Phase 2 landfall sites is also for piping plover since the Priority Habitat mapping is continuous throughout Centerville Harbor, and the Proponent will be requesting confirmation from NHESP. With the exception of Wianno Avenue, disturbance of the beach at either landfall site will be largely avoided as the cable will pass under the beach, intertidal zone, and nearshore areas via HDD. The cable will come ashore in an existing paved parking area or other previously disturbed area and thus will avoid disturbing beach or dune habitat that might be used by piping plovers, other

migratory shorebirds, or seabirds. The Wianno Avenue Landfall Site is less suited for HDD than open trenching due to the elevated onshore topography and slope of the parking lot. This landfall site is suitable for open trenching because the shoreline has already been altered by the installation of a riprap seawall, a portion of which would be temporarily removed and replaced following cable installation thus, minimizing disturbance to beach or dune habitat. The Proponent only expects to use the Wianno Avenue Beach Landfall Site if unforeseen challenges arise that make it infeasible to use the Dowses Beach Landfall Site to accommodate all or some of the Phase 2 offshore export cables.

Nonetheless, due to the proximity of the coastal dune to the paved parking lots where staging activities would occur, the Proponent is developing a draft Piping Plover Protection Plan for construction activities at either landfall site that will mirror a similar plan assembled for Vineyard Wind 1 that was approved by NHESP (see Appendix III-R of COP Volume III). Based on consultations with NHESP for Vineyard Wind 1 for activities at the Covell's Beach landfall site, the Proponent expects that activities at either landfall site will begin in advance of April 1, or will not begin until after August 31, to avoid and minimize noise impacts to piping plover during the breeding season.

3.3.5.2 Avoidance, Minimization and Mitigation Measures

The SWDA is located within the MA WEA, which was established by BOEM through a multi-step process that involved significant agency and public input over a period of approximately six years. As described in Section 2 of COP Volume I, areas identified as important fishing areas and having high value sea duck habitat were excluded from the northeastern portion of the MA WEA (BOEM 2014). Effectively, the location of the SWDA minimizes and avoids exposure of birds to New England Wind's offshore wind energy generation facilities.

During construction and O&M, New England Wind will reduce lighting as much as practicable to avoid or minimize impacts to birds. In addition, whenever practicable, the Proponent will down-shield lighting or use down-lighting to limit bird attraction and disorientation. For Phase 1, the Proponent expects to use an ADLS that automatically activates all aviation obstruction lights when aircraft approach the Phase 1 WTGs, subject to BOEM approval. For Phase 2, the Proponent would expect to use the same or similar approaches to reduce lighting used for Vineyard Wind 1 and/or Phase 1, including the use of an ADLS. Use of ADLS would lessen the potential impacts of nighttime light on birds. Additionally, the Proponent will use a standardized protocol to document any dead or injured birds found on vessels and structures during construction, O&M, and decommissioning.

The Proponent is also developing a framework for a post-construction bird monitoring program in relation to Vineyard Wind 1 that can be adapted to New England Wind. This framework is being developed through consultation with federal, state, and local agencies, and with input from other stakeholders.

Finally, while cable installation is only expected to have temporary and localized impacts that will not significantly disturb roseate terns, the Proponent will incorporate any lessons learned from cable installation through Muskeget Channel for the Vineyard Wind 1 project on procedures to minimize suspended sediments. The Proponent will also incorporate information learned from the monitoring of sand lance being conducted for Vineyard Wind 1 as part of the Benthic Habitat Monitoring Plan for that project.

4.0 CONCLUSION

The Proponent has demonstrated that the proposed action described herein and in the New England Wind COP complies with the applicable enforceable policies of the approved Massachusetts Coastal Program and will be conducted in a manner consistent with such Program.

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New England Wind Phase 2 Offshore Export Cable Corridor South Coast Variant

Massachusetts Coastal Zone Management Act Consistency Certification

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April 2022

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1.0 INTRODUCTION

New England Wind is the proposal to develop offshore renewable wind energy facilities in Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 along with associated offshore and onshore cabling, onshore substations, and onshore operations and maintenance (O&M) facilities. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the Proponent and will be responsible for the construction, operation, and decommissioning of New England Wind. Figure 1.0-1 provides an overview of New England Wind. The Proponent has prepared this federal Consistency Certification to demonstrate that New England Wind will comply with and will be conducted in a manner consistent with the enforceable policies of the approved Massachusetts Coastal Management Programs (MA CMPs).

The Proponent filed its draft New England Wind Construction and Operations Plan (COP) with BOEM on July 2, 2020, with a subsequent update on December 17, 2021. New England Wind's offshore wind facilities within all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, referred to as the Southern Wind Development Area (SWDA), will be developed in two Phases: Phase 1 (also known as Park City Wind) and Phase 2 (also known as Commonwealth Wind). Four or five offshore export cables (two for Phase 1 and two or three for Phase 2) will transmit electricity generated by the wind turbine generators (WTGs) to onshore transmission systems (see Figure 1.0-1). New England Wind's wind turbine generators (WTGs), electrical service platforms (ESPs), inter-array cables, inter-link cables, and portions of the offshore export cables are in federal waters.

The Proponent has identified an Offshore Export Cable Corridor (OECC) for the installation of the offshore export cables (see Figure 1.0-1). The OECC travels north from Lease Area OCS-A 0534 along the eastern side of Muskeget Channel towards landfall sites in the Town of Barnstable, Massachusetts. The expected grid interconnection point for both Phases of New England Wind is the West Barnstable Substation. While the Proponent intends to install all Phase 2 offshore export cables within this OECC, the Proponent has identified two variations of the OECC that may be employed for Phase 2: the Western Muskeget Variant (which passes along the western side of Muskeget Channel) and the South Coast Variant (which connects to a potential second grid interconnection point) (see Figure 1.0-1). These variations are necessary to provide the Proponent with commercial flexibility should technical, logistical, grid interconnection, or other unforeseen issues arise during the Construction and Operations Plan (COP) review and engineering processes.

The Proponent has submitted a draft New England Wind COP that describes the OECC and both potential Phase 2 OECC variants, with accompanying data and analysis for the OECC and the Western Muskeget Variant. The purpose of this COP Addendum is to provide relevant data and analysis supporting the South Coast Variant in federal waters for New England Wind. This COP Addendum incorporates by reference the analyses in the COP (including the appendices) and is focused on describing impacts that are unique to the South Coast Variant. Accordingly, descriptions of impacts that are associated with the OECC or its variants more generally and that are not specific to the South Coast Variant are not repeated in this COP Consistency Certification.

In June 2020, the Proponent submitted a statement of consistency with the Massachusetts Coastal Zone Management's (MA CZM) enforceable program policies to the Massachusetts Executive Office of Energy and Environmental Affairs (EEA #16231) and MA CZM as Attachment E of the New England Wind 1 Connector Environmental Notification Form (ENF)[1]. The consistency statement was prepared for the portions of Phase 1 in state jurisdiction (referred to as New England Wind 1 Connector). In December 2021, the Proponent submitted a federal consistency review that addressed both Phases 1 and 2 of New England Wind in state jurisdiction, as well as New England Wind activities in federal waters "with reasonably foreseeable effects on any land or water uses or natural resources of the Massachusetts coastal zone," in accordance with 301 CMR Part 20.04(1). This federal consistency review builds upon the previous consistency statement providing relevant data and analysis supporting the South Coast Variant in federal waters.

A summary of the South Coast Variant is provided in Section 2. Section 3 describes the supplemental information about the South Coast Variant and how it relates to the Massachusetts Ocean Management Plan. Based upon the analyses presented herein and in the COP the Proponent certifies to the MA CZM that:

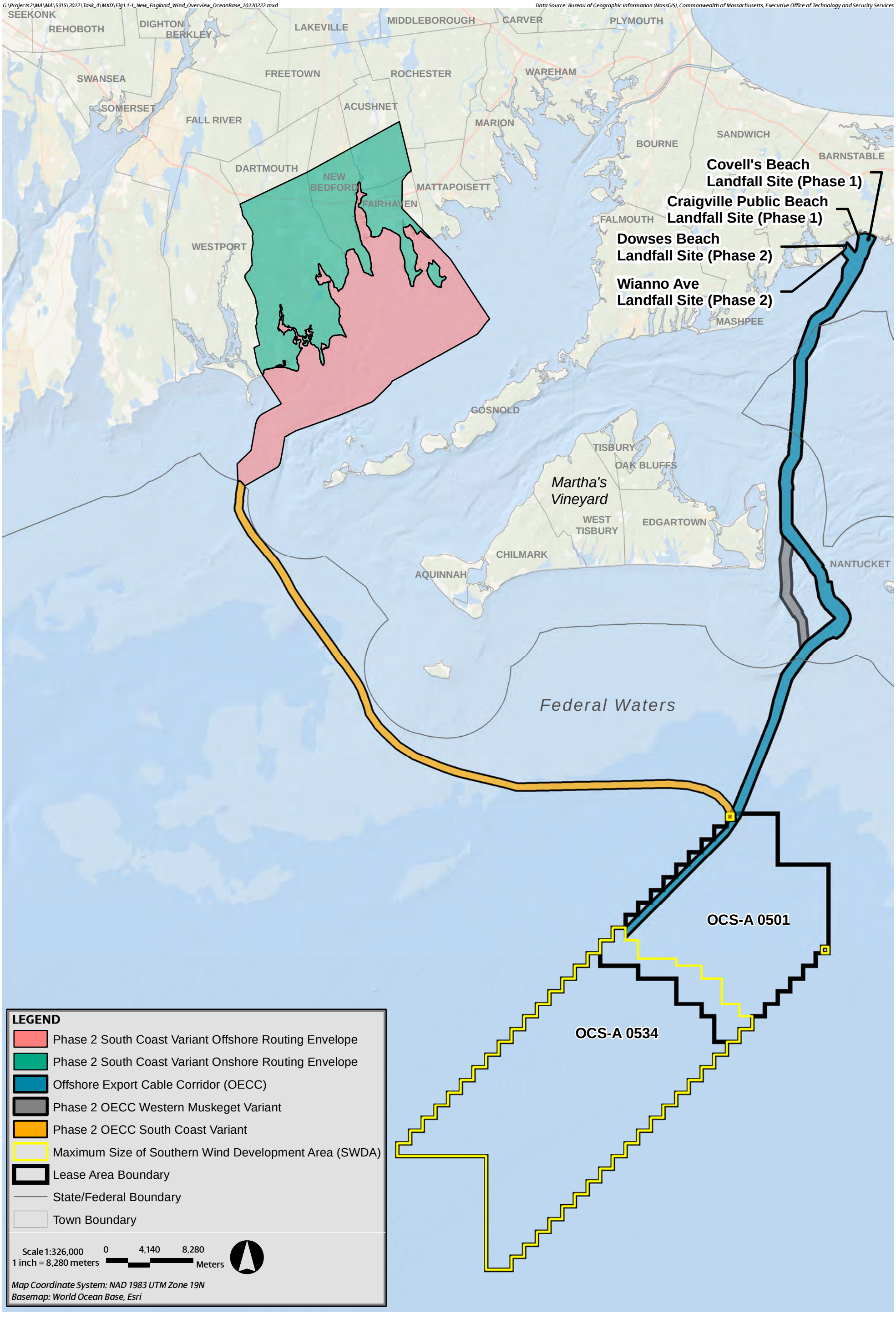
> *The proposed activities described in detail in the New England Wind COP comply with Massachusetts' approved coastal management program and will be conducted in a manner consistent with such program.*

This certification is made in accordance with the requirements of the Federal Coastal Zone Management Act (16 U.S.C. 1451 et seq.) and implementing regulations at 15 CFR Part 930, Subparts D and E; 301 CMR 20.00; and the relevant statutory and regulatory authorities for the Commonwealth of Massachusetts' Coastal Zone Management Plan and Program Policies.

[1] At the time the ENF was filed, the proposed development was referred to by its previous name "Vineyard Wind Connector 2."

G:\Projects2\MA\MA\5315\2022\Task_4\MXD\Fig1.1-1_New_England_Wind_Overview_OceanBase_20220222.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



New England Wind

AVANGRID RENEWABLES

Figure 1.0-1

New England Wind Overview

2.0 SUMMARY OF THE NEW ENGLAND WIND PHASE 2 OECC SOUTH COAST VARIANT

2.1 Overview

The South Coast Variant is included in the COP to provide the Proponent with the commercial flexibility required should technical, logistical, grid interconnection, or other unforeseen issues arise during the COP review and engineering processes that preclude one or more Phase 2 export cables from interconnecting at the West Barnstable Substation. If it becomes necessary to employ the South Coast Variant and a second grid interconnection point is secured, the Proponent understands that BOEM would conduct a supplemental review of the South Coast Variant within state waters and the corresponding onshore route(s) to the second grid interconnection point.

The South Coast Variant would only be employed if one or more Phase 2 offshore export cables need to interconnect at a second grid interconnection point. Unexpected scenarios that could potentially necessitate the use of the South Coast Variant include, but are not limited to:

- further detailed engineering identifies technical issues with landing one or more Phase 2 offshore export cables at potential landfall sites in Barnstable;
- additional detailed engineering identifies technical issues with installing one or more Phase 2 cables within roadway layouts and utility rights-of-way (ROWs) to reach the West Barnstable Substation; and/or
- grid interconnection issues at the West Barnstable Substation arise that are beyond the Proponent's control.

As shown in Figure 1.0-1, the South Coast Variant diverges from the OECC at the northern boundary of Lease Area OCS-A 0501 and travels west-northwest through federal waters to the Massachusetts state waters boundary near Buzzards Bay. At the Massachusetts state waters boundary, the South Coast Variant broadens to a "Phase 2 South Coast Variant Offshore Routing Envelope" that indicates a region within Buzzards Bay where the Phase 2 offshore export cable(s) may be installed before making landfall along the southwest coast of Massachusetts within the Offshore Routing Envelope. The South Coast Variant does not enter Rhode Island state waters.

If the South Coast Variant is used for Phase 2, the following scenarios are proposed. While none of these scenarios are currently likely, Scenario 1 is considered the most likely of the three: (1) one export cable installed in the South Coast Variant and two export cables installed in the OECC, (2) two export cables installed in the South Coast Variant and one export cable installed in the OECC, or (3) three export cables installed in the South Coast Variant.[2]

[2] Scenarios 2 and 3 are both very unlikely. Scenarios 2 and 3 would both require significant capacity upgrades to the electrical grid by ISO New England to receive the Phase 2 capacity and are unlikely to be delivered on the

As shown in Figure 1.0-1, the South Coast Variant diverges from the OECC at the northern boundary of Lease Area OCS-A 0501 and travels west-northwest to the state waters boundary near Buzzards Bay. From the Southern Wind Development Area (SWDA)[3] boundary (excluding the two separate aliquots that are closer to shore) through federal waters to the state waters boundary, the South Coast Variant is approximately 79 km (42 NM) in length and approximately 720 m (2,360 ft) in width. To allow additional cable length for turns and micro-siting of the cable within the corridor, the maximum length of each cable within this variation of the OECC (from the SWDA boundary to the Massachusetts state waters boundary) is ~84 km (~45 NM).[4] An additional length of offshore export cable within the SWDA (up to ~34–42 km [~18–23 NM] per cable) will be needed to reach the Phase 2 ESP(s). Thus, the maximum length of each Phase 2 offshore export cable that employs the South Coast Variant is 118–126 km (64–68 NM) between the state waters boundary and the ESP(s). If three Phase 2 offshore export cables use the South Coast Variant, the maximum total length of the Phase 2 offshore export cables within federal waters (assuming three cables) is ~362 km (~196 NM). The maximum total area of seafloor disturbance during construction associated with the use of the South Coast Variant is presented in Table 1.2-1 of the New England Wind COP Addendum.

If used, the South Coast Variant will make landfall along the southwest coast of Massachusetts within the Offshore Routing Envelope.

Operations and Maintenance and decommissioning activities associated with the South Coast Variant are expected to be similar to those discussed in Sections 4.3.2 and 4.3.3 of COP Volume I and Appendix III-S of COP Volume III.

The location of the South Coast Variant was developed based upon careful consideration of multiple technical, environmental, and commercial factors. In particular, the location of the South Coast Variant was chosen in order to consolidate infrastructure with other commercial wind developments (i.e., for much of its length, the South Coast Variant parallels the proposed Mayflower Wind offshore export cable corridor), which helps to minimize environmental impacts. The identified cable corridor was also chosen to avoid impacts to the Vineyard Sound and

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construction timeline contemplated in the COP. These scenarios are only included as potential options in the event that Phase 2 is significantly delayed due to technical, logistical, or other unforeseen issues arise with interconnecting at the West Barnstable substation.

[3] New England Wind will occupy all of Lease Area OCS-A 0534 and potentially a portion of Lease Area OCS-A 0501 in the event that Vineyard Wind 1 does not develop "spare" or extra positions included in Lease Area OCS-A 0501 and Vineyard Wind 1 assigns those positions to Lease Area OCS-A 0534. For the purposes of the COP, the SWDA is defined as all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, as shown in Figure 1.0-1.

[4] The offshore export cable length includes a 15% allowance for micro-siting within Lease Areas OCS-A 0534 and OCS-A 0501 and a 5% allowance for micro-siting within the OECC and South Coast Variant outside the lease areas.

Moshup's Bridge Traditional Cultural Property (TCP), which is located just north of the South Coast Variant in Vineyard Sound and encompasses portions of Martha's Vineyard and the Elizabeth Islands.

The Proponent is obtaining survey data and undertaking significant engineering processes to develop specific cable route alignments and to select appropriate installation tools. The entire South Coast Variant is surveyed; however, only a portion of this corridor is needed to install one to three offshore export cables.

3.0 SOUTH COAST VARIANT CONSISTENCY WITH MASSACHUSETTS ENFORCEABLE POLICIES

3.1 Federal Consistency Certification

Section 307(c)(3)(B) of the federal Coastal Zone Management Act (CZMA), as amended, requires any applicant who submits an Outer Continental Shelf (OCS) plan[5] to the Department of the Interior to also provide a certification that each activity described in the OCS plan affecting any land or water use or natural resource of a state's coastal zone complies with the enforceable policies of that state's approved coastal management program and will be carried out in a manner consistent with such program (see 16 U.S.C. § 1456(c)(3)(B)). On July 2, 2020, the Proponent initially submitted an OCS plan— the draft New England Wind COP— to the Department of Interior's Bureau of Ocean Energy Management for approval, with several subsequent updates, including most recently in December 2021. Thus, the portions of New England Wind, both within and outside of the Massachusetts coastal zone, that have reasonably foreseeable effects on the coastal zone's uses and natural resources are subject to federal consistency review by MA CZM under 15 CFR Part 930, Subparts D and E (see Figure 1.0-1).

The South Coast Variant evaluated in this COP Addendum is located within federal waters. The Proponent is currently evaluating options for the South Coast Variant within the "Phase 2 South Coast Variant Offshore Routing Envelope", which is located within Massachusetts state waters and specifically within a region of Buzzards Bay (Figure 1.0-1). The Proponent has voluntarily agreed to having CZM's federal consistency review address the portions of the South Coast Variant in federal waters. As stated previously, if it becomes necessary to employ the South Coast Variant and a second grid interconnection point is secured, the Proponent understands that BOEM would conduct a supplemental review of the South Coast Variant within state waters and the corresponding landfall sites and onshore route(s) to the second grid interconnection point. At that time, the Proponent would provide MA CZM with additional details on the South Coast Variant that demonstrate its compliance with the enforceable policies of the Massachusetts Coastal Program as set forth in the 2011 MA CZM Policy Guide.

[5] *OCS plan* means "any plan for the exploration or development of, or production from, any area which has been leased under the Outer Continental Shelf Lands Act (43 U.S.C. 1331 et seq.), and the regulations under that Act, which is submitted to the Secretary of the Interior or designee following management program approval and which describes in detail federal license or permit activities." The New England Wind Construction and Operations Plan submitted to BOEM is an OCS plan.

3.2 Supplemental Information Related to the Massachusetts Ocean Management Plan

The Massachusetts Ocean Management Plan (OMP) is incorporated into the Massachusetts Coastal Zone Management Plan. Thus, South Coast Variant activities with reasonably foreseeable effects on the Massachusetts coastal zone must also comply with and be conducted in a manner consistent with the OMP.

In consultation with MA CZM, the Proponent is providing supplemental information related to key Special, Sensitive, or Unique (SSU) resources and concentrations of water-dependent uses for community-scale wind facilities such as commercial fishing, recreational fishing, and important bird habitat. A full review of consistency with the OMP will be provided for Phase 2, including the South Coast Variant, as part of a future EFSB petition.

3.2.1 Commercial Fishing

We understand from MA CZM that a principal coastal effect of concern associated with the New England Wind development is to Massachusetts-based commercial fishing interests (a coastal use). Section 2.8 of the New England Wind COP Addendum provides an analysis of the potential impacts from the South Coast Variant to commercial fisheries. Impacts associated with the South Coast Variant are expected to be similar to those of the OECC (including the Western Muskeget Variant) assessed in Section 7.6 and Appendix III-N of COP Volume III. See Section 7.6.4 of COP Volume III for a description of for-hire recreational fishing in the Offshore Development Region and potential impacts that are associated with the OECC and its variants.

Impacts to finfish and invertebrates along the OECC, including those species targeted by commercial fishermen, are expected to be short-term and localized. Only a small portion of available habitat in the area will be impacted by construction activities along the South Coast Variant and recovery is expected.

Commercial fishing vessels will continue to have access to the South Coast Variant. Appendix F of the COP Addendum provides a detailed description of potential economic exposure, potential fishing congestion impacts, and shoreside impacts. Potential impacts from decommissioning activities would be similar to those associated with construction.

Other sections of the New England Wind COP Addendum most relevant to these issues are located in Section 2.5 (Benthic Resources), Section 2.6 (Finfish and Invertebrates), Appendix C (Essential Fish Habitat), and Appendix F (Economic Exposure of Commercial Fisheries).

As summarized in Section 4 and detailed in Section 7.6 and Appendix III-S of COP Volume III, the Proponent is already implementing measures to avoid and minimize impacts to commercial fishing interests and it is anticipated that the South Coast Variant will not have a significant adverse impact on commercial fishing in the Massachusetts coastal zone.

As noted above, vessel restrictions are not generally proposed other than temporary safety buffer zones that are used to improve safety in the immediate vicinity of construction and installation vessels. Accordingly, the majority of the South Coast Variant will remain accessible to commercial fishing vessels throughout the construction and O&M. In short, the Proponent is already implementing multiple measures to avoid and minimize impacts to commercial fisheries. Additionally, the FCP is included as Appendix III-E of COP Volume III.

3.2.2 Recreational Fishing

Section 7.5 (Recreation and Tourism [Including Recreational Fishing]) and Section 7.6 (Commercial Fisheries and For-Hire Recreational Fishing) of COP Volume III provide an analysis of New England Wind's potential impact to recreational fisheries, including for-hire reactional fishing, and measures to mitigate those impacts.

3.2.3 Fisheries and Benthic Studies and Monitoring Plans

As described in Section 2.5, Section 2.6, and Appendix C of the COP Addendum, impacts to finfish and invertebrates along the South Coast Variant from construction, including those species targeted by commercial fishermen, are expected to be short-term and localized. Only a small portion of available habitat in the area will be impacted by South Coast Variant construction activities and recovery is expected. Nevertheless, the Proponent has developed an appropriate benthic habitat monitoring plan framework for the South Coast Variant, should it be necessary, included as Appendix I of the New England Wind COP Addendum. The monitoring data collected during these efforts may also inform expected impacts to and recovery of benthic communities within the South Coast Variant. Fisheries studies, research, and collaborations proposed by the Proponent for New England Wind are outlined in Appendix III-E and Appendix III-S of COP Volume III.

3.2.4 Cable Installation and Monitoring

As described in Section 2, if the South Coast Variant is used for Phase 2, up to three offshore export cables will be installed. Offshore export cable installation is described in detail in Sections 4.3.1.3 of COP Volume I for Phase 2. The following section provides a discussion of key concerns identified by MA CZM in relation to offshore export cable installation activities.

3.2.4.1 Co-Location of New England Wind and Other Proposed Offshore Wind Infrastructure

The location of the South Coast Variant was developed based upon careful consideration of multiple technical, environmental, and commercial factors. In particular, the location of the South Coast Variant was chosen in order to consolidate infrastructure with other commercial wind developments (i.e., for much of its length, the South Coast Variant parallels the proposed Mayflower Wind offshore export cable corridor), which helps to minimize environmental impacts.

3.2.4.2 Offshore Export Cable Installation

Prior to offshore export cable laying, a pre-lay grapnel run, and pre-lay survey will be performed to clear obstructions, such as abandoned fishing gear and other marine debris, and inspect the route. Large boulders along the route may need to be relocated prior to cable installation. Some dredging of the upper portions of sand waves may also be required prior to cable laying to achieve sufficient burial depth below the stable sea bottom (see Section4.3.1.3.5 of COP Volume I). Dredging will be limited only to the extent required to achieve adequate cable burial depth during cable installation. For additional details on offshore export cable installation see Appendix III-S of COP Volume III.

If the South Coast Variant is used for Phase 2, the following scenarios are proposed, where Scenario 1 is considered most likely: (1) one export cable installed in the South Coast Variant and two export cables installed in the OECC, (2) two export cables installed in the South Coast Variant and one export cable installed in the OECC, or (3) three export cables installed in the South Coast Variant.[2] See Table 1.2-1 of the COP Addendum for details on dredging estimates for the South Coast Variant.

In addition to selecting an appropriate tool for the site conditions, the Proponent will work to minimize the likelihood of insufficient cable burial. For example, if the target burial depth (1.5 to 2.5 m [5 to 8 ft]) is not being achieved, operational modifications may be required. Subsequent attempts with a different tool (such as controlled flow excavation) may be required where engineering analysis indicates subsequent attempts may help achieve sufficient burial. As discussed in Section 1.2 of the COP Addendum and Section 4.3.1.3.10 of COP Volume I, while every effort will be made to achieve sufficient burial, it is conservatively estimated that up to approximately 8% of the South Coast Variant (from the SWDA boundary to the state waters boundary) may require cable protection to be installed on the seafloor. Additional details on dredging techniques and offshore export cable installation are provided in Appendix III-S of COP Volume III.

3.2.4.3 Cable Monitoring

The export cables will be regularly monitored to assess depth of burial. Details of cable monitoring are described in detail in Appendix III-S of COP Volume III.

3.2.5 Coastal and Marine Birds

The maximum design scenario for the coastal and marine birds assessment considers temporary construction period impacts from the installation of up to three cables within the South Coast Variant (Section 2.4 of the COP Addendum). The description of the affected environment and impacts associated with the South Coast Variant are expected to be similar to those of the OECC (excluding the Western Muskeget Variant) assessed in Section 6.2 of COP Volume III. Bird exposure to vessels installing offshore export cable(s) will be transitory and ephemeral (see Sections 3.3.1.3 and 4.3.1.3 of COP Volume I for a discussion of offshore cable installation). Any

impacts to foraging habitat from increases in suspended sediments associated with cable installation activities are expected to be temporary and localized and water quality is expected to return to prior conditions within several hours (see COP Addendum Appendix B). As discussed in Section 6.2 and Appendix III-S of COP Volume III, the Proponent will implement measures to avoid, minimize, and mitigate potential impacts to coastal and marine birds.

4.0 CONCLUSION

The Proponent has demonstrated that the proposed action described herein and in the New England Wind COP and COP Addendum complies with the applicable enforceable policies of the approved Massachusetts Coastal Program and will be conducted in a manner consistent with such Program.

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
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September 16, 2022

Park City Wind, LLC
Stephanie Wilson
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) – Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Ms. Wilson:

The Massachusetts Office of Coastal Zone Management (CZM) received the consistency certification for Park City Wind, LLC's New England Wind Project on September 14, 2022. CZM also obtained a copy of the updated Construction and Operations Plan (COP) on September 14, 2022, upon which this review will be conducted. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the proponent of the project and will be responsible for the construction, operation, and decommissioning of New England Wind. New England Wind is the proposal to develop offshore renewable wind energy facilities in the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, referred to as the Southern Wind Development Area (SWDA), along with associated offshore and onshore cabling, onshore substations, electric service platforms (ESPs)and onshore Operations and Management facilities. New England Wind will be developed in two phases with a maximum of 130 wind turbine generator (WTG) and ESP positions. Phase 1, which includes Park City Wind, will be developed immediately southwest of the Vineyard Wind 1 project. Phase 2, which includes Commonwealth Wind, will be located southwest of Phase 1 and will occupy the remainder of the SWDA. The SWDA may be 411–453 square kilometers (km2) (101,590–111,939 acres) in size depending upon the final footprint of the Vineyard Wind 1 project. In accordance with US Coast Guard (USCG) recommendations, the WTGs and ESP(s) in the SWDA will be oriented in fixed east-to-west rows and north-to-south columns with one nautical mile (1.85 km) spacing between positions. This uniform grid layout provides 1 NM wide corridors in the east-west and north-south directions as well as 0.7 NM (1.3 km) wide corridors in the northwest-southeast and northeast-southwest directions. Four or five offshore export cables—two cables for Phase 1 and two or three cables for Phase 2—will transmit electricity from the SWDA to shore. Unless technical, logistical, grid interconnection, or other unforeseen issues arise, all New England Wind offshore export cables will be installed within a shared Offshore Export Cable Corridor (OECC) that will travel from the northwestern corner of the SWDA along the northwestern edge of Lease Area OCS-A 0501 (through Vineyard Wind 1) and then northward along the eastern side of Muskeget Channel toward landfall sites in the Town of Barnstable.

The purpose of this letter is to provide you with public notice, scheduling, and other procedural requirements pursuant to National Oceanic and Atmospheric Administration's (NOAA) Coastal Zone Management Act (CZMA) regulations (15 CFR 923 *et seq.*), NOAA's Federal Consistency Regulations (15 CFR 930 *et seq.*), and CZM's Coastal Zone Management Program regulations (301 CMR 20 *et seq.*).

CZM will publish a notice that this proposed project is undergoing federal consistency review in the next edition of the *Environmental Monitor,* September 23, 2022. The publication date of that issue of the *Monitor* will commence a 21-day public comment period. Enclosed please find a copy of the schedule that we will follow during our review. CZM must issue our consistency decision within six months of commencement of our review, and we will make every effort to ensure our review is as expeditious as possible. If, after three months, we have been unable to complete our review, we will notify you of outstanding issues or information needed to complete the review. As a networked program, the authorities and expertise of other state agencies are integrated and coordinated in CZM's review of projects to ensure compliance with the policies of our approved coastal program. Because consistency with CZM's enforceable policies cannot be achieved without compliance with their underlying state authorities, CZM will generally not issue a consistency decision until our networked agencies have completed their reviews. CZM looks forward to reviewing subsequent filings under NEPA. If necessary, we will contact you no later than five months from the start of the review to determine whether our review will be completed within the six-month review period, or whether a stay of the review period is recommended.

Note: It is the responsibility of the project proponent to publish a public notice of the federal consistency review by non-electronic means (e.g. local newspaper) concurrently with the public notice published in the *Environmental Monitor*.

Pursuant to the CZMA and NOAA's regulations, a federal agency cannot authorize that any work commence under the federal permit unless the federal permitting agency receives a consistency concurrence letter from CZM for the proposed project, or, if CZM objects and the project proponent appeals CZM's objection to the U.S. Secretary of Commerce and the Secretary overrides CZM's objection.

Communications regarding CZM's federal consistency review of the proposed project should be directed to Bob Boeri, at Robert.Boeri@mass.gov.

Sincerely,

Robert L. Boeri
Project Review Coordinator

RLB/pb
Enclosure

cc: Erin Harizi, Avangrid Renewable
Christina Hoffman, Avangrid Renewable
Hans Vanlingen, Avangrid Renewable
Caitlin Hamer, Epsilon Associates
Maria Harnett, Epsilon Associates
Robert Vietri, USACE
Taylor Bell, USACE
Christine Jacek, USACE
Ruthann Brien, USACE
Mary Boatman, BOEM
Emily Hildreth, BOEM
Jeffrey Hesse, BOEM

Brian Krevor, BOEM
Christine Crumpton, BOEM
Susan Tuxbury, NMFS
Alison Verkade, NMFS
Dan McKiernan, MA DMF
John Logan, MA DMF
Steve McKenna, MACZM
Sam Haines, MACZM
Todd Callaghan, MACZM

CZM Federal Consistency Review Schedule for Outer Continental Shelf (OCS) Exploration, Development, and Production Activities*

Review Steps

1.	*Document Receipt*	
(a)	Received consistency certification and necessary data and information on	September 14, 2022
(b)	Received copy of Construction and Operations Plan on	September 14, 2022
(c)	CZM federal consistency review will begin on	September 14, 2022
2.	*Public Notice*	
(a)	Notice of the initiation of this federal consistency review will appear in the next edition of the MEPA *Monitor* which will appear on or about	September 23, 2022
(b)	Publication in the *Monitor* begins a 21 day public comment period which will close on or about	October 14, 2022
3.	Applicant and federal permitting agency will be notified of review status and the basis for any further delay within 3 months of the commencement of review. Last date for review status notification is	December 14, 2022
4.	CZM will contact applicant after 5 months to determine whether all networked state agency reviews will be concluded within the review period or whether the review period should be stayed; this will occur no later than	February 14, 2023
5.	CZM must issue its consistency decision within 6 months of commencement of our review. The review period closes and a consistency decision will be issued no later than	March 14, 2023

* 301 CMR 20.04, 15 CFR 930.70 - 930.85

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114

December 14, 2022

Park City Wind, LLC
Stephanie Wilson
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) – Bureau of Ocean Energy Management (BOEM) Action; Massachusetts

Dear Ms. Wilson:

Under 15 CFR § 930.57, the Massachusetts Office of Coastal Zone Management (CZM) is currently reviewing the proposed project to develop offshore renewable wind energy facilities in the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, referred to as the Southern Wind Development Area (SWDA), along with associated offshore and onshore cabling, onshore substations, electric service platforms (ESPs) and onshore operations and management facilities. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the proponent of the project and will be responsible for the construction, operation, and decommissioning of New England Wind. New England Wind will be developed in two phases with a maximum of 130 wind turbine generator (WTG) and ESP positions. Phase 1, which includes Park City Wind, will be developed immediately southwest of the Vineyard Wind 1 project. Phase 2, which includes Commonwealth Wind, will be located southwest of Phase 1 and will occupy the remainder of the SWDA. The SWDA may be 411–453 square kilometers (km2) (101,590–111,939 acres) in size depending upon the final footprint of the Vineyard Wind 1 project. Under US Coast Guard (USCG) recommendations, the WTGs and ESP(s) in the SWDA will be oriented in fixed east-to-west rows and north-to-south columns with one nautical mile (1.85 km) spacing between positions. This uniform grid layout provides 1 NM wide corridors in the east-west and north-south directions as well as 0.7 NM (1.3 km) wide corridors in the northwest-southeast and northeast-southwest directions. Four or five offshore export cables—two cables for Phase 1 and two or three cables for Phase 2—will transmit electricity from the SWDA to shore. Unless technical, logistical, grid interconnection or other unforeseen issues arise, all New England Wind offshore export cables will be installed within a shared Offshore Export Cable Corridor (OECC) that will travel from the northwestern corner of the SWDA along the northwestern edge of Lease Area OCS-A 0501 (through Vineyard Wind 1) and then northward along the eastern side of Muskeget Channel toward landfall sites in the Town of Barnstable. CZM received the completed federal consistency certification package on September 14, 2022, which determined a consistency decision due on March 14, 2023.

CZM's federal consistency review is ongoing. As a networked program, the authorities and expertise of other state agencies are integrated and coordinated in CZM's review of projects to ensure compliance with the policies of our approved coastal program. Because consistency with CZM's enforceable policies cannot be achieved without compliance with the underlying state authorities, CZM will generally not issue a consistency decision until our networked agencies have completed their reviews of the license, permit, and certificate applications identified as necessary data and information.

Our records indicate the review by the Massachusetts Environmental Policy Act (MEPA) office has not been completed. Our records also indicate that the applications for the Massachusetts Department of Environmental Protection's (MassDEP) 401 Water Quality Certificate and Chapter 91 License for the proposed project have not yet been filed, and MassDEP's review has not commenced. In addition, our records indicate that petitions to construct, operate, and maintain transmission facilities have been filed with the Energy Facilities Siting Board (EFSB) and that the EFSB review has not been completed. CZM looks forward to reviewing subsequent filings under NEPA for consistency with state enforceable policies. As transmitted to Park City Wind on December 14, 2022, CZM will also need the requested additional information on our Ports and Harbors enforceable policies necessary to complete this review. If we do not receive the additional information, MEPA filings, state licenses, and permits, NEPA documentation before February 14, 2023, CZM will contact you regarding a stay in the federal consistency review period, according to NOAA's CZMA federal consistency regulations at 15 CFR 930.60(b).

Under applicable provisions of NOAA's Federal Consistency Regulations at 15 CFR 930.63, CZM may object to the consistency certification if an application for a specified state permit is denied, or if the applicant has failed to provide copies of final decisions on all applications identified as necessary data and information. As part of a consistency concurrence, CZM may stipulate conditions as may be necessary to achieve consistency with enforceable policies under provisions of NOAA's Federal Consistency Regulations (15 CFR 930.4, and 930.62). In the event an applicable plan, project proposal, or application is not modified accordingly, such conditional concurrence shall be treated as an objection to a federal consistency certification.

Communications regarding CZM's federal consistency review of the proposed project should be directed to Bob Boeri, at Robert.Boeri@state.ma.us.

Sincerely,

Robert L. Boeri

Robert Boeri
Project Review Coordinator

RLB/pb
CZM #4922

cc: Erin Harizi, Avangrid Renewable
Christina Hoffman, Avangrid Renewable
Hans Vanlingen, Avangrid Renewable
Caitlin Hamer, Epsilon Associates
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Robert Vietri, USACE
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Brian Krevor, BOEM
Christine Crumpton, BOEM
Susan Tuxbury, NMFS
Dan McKiernan, DMF
John Logan, DMF
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Steve McKenna, CZM
Sam Haines, CZM
Todd Callaghan, CZM

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
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100 Cambridge Street, Suite 900, Boston, MA 02114

December 14, 2022

Park City Wind, LLC
Stephanie Wilson
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) – Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Ms. Wilson:

The Massachusetts Office of Coastal Zone Management (CZM) received the consistency certification for Park City Wind, LLC's New England Wind Project on September 14, 2022. CZM also obtained a copy of the updated Construction and Operations Plan (COP) on September 14, 2022, upon which this review will be conducted. Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the proponent of the project and will be responsible for the construction, operation, and decommissioning of New England Wind. New England Wind is the proposed project to develop offshore renewable wind energy facilities in the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, referred to as the Southern Wind Development Area (SWDA), along with associated offshore and onshore cabling, onshore substations, electric service platforms (ESPs) and onshore Operations and Management facilities. New England Wind will be developed in two phases with a maximum of 130 wind turbine generator (WTG) and ESP positions. Phase 1, which includes Park City Wind, will be developed immediately southwest of the Vineyard Wind 1 project. Phase 2, which includes Commonwealth Wind, will be located southwest of Phase 1 and will occupy the remainder of the SWDA. The SWDA may be 411–453 square kilometers (km2) (101,590–111,939 acres) in size depending upon the final footprint of the Vineyard Wind 1 project. Under US Coast Guard (USCG) recommendations, the WTGs and ESP(s) in the SWDA will be oriented in fixed east-to-west rows and north-to-south columns with one nautical mile (1.85 km) spacing between positions. This uniform grid layout provides 1 NM wide corridors in the east-west and north-south directions as well as 0.7 NM (1.3 km) wide corridors in the northwest-southeast and northeast-southwest directions. Four or five offshore export cables—two cables for Phase 1 and two or three cables for Phase 2—will transmit electricity from the SWDA to shore. Unless technical, logistical, grid interconnection or other unforeseen issues arise, all New England Wind offshore export cables will be installed within a shared Offshore Export Cable Corridor (OECC) that will travel from the northwestern corner of the SWDA along the northwestern edge of Lease Area OCS-A 0501 (through Vineyard Wind 1) and then northward along the eastern side of Muskeget Channel toward landfall sites in the Town of Barnstable. CZM received your completed federal consistency certification package on September 14, 2022, with a consistency decision due on March 14, 2023.

In our review of the necessary data and information submitted for the federal consistency review of the proposed wind energy project, we have concluded that additional information is necessary to complete the determination of the proposed project's consistency with the enforceable

program policies of the Massachusetts coastal management program. Listed below is the applicable enforceable policy, with an excerpt of the relevant policy elements from the *Massachusetts Office of Coastal Zone Management Policy Guide* (Policy Guide) and the supplemental information requested.

Ports and Harbor Policy #4

> Ports and harbors hold important state, regional, and national significance because they possess critical characteristics necessary for the successful operation of the Massachusetts maritime industry including access to deep navigation channels, flat lands appropriate for industrial uses, connections to utilities and road/rail networks, and developed shorelines characterize which facilitate the transfer of goods from ship to shore. The enforceable Ports and Harbors Policies (#1 - 4) specifically relate to the dredging and disposal of dredged material, public benefit priorities for channel dredging, Designated Port Area management, and *the protection of water-dependent uses*.
>
> Ports and Harbors Policy #4 states the need to preserve and enhance waterways for water dependent uses and vessel-related activities. However, the policy recognizes that the protection of waterways and the water dependent uses operating within them is challenging given limited resources and the constant demand for redevelopment that may not be compatible with existing water dependent uses. The policy addresses this challenge by providing opportunities for protection by appropriately siting new uses, so they do not interfere with existing operating water dependent uses. Additionally, the policy states that where existing water dependent uses are disrupted as a result of new water dependent uses at an off-site location within the proximate vicinity of the project site, adequate mitigation shall be provided.

The proposed Park City Wind project will be constructed in areas of state and federal waters where Massachusetts commercial and for-hire charter/party boat fishing is known to occur as evidenced by information and data provided through the state and federal review processes and corroborated by fisheries agencies and the Massachusetts commercial fishing industry. Massachusetts commercial and for-hire charter/party boat fishing activity currently operating in the project area will be disrupted by the proposed project because the fishing activity will be precluded in the project area during construction and decommissioning, the abundance or availability of fish may be temporarily displaced during the construction and decommissioning, fishing activities may be restricted after construction, and landings may be affected throughout the operation of the project.

Information requested

For CZM to determine the consistency of the project with the enforceable program policies of the Massachusetts coastal management program, Park City Wind should provide an assessment of the potential economic impact of the project on the water dependent uses of Massachusetts, specifically addressing the potential economic exposure of the Massachusetts commercial and for-hire charter/party boat fishing industries. The assessment should consider potential changes in fishing across ports, gear type, and fish species as a result of the project. In addition to the assessment of potential economic impacts, Park City Wind should develop and provide a mitigation package to the Massachusetts commercial fishing industry to offset unavoidable disruption, changes, or loss in fishing resulting from the project. The assessment of economic exposure and the mitigation package should incorporate data and input provided by BOEM, the National Oceanic and Atmospheric Administration (NOAA), the Massachusetts Division of Marine Fisheries (DMF), CZM, the Massachusetts fishing industry, and other data sources, as applicable.

If you have questions about the federal consistency review process, please contact me at the above address or robert.boeri@mass.gov.

Sincerely,

Robert Boeri
Project Review Coordinator

CZM #4922

cc: Erin Harizi, Avangrid Renewable
Christina Hoffman, Avangrid Renewable
Hans Vanlingen, Avangrid Renewable
Caitlin Hamer, Epsilon Associates
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February 2, 2023

Park City Wind, LLC
Stephanie Wilson
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) – Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Ms. Wilson:

The Massachusetts Office of Coastal Zone Management (MACZM) and Park City Wind, LLC (Park City Wind) hereby agree as follows.

Under Section 307 of the Coastal Zone Management Act (CZMA) and 15 CFR § 930.57, Park City Wind filed a federal consistency certification with the MACZM on September 14, 2022, for the proposed Park City Wind, LLC's New England Wind Project. The proposed project is a listed activity subject to MACZM federal consistency review according to the CZMA, and the CZMA's implementing regulations at 15 C.F.R. Part 930, Subpart D – Consistency for Activities Requiring a Federal License or Permit.

Following 15 CFR § 930.60 (b), and in consideration of the parties' mutual interest that the state has additional time to fully assess the proposed Park City Wind project's consistency with the state's enforceable policies (requested additional information regarding consistency with the Ports and Harbors enforceable policies), the MACZM and Park City Wind mutually agree to the following dates and to stay the MACZM CZMA six-month review period as specified herein.

- Date the MACZM 6-month review period commenced: September 14, 2022
- Date the 6-month review period was to end: March 14, 2023
- Date the stay is to begin: February 3, 2023
- Date that the stay ends: June 5, 2023
  (39 days remaining in the 6-month review period)
- Date the state's consistency decision is due: July 14, 2023

The MACZM will issue its federal consistency decision on or before July 14, 2023**.** The MACZM and Park City Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Park City Wind.

This agreement was made and entered by:

February 2, 2023

Robert L. Boeri
Project Review Coordinator, MACZM

Date

Park City Wind, LLC
By its agent, Avangrid Renewables

February 3, 2023

Stephanie Wilson,
Authorized Person

Date

CZM # 4922

cc: Erin Harizi, Avangrid Renewable
Christina Hoffman, Avangrid Renewable
Hans Vanlingen, Avangrid Renewable
Caitlin Hamer, Epsilon Associates
Maria Harnett, Epsilon Associates
Robert Vietri, USACE
Taylor Bell, USACE
Christine Jacek, USACE
Ruthann Brien, USACE
Mary Boatman, BOEM
Emily Hildreth, BOEM
Jeffrey Hesse, BOEM
Brian Krevor, BOEM
Christine Crumpton, BOEM
Susan Tuxbury, NMFS
Alison Verkade, NMFS
Dan McKiernan, MA DMF
John Logan, MA DMF
Steve McKenna, MACZM
Sam Haines, MACZM
Todd Callaghan, MACZM

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 • (617) 626-1200

June 12, 2023

Park City Wind, LLC
Stephanie Wilson
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) - Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit Action; Massachusetts.

Dear Ms. Wilson:

The Massachusetts Office of Coastal Zone Management (MACZM) and Park City Wind, LLC (Park City Wind) hereby agree as follows.

Under Section 307 of the Coastal Zone Management Act (CZMA) and 15 CFR § 930.57, Park City Wind filed a federal consistency certification with the MACZM on September 14, 2022, for the proposed Park City Wind, LLC's New England Wind Project. The proposed project is a listed activity subject to MACZM federal consistency review pursuant to the CZMA, and the CZMA's implementing regulations at 15 C.F.R. Part 930, Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit.

Following 15 CFR § 930.60 (b), and in consideration of the parties' mutual interest that the state has additional time to fully assess the proposed Park City Wind project's consistency with the state's enforceable policies (requested additional information regarding consistency with the Ports and Harbors enforceable policies), the MACZM and Park City Wind mutually agree to the following dates and to stay the MACZM CZMA six-month review period as specified herein.

- Date the MACZM 6-month review period commenced: September 14, 2022
- Date the 6-month review period was to end: March 14, 2023
- Date the first stay began: February 3, 2023
- Date the first stay ended: June 5, 2023
- Date the decision was due: July 14, 2023
- Date the second stay begins: June 12, 2023
- Date that the stay ends: September 11, 2023

  (32 days remaining in the 6-month review period)
- Date the state's consistency decision is due: October 13, 2023

The MACZM will issue its federal consistency decision on or before October 20, 2023**.** The MACZM and Park City Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Park City Wind.

This agreement was made and entered by:

Robert L. Boeri
Project Review Coordinator, MACZM

June 12, 2023
Date

Park City Wind, LLC
By its agent, Avangrid Renewables

Stephanie Wilson,
Authorized Person

June 15, 2023
Date

CZM # 4922

cc: Erin Harizi, Avangrid Renewable
Christina Hoffman, Avangrid Renewable
Hans Vanlingen, Avangrid Renewable
Caitlin Hamer, Epsilon Associates
Maria Harnett, Epsilon Associates
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Steve McKenna, MACZM
Sam Haines, MACZM
Todd Callaghan, MACZM

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 • (617) 626-1200

October 10, 2023

Park City Wind, LLC
Mark Roll
Avangrid Renewables
125 High Street, 6th Floor
Boston, MA 02110

Re: CZM Federal Consistency Review of the Park City Wind, LLC's New England Wind Project (Phase 1 and 2) - Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit Action; Massachusetts.

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (MACZM) and Park City Wind, LLC (Park City Wind) hereby agree as follows.

Under Section 307 of the Coastal Zone Management Act (CZMA) and 15 CFR § 930.57, Park City Wind filed a federal consistency certification with the MACZM on September 14, 2022, for the proposed Park City Wind, LLC's New England Wind Project. The proposed project is a listed activity subject to MACZM federal consistency review pursuant to the CZMA, and the CZMA's implementing regulations at 15 C.F.R. Part 930, Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit.

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- Date the 6-month review period was to end: March 14, 2023
- Date the first stay began: February 3, 2023
- Date the first stay ended: June 5, 2023
- Date the decision was due: July 14, 2023
- Date the second stay began: June 12, 2023
- Date that the stay ended: September 11, 2023
- Date the decision was due: October 13, 2023

• Date that the third stay begins: October 10, 2023

• Date that the third stay ends: November 7, 2023

(3 days remaining in the 6-month review period)

• Date the state's consistency decision is due: November 10, 2023

The MACZM will issue its federal consistency decision on or before November 10, 2023**.** The MACZM and Park City Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Park City Wind.

This agreement was made and entered by:

October 10, 2023

Robert L. Boeri
Project Review Coordinator, MACZM

Date

Park City Wind, LLC
By its agent, Avangrid Renewables

October 11, 2023

Mark Roll,
Authorized Person

Date

CZM # 4922

cc: Erin Harizi, Avangrid Renewable
Kenneth Kimmel, Avangrid Renewable
Hans Vanlingen, Avangrid Renewable
Michael Clayton, Avangrid Renewables
Caitlin Hamer, Epsilon Associates
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Alison Verkade, NMFS
Dan McKiernan, MA DMF

John Logan, MA DMF
Steve McKenna, MACZM
Lisa Berry Engler, MACZM
Sam Haines, MACZM
Todd Callaghan, MACZM
Hollie Emery, MACZM

New England Wind (Lease Area OCS-A 0534) Commercial and For-hire Fisheries Assessment

February 2023

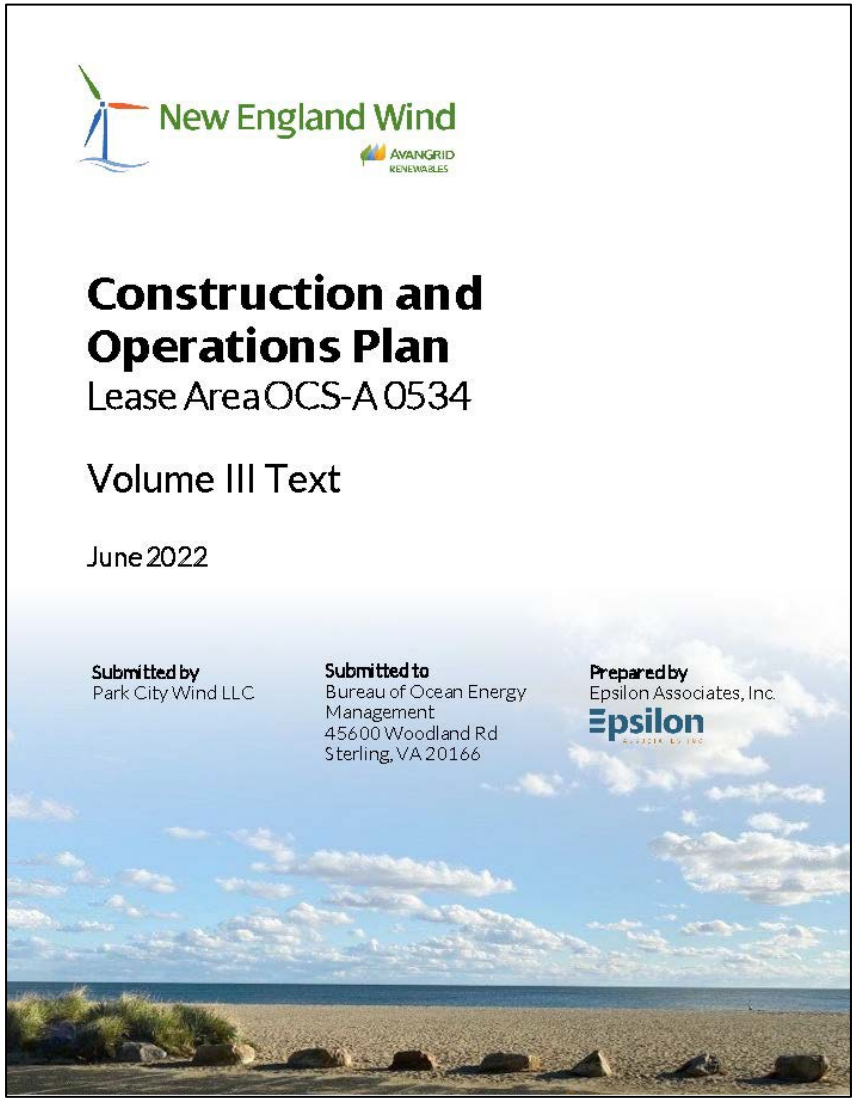
New England Wind
AVANGRID

Agenda

1. Overview of Assessment and Economic Exposure of Commercial Fisheries
2. Overview of Assessment Approach of For-hire Fisheries
3. Next Steps
4. Discussion/Questions?

Commercial and For-hire Fisheries Assessment Overview

- Data sources: NMFS Socio-economic Impacts of Atlantic Offshore Wind Development, BOEM revenue intensity rasters, VMS data, VTRs, landings data, AIS datasets, MA DMF state landings data
- Commercial Fisheries and For-Hire Recreational Fishing (Section 7.6 of COP) and *Economic Exposure of Commercial Fisheries to the New England Offshore Wind Energy Development* (Appendix III-N of COP)
  - Overview of commercial fishing ports in MA, RI, CT, NY, and NJ
  - Summary of commercial fishing activity in Offshore Development Area by fishery (VMS data) and gear type (VTR data), and commercial fishing vessel traffic
  - Overview of for-hire fisheries
  - Commercial fisheries economic exposure and economic impacts estimates
  - Potential impacts



Estimates of Commercial Fisheries Landings and Revenue in SWDA by Year

Year	SWDA (453 km² [175 mi²])	
	Value (2019 dollars)	Landings (lbs)
2008	$573,395	710,447
2009	$487,994	701,984
2010	$581,895	799,032
2011	$433,084	445,498
2012	$567,641	550,345
2013	$673,24	818,473
2014	$675,304	655,991
2015	$582,220	505,413
2016	$1,096,868	1,084,543
2017	$437,677	454,739
2018	$310,024	291,090
2019	$412,976	409,151
Annual Average	**$569,360**	**618,892**

New England Wind
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Estimates of Commercial Fisheries Landings and Revenue in SWDA by FMP and Species (2008-2019)

Fishery Management Plan	SWDA (453 km² [175 mi²])		Percentage of Annual Average SWDA Value
	Total Value[2]	Annual Average[2]	
Mackerel, Squid, and Butterfish	$1,872,085	$156,007	27.4%
Summer Flounder, Scup, Black Sea Bass	$793,195	$66,100	11.6%
Monkfish	$649,048	$54,087	9.5%
Small-Mesh Multispecies	$577,724	$48,144	8.5%
Jonah Crab	$487,420	$40,618	7.1%
Skates	$485,703	$40,475	7.1%
American Lobster	$415,622	$34,635	6.1%
Sea Scallop	$319,348	$26,612	4.7%
Northeast Multispecies	$194,398	$16,200	2.8%
Atlantic Herring	$79,969	$6,664	1.2%
Golden Tilefish and Blueline Tilefish	$70,660	$5,888	1.0%
Bluefish	$14,209	$1,184	0.2%
Spiny Dogfish	$12,430	$1,036	0.2%

Species	SWDA (453 km² [175 mi²])		Percentage of Average Annual SWDA Value
	Total Value[2]	Annual Average[2]	
Longfin Squid	$1,786,381	$148,865	26.1%
Monkfish	$649,047	$54,087	9.5%
Silver Hake	$538,030	$44,836	7.9%
Jonah Crab	$487,421	$40,618	7.1%
Skates	$485,704	$40,475	7.1%
American Lobster	$415,623	$34,635	6.1%
Summer Flounder	$378,698	$31,558	5.5%
Scup	$377,382	$31,449	5.5%
Sea Scallop	$319,347	$26,612	4.7%
Yellowtail Flounder	$112,641	$9,387	1.6%
Atlantic Herring	$79,970	$6,664	1.2%
Golden Tilefish	$70,613	$5,884	1.0%
Winter Flounder	$61,908	$5,159	0.9%
Butterfish	$60,282	$5,024	0.9%
Black Sea Bass	$37,116	$3,093	0.5%

Estimates of Commercial Fisheries Landings and Revenue in SWDA by Gear Type (2008-2019)

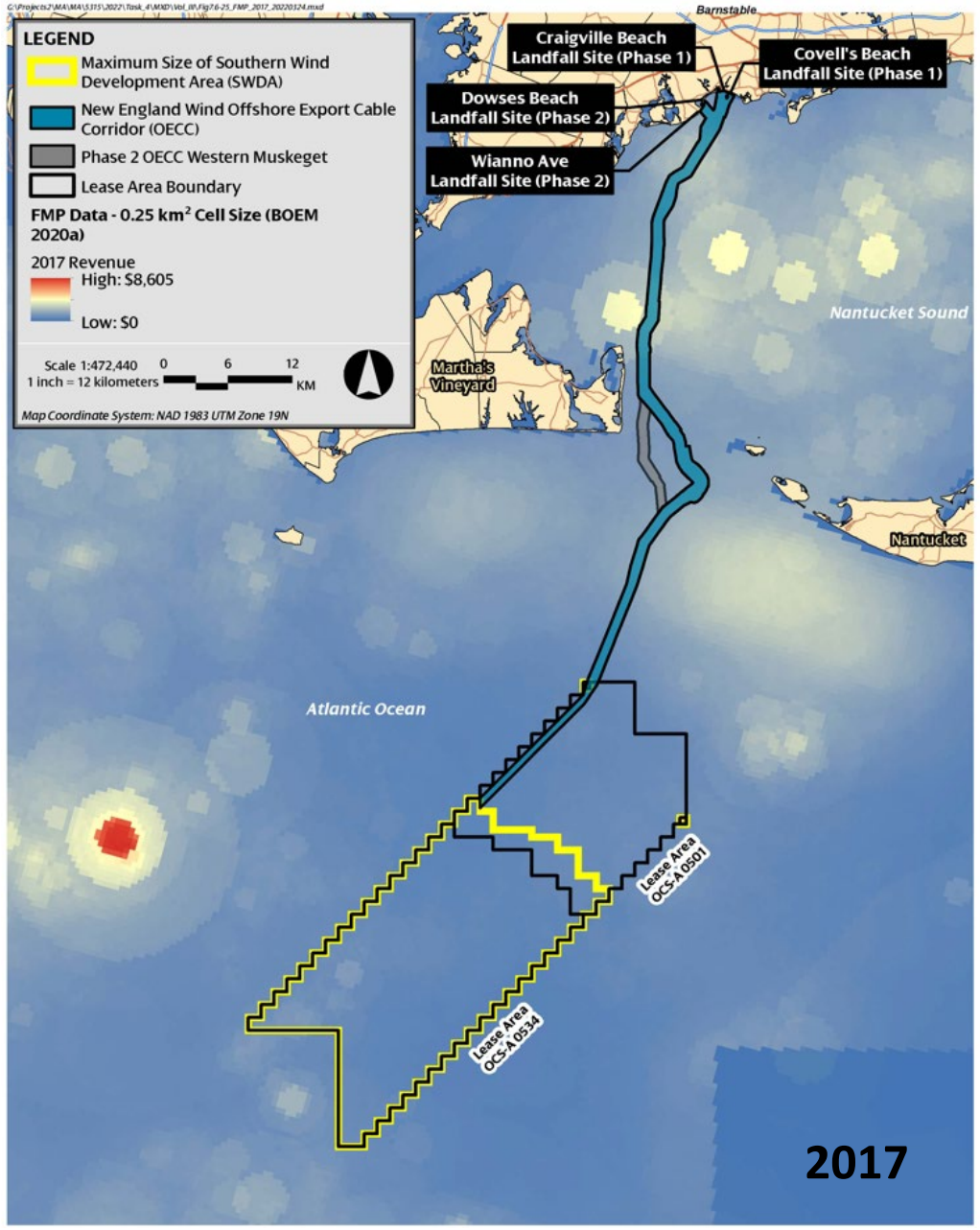
Gear Type	SWDA (453 km² [175 mi²])		Percentage of Annual Average SWDA Value
	Total Value[2]	Annual Average[2]	
Bottom Trawl	$3,607,224	$300,602	52.8%
Gillnet, Sink	$1,005,018	$83,752	14.7%
Pot, Other	$941,156	$78,430	13.8%
Clam Dredge	$531,863	$44,322	7.8%
All Others	$449,440	$37,453	6.6%
Scallop Dredge	$240,125	$20,010	3.5%
Longline, Bottom	$31,409	$2,617	0.5%
Midwater Trawl	$25,520	$2,127	0.4%
Handline	$1,411	$118	~0.0%

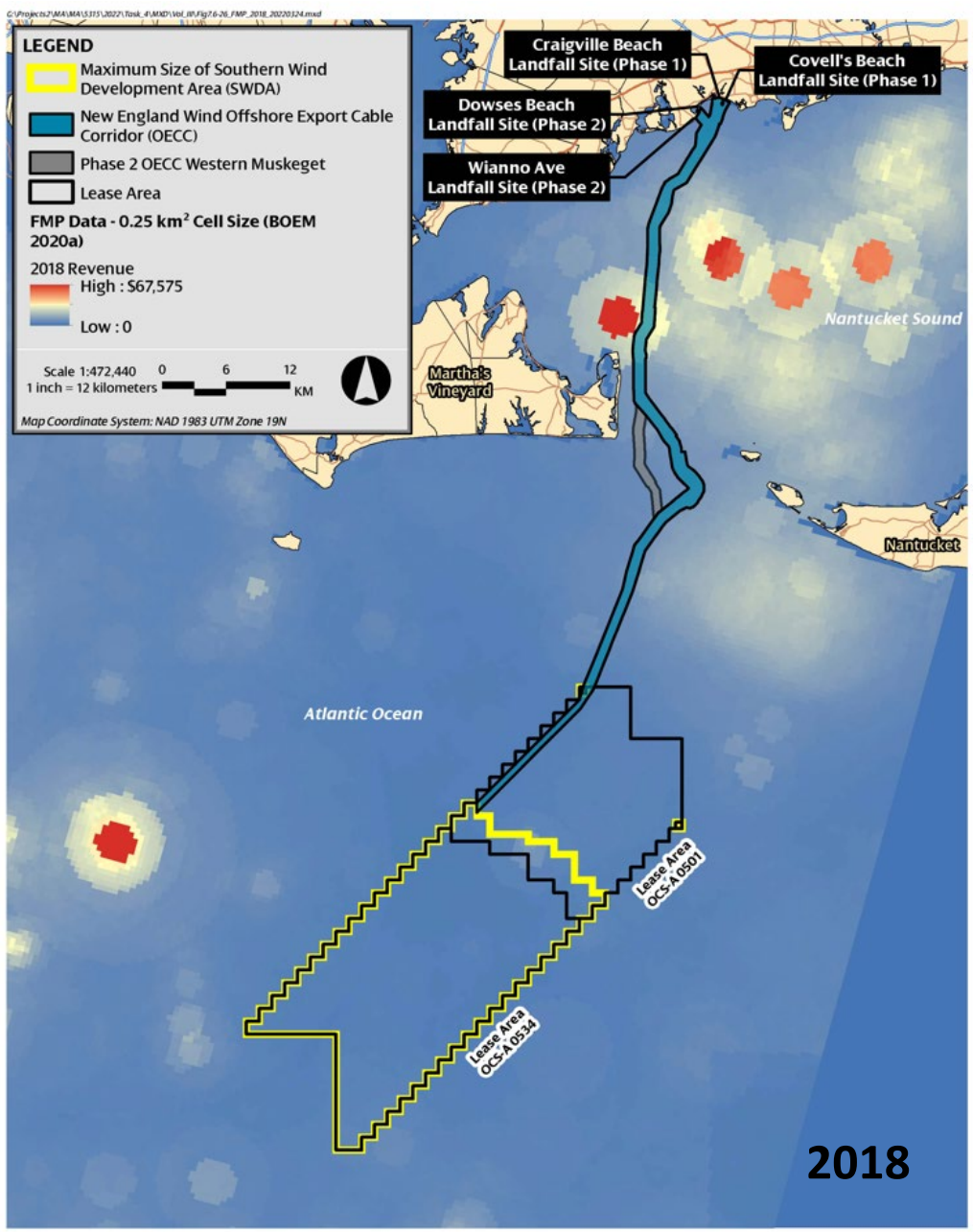
Estimates of Commercial Fisheries Landings and Revenue in SWDA by Port and State (2008-2019)

Port	SWDA (453 km² [175 mi²])		Percentage of Annual Average SWDA Value
	Total Value[2]	Annual Average[2]	
Point Judith, RI	$2,506,699	$208,892	36.7%
New Bedford, MA	$2,094,317	$174,526	30.7%
Montauk, NY	$477,464	$39,789	7.0%
Fairhaven, MA	$259,101	$21,592	3.8%
Chatham, MA	$249,013	$20,751	3.6%

State	SWDA (453 km² [175 mi²])		Percentage of Annual Average SWDA Value
	Total Value[2]	Annual Average[2]	
Massachusetts	$3,089,182	$257,432	45.2%
Rhode Islands	$3,019,551	$251,629	44.2%
New York	$492,696	$41,058	7.2%
North Carolina	$90,031	$7,503	1.3%
Virginia	$71,353	$5,946	1.0%
New Jersey	$63,437	$5,286	0.9%
All Others	$6,349	$529	0.1%

Fishing Revenue Density, All FMPs, 2018 and 2017





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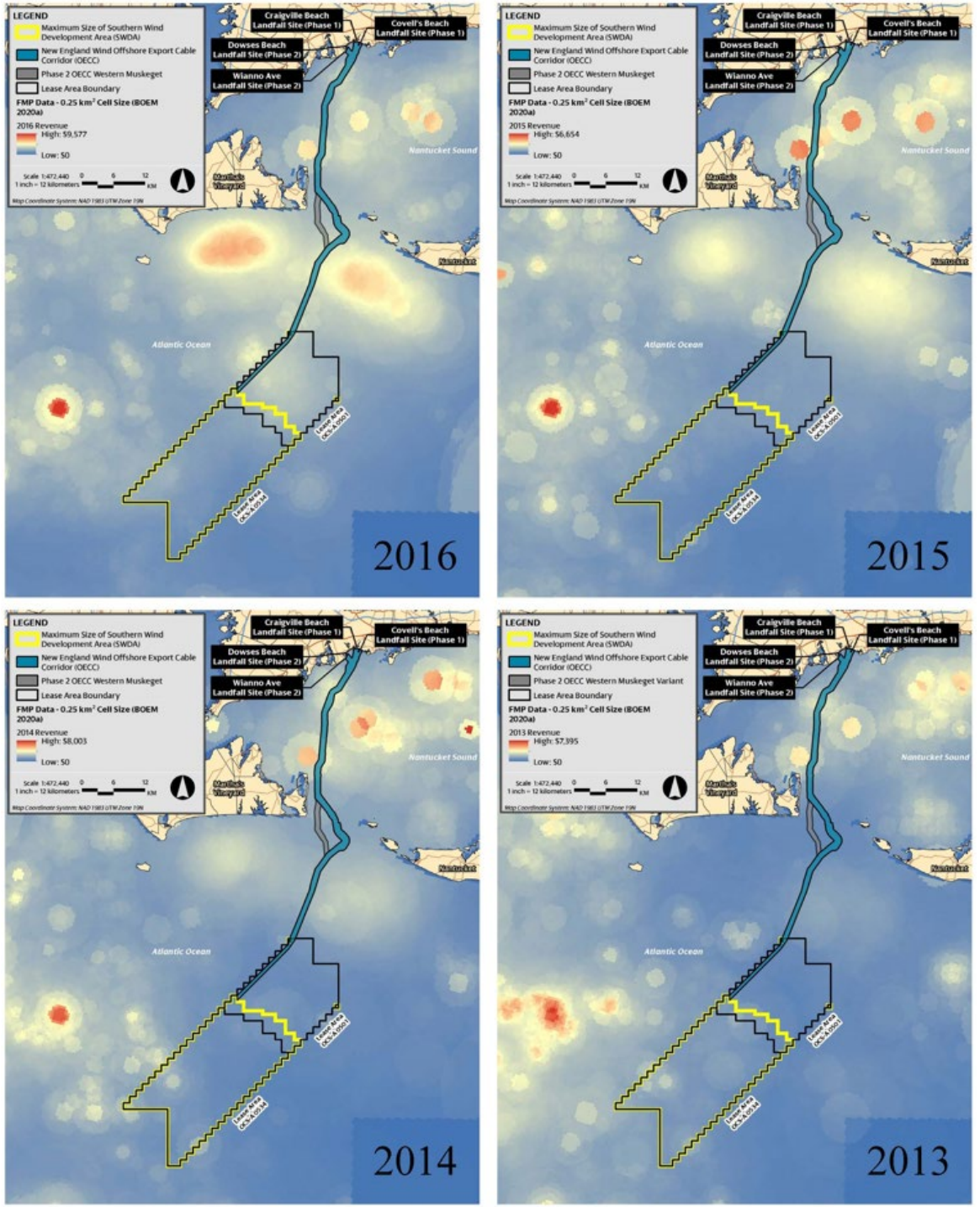
Fishing Revenue Density, All FMPs, 2013-2016



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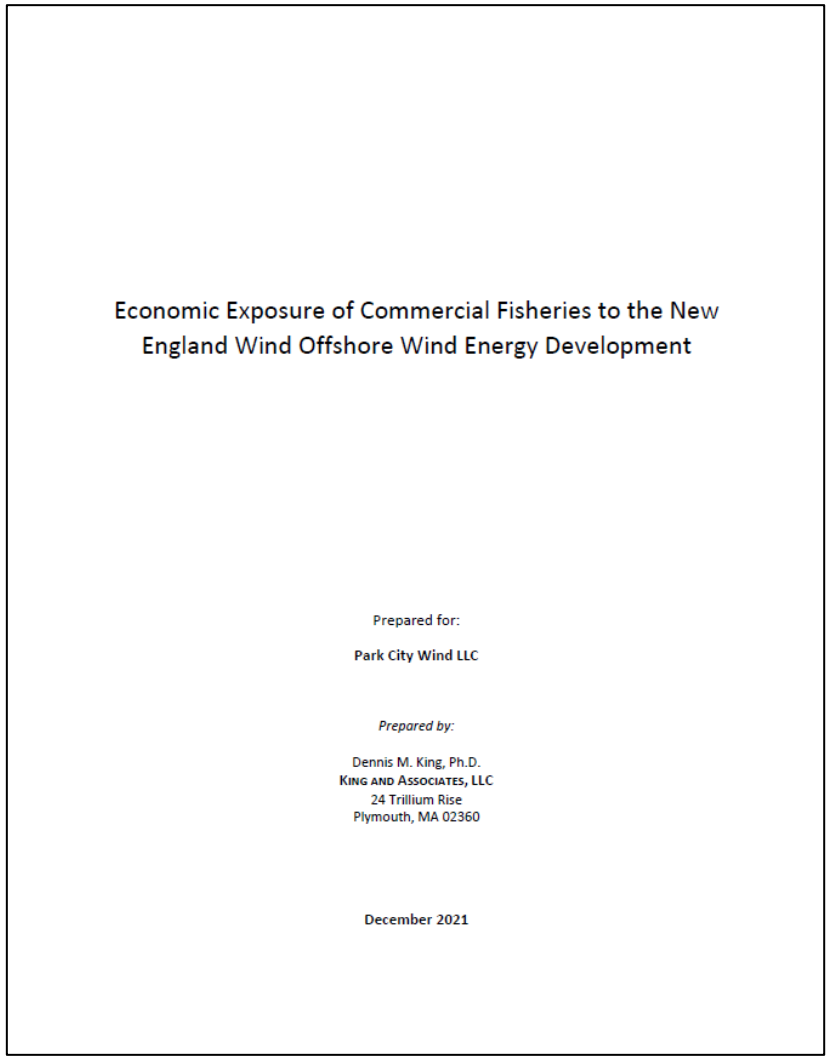
Average AIS-Equipped Fishing Vessel Activity in SWDA (2016-2019)

- AIS data indicate relatively low levels of fishing effort in the SWDA
  - Average annual number of unique AIS-equipped fishing vessels that fished in the SWDA during at least one trip was 33 vessels
  - Fewer than six AIS-equipped vessels fishing in the SWDA during 10 months of any year (excludes Aug. and Sept.)
  - The average number of unique AIS-equipped vessels fishing in the SWDA only rose to 10 or above in the months of August (10 vessels) and September (19 vessels)
  - The average number of unique fishing vessel tracks per month by these vessels in the SWDA peaked in September at 72 tracks, which is approximately four fishing tracks per vessel per month
- On average, approximately 75% of time spent on unique fishing tracks that intersect the SWDA is spent outside the SWDA
- AIS data was used to assess fishing congestion impacts outside SWDA

Estimates of Commercial Fisheries Economic Exposure

- *Economic Exposure of Commercial Fisheries to the New England Offshore Wind Energy Development* (Appendix III-N of COP Vol III)
- Following BOEM guidance, **economic exposure** is a measure of max. potential losses of commercial fishing revenues based on the assumptions that NE Wind will result in:
  - The total cessation of fishing and loss of all fishing revenues in the SWDA during construction and parts of OECC during cable installation
  - None of the lost fishing revenue from the SWDA and OECC will be recouped as a result of fishing effort shifting from those areas to other fishing areas
- Sources of potential fishery-related economic impacts include:
  - Construction, operation, and decommissioning of WTGs and ESPs in SWDA
  - Installation, use, and decommissioning of offshore export cables within OECC



Economic Exposure of Commercial Fisheries to the New England Wind Offshore Wind Energy Development

Prepared for:

Park City Wind LLC

Prepared by:

Dennis M. King, Ph.D.
King and Associates, LLC
24 Trillium Rise
Plymouth, MA 02360

December 2021

New England Wind
AVANGRID

Estimates of Commercial Fisheries Economic Exposure

- Types of potential fishery-related economic losses include:
  - Lost fishing revenues in the SWDA and OECCs
  - Increased fishing vessel transit times/costs (passing through or around SWDA)
  - Increased fishing congestion outside the SWDA as fishing vessels divert fishing effort from SWDA to other areas.
  - Economic Losses in shoreside businesses that support fishing or rely on fish landings

- Economic exposure estimates for commercial fisheries:
  - SWDA= $685,692 annually (adjusted for Jonah crab and lobster)
  - OECC= $15,372 (estimated for cable installation for both Phases)

- Economic impacts are expected to be significantly less than economic exposure

Estimates of Commercial Fisheries Economic Exposure in SWDA

Unadjusted for Lobster and Jonah Crab (2008-2019)

Average Annual Value of SWDA	High Annual Value of SWDA	Low Annual Value of SWDA	Average Annual Value of SWDA per km^2
$569,360	$1,096,868	$310,024	$1,257

Adjusted for Lobster and Jonah Crab (2008-2019)

Average Annual Fishing Revenues in the SWDA	High Annual Fishing Revenues in the SWDA	Low Annual Fishing Revenues in the SWDA	Average Annual Fishing Revenues in the SWDA per km^2
$685,692	$1,213,200	$426,356	$1,514

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Fishery-Related Economic Impacts

- Our estimates of “Economic Exposure” are based on the assumption that fishing revenues lost in the SWDA and parts of OECC will not be recouped as a result of fishing effort being redirected to other fishing areas.
  - This implies that because of temporary fishing restrictions in a few specific areas, operators of commercial fishing vessels will decide to either remain in port or remain idle at sea or will continue fishing despite generating no revenues.
- Estimates of economic impacts related to the potential loss of fishing values in the SWDA assuming that 25%, 50%, or 75% of fishing revenues lost in the SWDA will be recouped by fishing effort shifting from the SWDA to nearby fishing areas

Expected Direct and Indirect Economic Impacts with Some Lost Landings in the SWDA Recouped from Increased Fishing in Other Areas

Percent of Lost SWDA Landings Recouped	Direct Impacts	Upstream Impacts		Downstream Impacts		Summary of Economic Impacts		
	Net Reduction in Fish Landings [3]	Economic Multiplier[4]	Economic Impacts	Processor Markup[5]	Lost Processor Markup	Commercial Fishing (Annual)	Shoreside Businesses (Annual)	Total (Annual)
0%	$685,692	0.852	$584,210	$0.565	$387,416	$685,692	$971,626	$1,657,318
25%	$514,269	0.852	$438,157	0.565	$290,562	$514,269	$728,719	$1,242,988
50%	$342,846	0.852	$292,105	0.565	$193,708	$342,846	$485,813	$828,659
75%	$171,423	0.852	$146,052	0.565	$96,854	$171,423	$242,906	$414,329

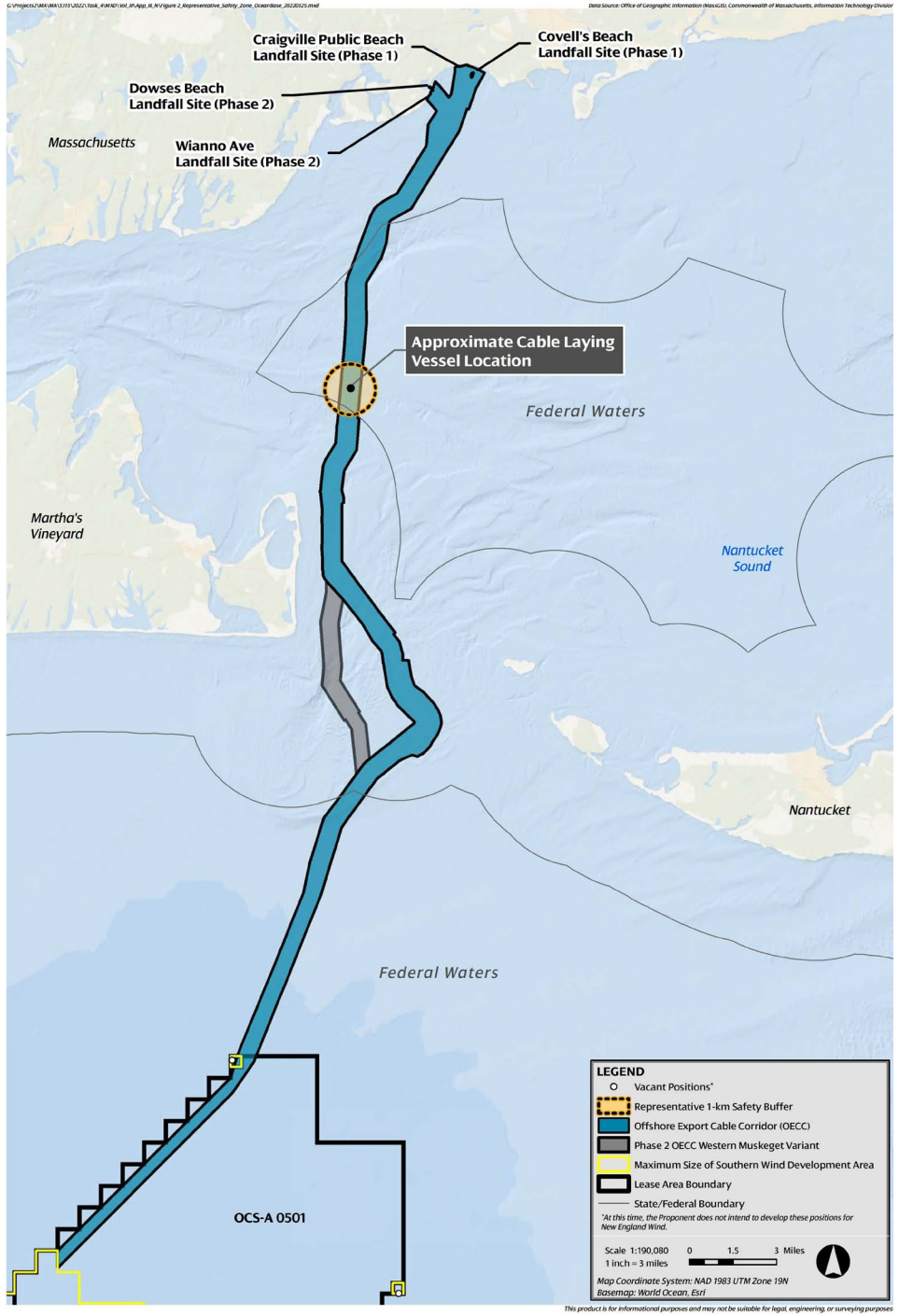
Notes:

1. Assumes 0%, 25%, 50%, and 75% of fishing revenues lost in the SWDA will be recouped as a result of fishing effort shifting from the SWDA to other nearby fishing areas.
2. Economic values are reported in 2019 dollars and do not include potential fishing revenue losses of $15,372 in the OECC.
3. Net reduction in the ex-vessel value of fish landings based on the percent of fishing revenues lost in the SWDA recouped as a result of fishing effort shifting from the SWDA to other nearby fishing areas.
4. New England Type 2 Output Multipliers (indirect and induced impacts) for the fish harvesting sector (NOAA Online Fishery Impact Model Advanced Query 2020).
5. "Markup" is the difference between the value of seafood products sold and the dockside or wholesale value for an equivalent weight of fish purchased (NMFS 2016). Raw fish accounts for 63.9% of primary dealer/processor revenues (Scheld 2020). Therefore, each $1.00 reduction in raw fish purchased and processed results in $1.565 less seafood revenues. Therefore, each $1.00 reduction in raw fish purchased results in lost markup of $0.565; that is, $1.565 less $1.00.

Estimates of Commercial Fisheries Economic Exposure in OECC

- Data sources: BOEM revenue intensity rasters
- Economic exposure estimate:
  - Annual fishing revenues per km^2 in OECC = $2,611
  - Safety buffer of 1 km around cable installation activities results in a fishing preclusion area of 3.14 km^2
  - Total duration of cable installation activities for 5 cables (during both Phases) = 1.875 years
  - Expected annual fishing revenues impacted during cable installation =

    $2,611 x 3.14 km^2 x 1.875 years = **$15,372**



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For-hire Fisheries Assessment Approach

- Fishery Impacts from Revolution Wind (WHOI survey and reports)

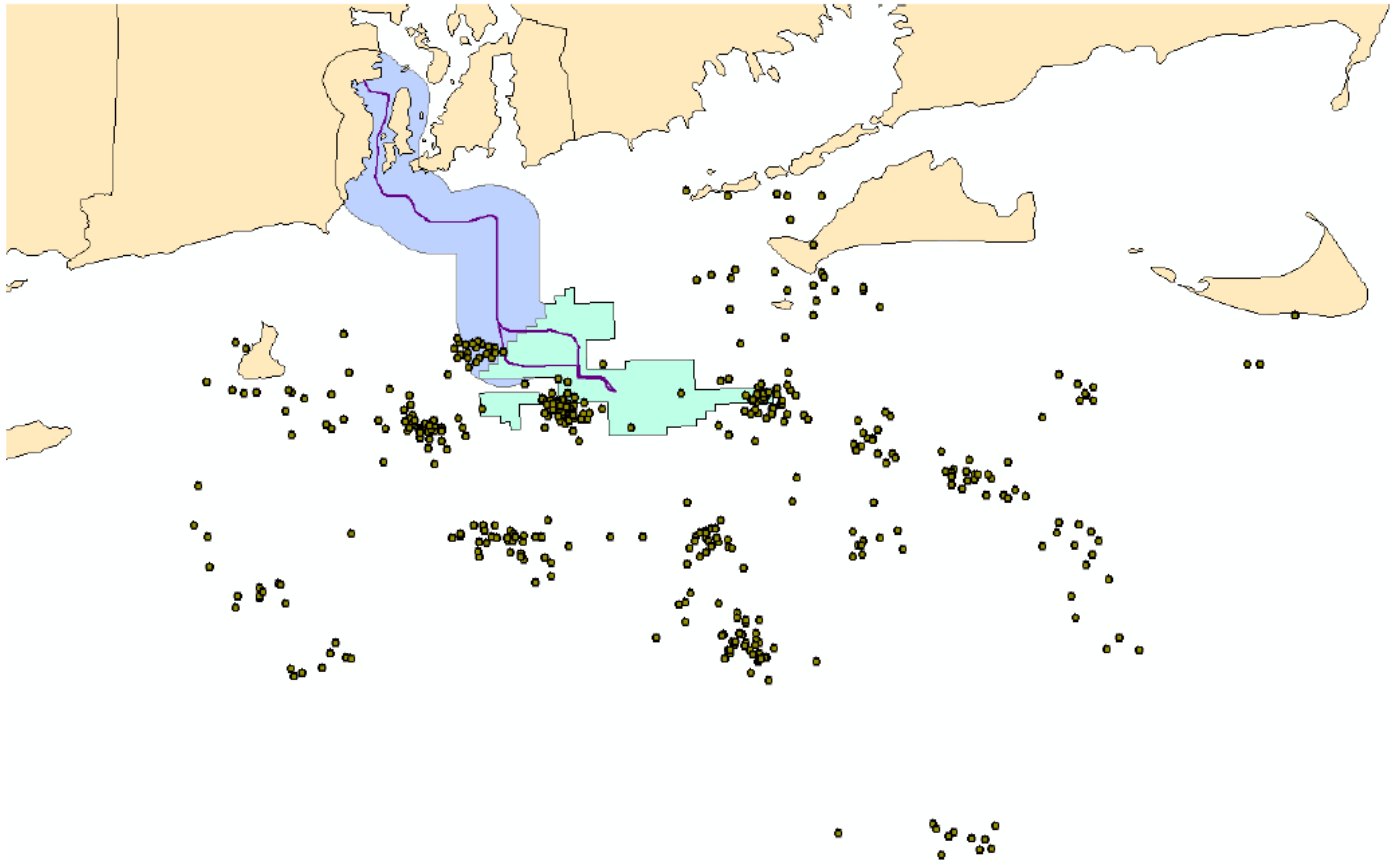

Figure 4. Charter fishing locations, 2017-2021, identified in survey responses.

New England Wind
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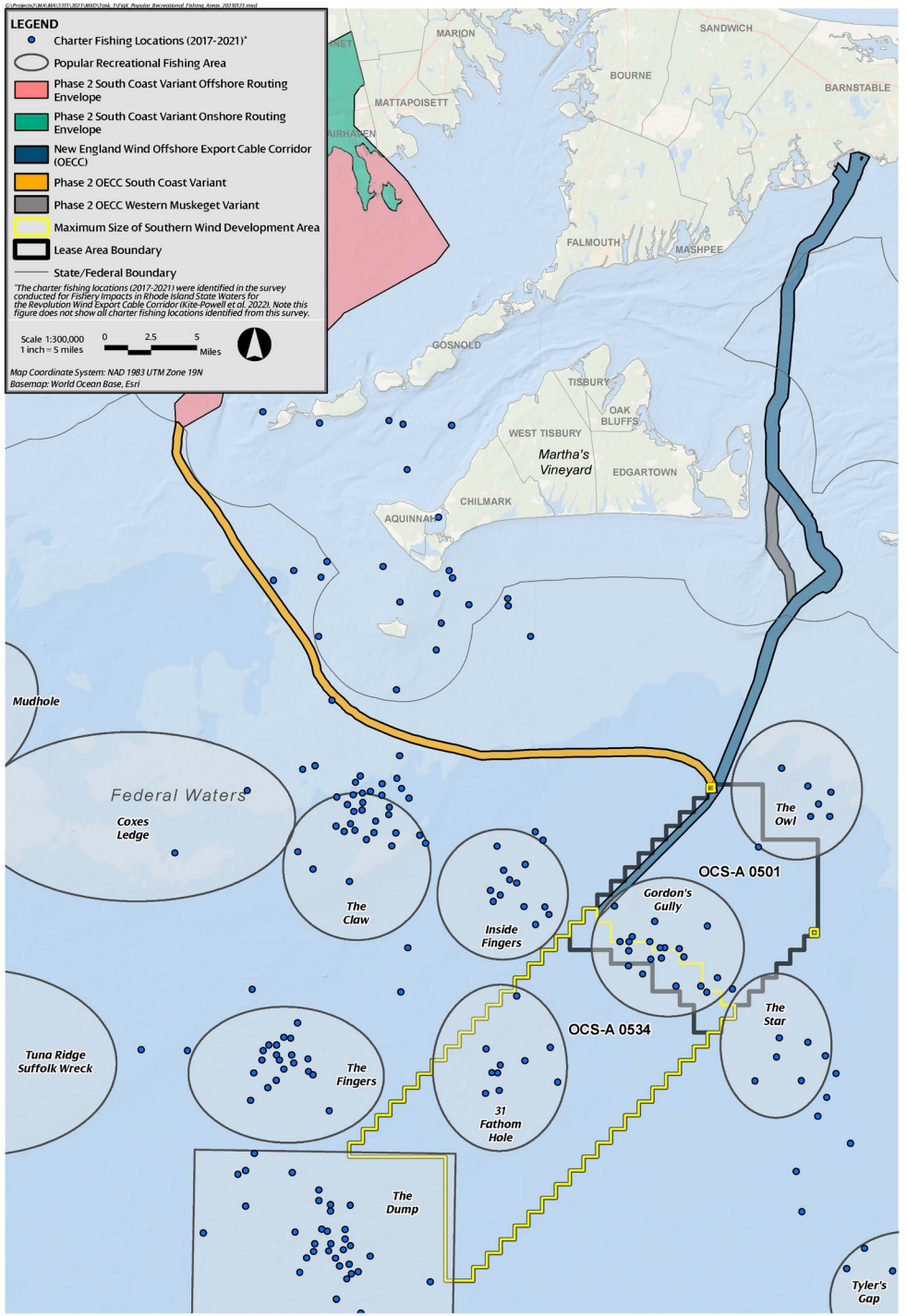
For-hire Fisheries Assessment Approach

- Economic exposure estimate for MA for-hire fisheries based on an extrapolation of data from WHOI report :
  - 100 for-hire vessels fish in these waters
  - 62 individual vessels (62% of for-hire fleet) responded to survey
  - 37.5 responding vessels based in MA
  - MA vessels = 60.5 (based on 62% survey response rate)
  - Ave. annual trips/vessel = 47.3
  - Ave. number of anglers/trip = 5.41
  - Ave. Revenue/angler = $106.22
  - Percent of charter fishing locations in SWDA = 6.8%
  - Annual economic exposure of MA-based for-hire fishing vessels in the SWDA = $112,220
  - Economic impacts are expected to be significantly less than economic exposure



Next Steps

1. MA CZM information request
2. Schedule for federal consistency review
3. Schedule for next meeting(s)

Discussion/Questions?

New England Wind (Lease Area OCS-A 0534) Commercial and For-hire Fisheries Assessment

May 2023

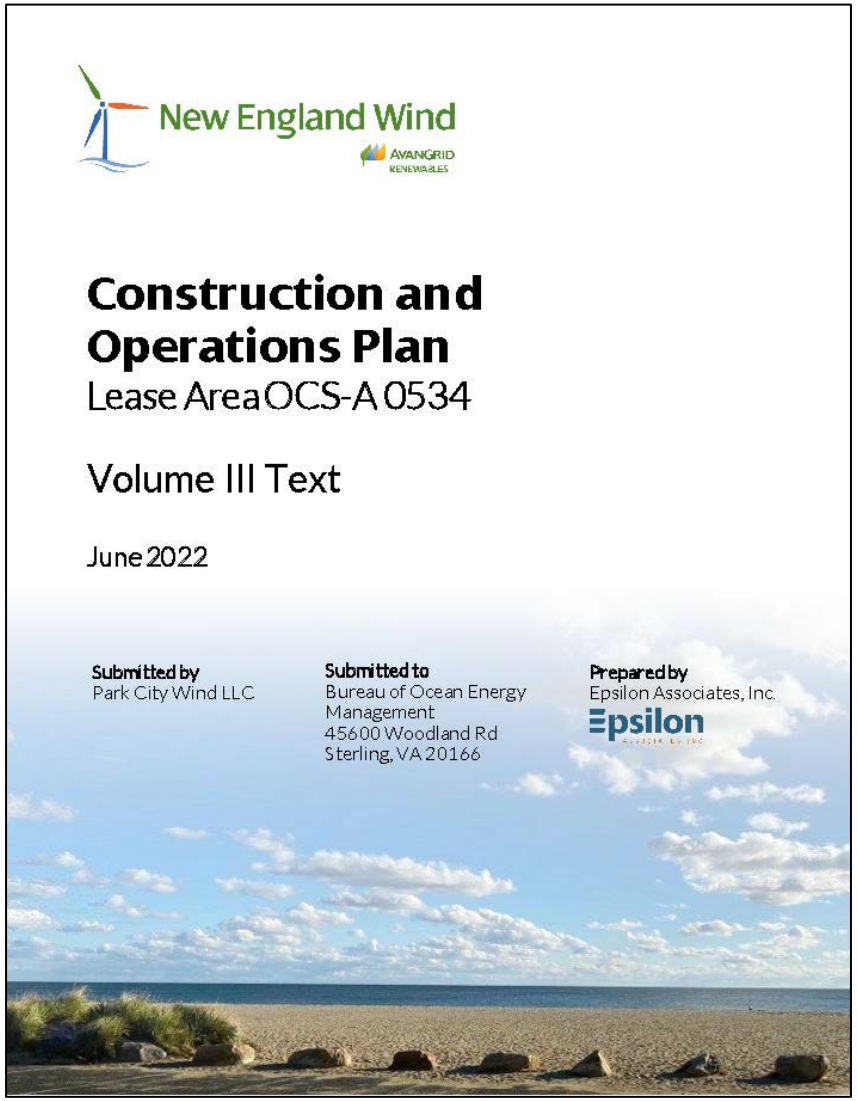
New England Wind
AVANGRID

Agenda

1. Overview of Assessment and Economic Exposure of Commercial Fisheries
2. Overview of Assessment Approach of For-hire Fisheries
3. Discussion/Questions?

Commercial and For-hire Fisheries Assessment Overview

- Data sources: NMFS Socio-economic Impacts of Atlantic Offshore Wind Development database, BOEM revenue intensity rasters, VMS data, VTR data, AIS datasets, MA DMF state landings data
- Commercial Fisheries and For-Hire Recreational Fishing (Section 7.6 of COP) and *Economic Exposure of Commercial Fisheries to the New England Offshore Wind Energy Development* (Appendix III-N of COP)
  - Overview of commercial fishing ports in MA, RI, CT, NY, and NJ
  - Summary of commercial fishing activity in Offshore Development Area by fishery (VMS data) and gear type (VTR data), and commercial fishing vessel traffic
  - Overview of for-hire fisheries
  - Commercial fisheries economic exposure estimates
  - Potential impacts to fisheries from New England Wind



Estimates of Commercial Fisheries Landings and Revenue in Lease Area by Year

Year	Landings (lbs)	Value (2021 dollars)
2008	565,180	$519,479
2009	581,476	$437,906
2010	698,373	$575,805
2011	387,260	$403,508
2012	512,867	$559,010
2013	838,105	$741,944
2014	623,448	$685,778
2015	459,595	$564,633
2016	920,341	$958,501
2017	415,918	$425,740
2018	313,375	$331,341
2019	401,696	$423,934
2020	281,835	$294,468
2021	426,745	$562,379
Annual Average	530,444	$534,602

Estimates of Commercial Fisheries Landings and Revenue in Lease Area by FMP and Species (2008-2021)

Fishery Management Plan	Annual Average Landings (lbs)	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Mackerel, Squid, and Butterfish	104,400	$134,318	25%
ASMFC FMP	51,596	$74,963	14%
Summer Flounder, Scup, Black Sea Bass	53,395	$68,732	13%
Small-Mesh Multispecies	80,756	$55,812	10%
Monkfish	29,682	$50,020	9%
Skates	83,443	$38,972	7%
Sea Scallop	2,425	$26,726	5%
Northeast Multispecies	7,254	$14,819	3%
Tilefish	1,480	$6,170	1%
Atlantic Herring	41,532	$5,637	1%
All Others	74,482	$58,432	11%
Total	530,444	$534,602	-

Species	Annual Average Landings (lbs)	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Longfin Squid	92,658	$127,631	24%
Silver Hake	71,705	$52,515	10%
Monkfish	29,682	$50,020	9%
Jonah Crab	45,100	$41,535	8%
Skates	83,443	$38,972	7%
Summer Flounder	10,413	$33,613	6%
American Lobster	6,455	$33,333	6%
Scup	42,218	$32,175	6%
Sea Scallop	2,425	$26,726	5%
Yellowtail Flounder	4,613	$8,473	2%
Golden Tilefish	1,478	$6,165	1%
Atlantic Herring	41,532	$5,637	1%
Butterfish	7,567	$5,079	1%
Winter Flounder	1,742	$4,930	1%
Black Sea Bass	763	$2,943	1%
All Others	88,650	$64,853	12%
Total	530,444	$534,602	-

Estimates of Commercial Fisheries Landings and Revenue in Lease Area by Gear Type (2008-2021)

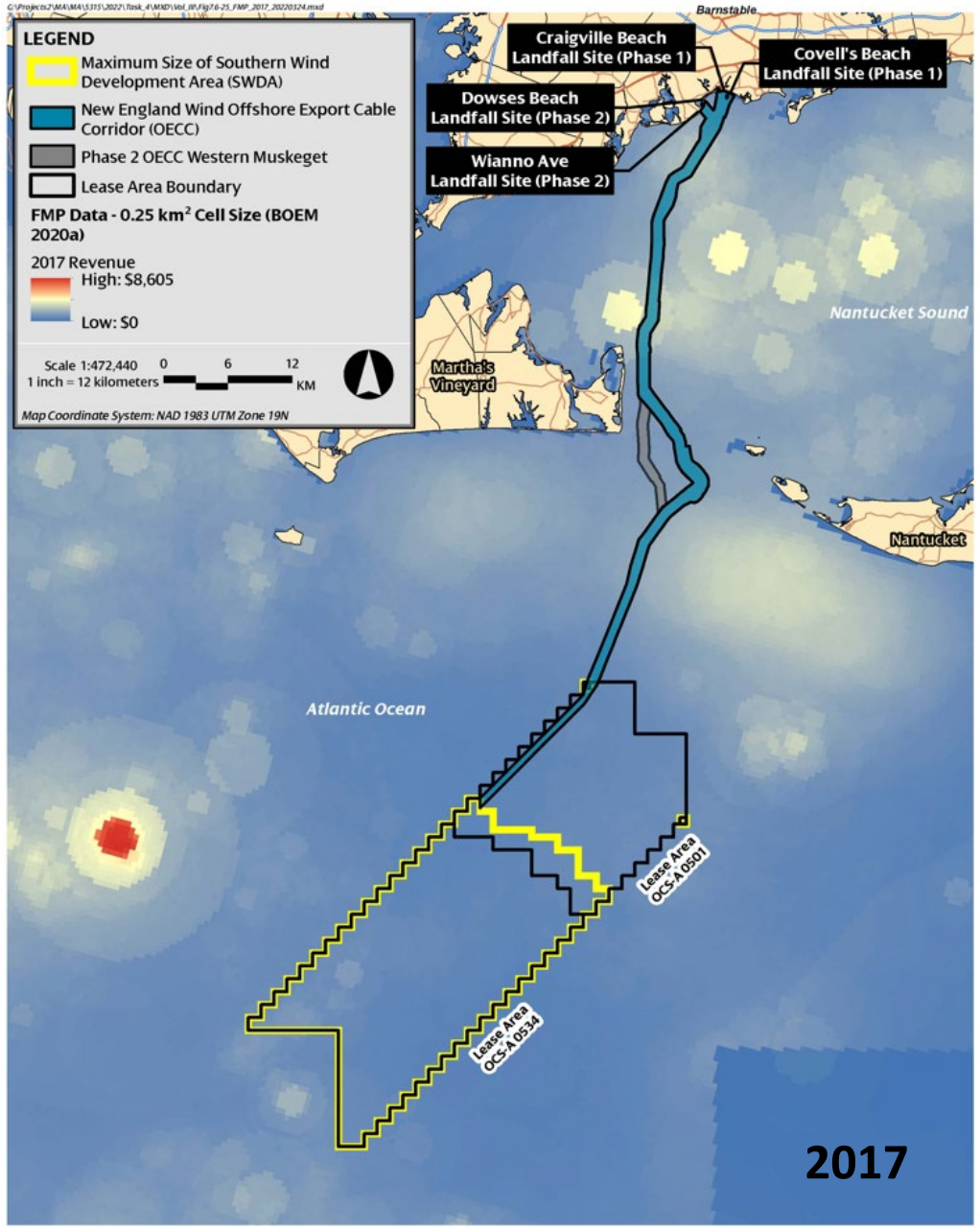
Gear Type	Annual Average Landings (lbs)	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Bottom Trawl	287,050	$286,491	54%
Gillnet (sink)	82,245	$79,275	15%
Lobster Pot	54,560	$76,685	14%
Clam Dredge	41,837	$33,661	6%
Scallop Dredge	1,726	$18,822	4%
All Others	63,049	$39,684	3.5%
Total	530,466	$534,618	-

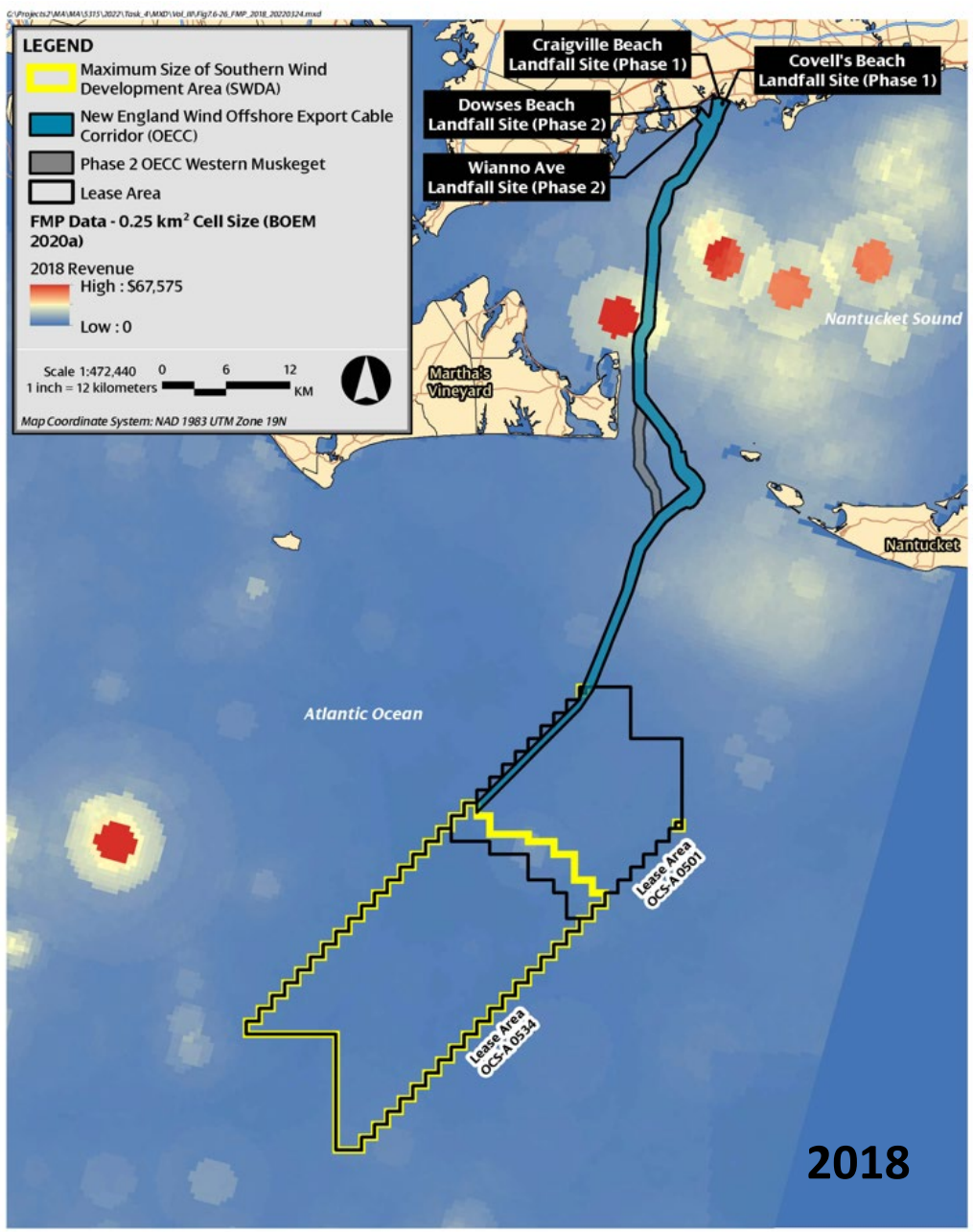
Estimates of Commercial Fisheries Landings and Revenue in Lease Area by Port and State (2008-2021)

Port	Annual Average Landings (lbs)	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Point Judith, RI	175,301	$184,904	35%
New Bedford, MA	161,651	$159,551	30%
Montauk, NY	24,873	$33,096	6%
Chatham, MA	20,251	$20,936	4%
Fairhaven, MA	20,306	$20,164	4%
All Others	127,409	$115,027	22%
Total	529,790	$533,678	-

State	Annual Average Landings (lbs)	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Massachusetts	247,383	$235,245	44%
Rhode Island	231,487	$224,923	42%
New York	25,408	$34,087	6%
Connecticut	16,238	$17,086	3%
Virginia	3,962	$8,868	2%
All Others	5,313	$13,470	3%
Total	529,791	$533,679	-

Fishing Revenue Density, All FMPs, 2018 and 2017





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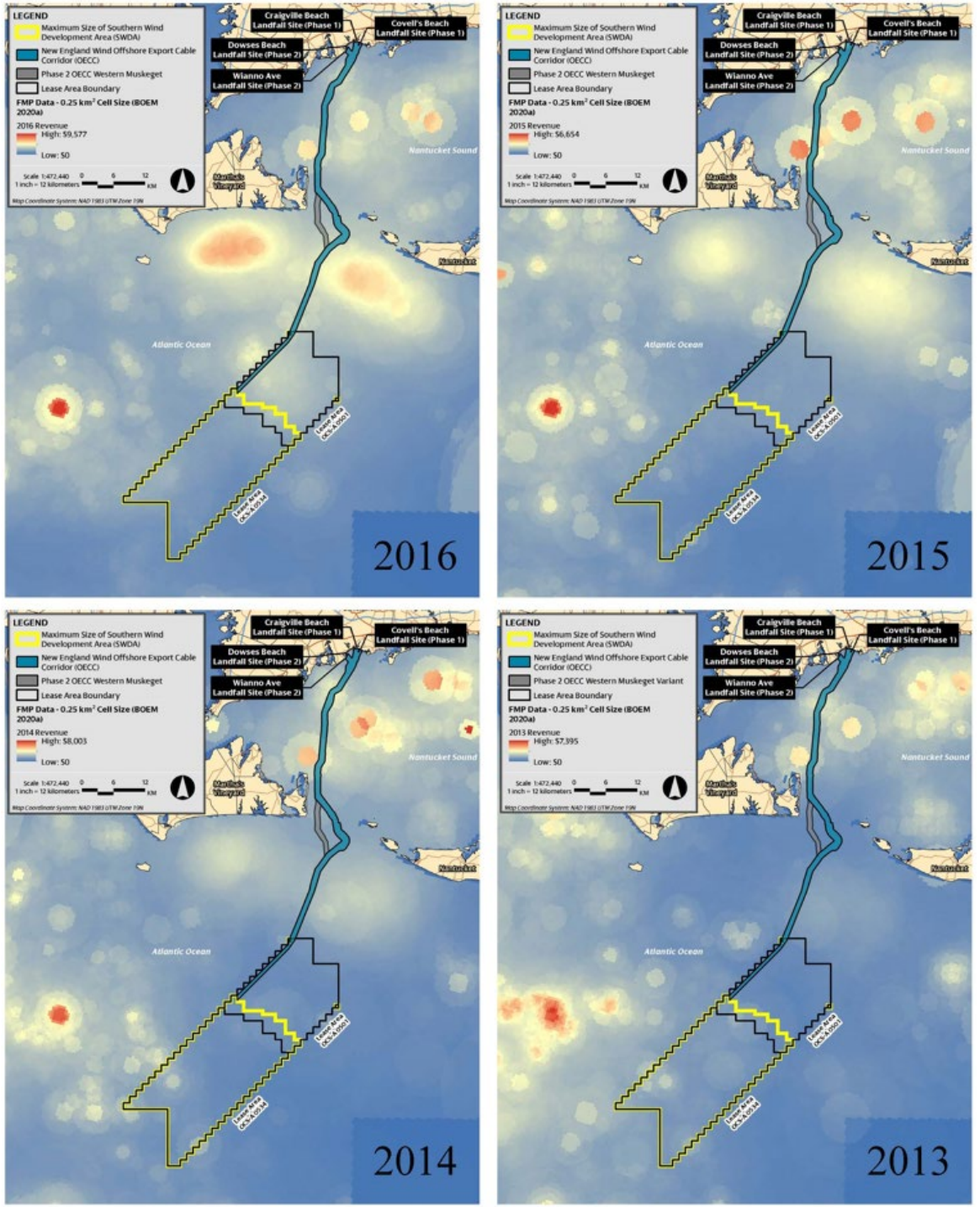
Fishing Revenue Density, All FMPs, 2013-2016



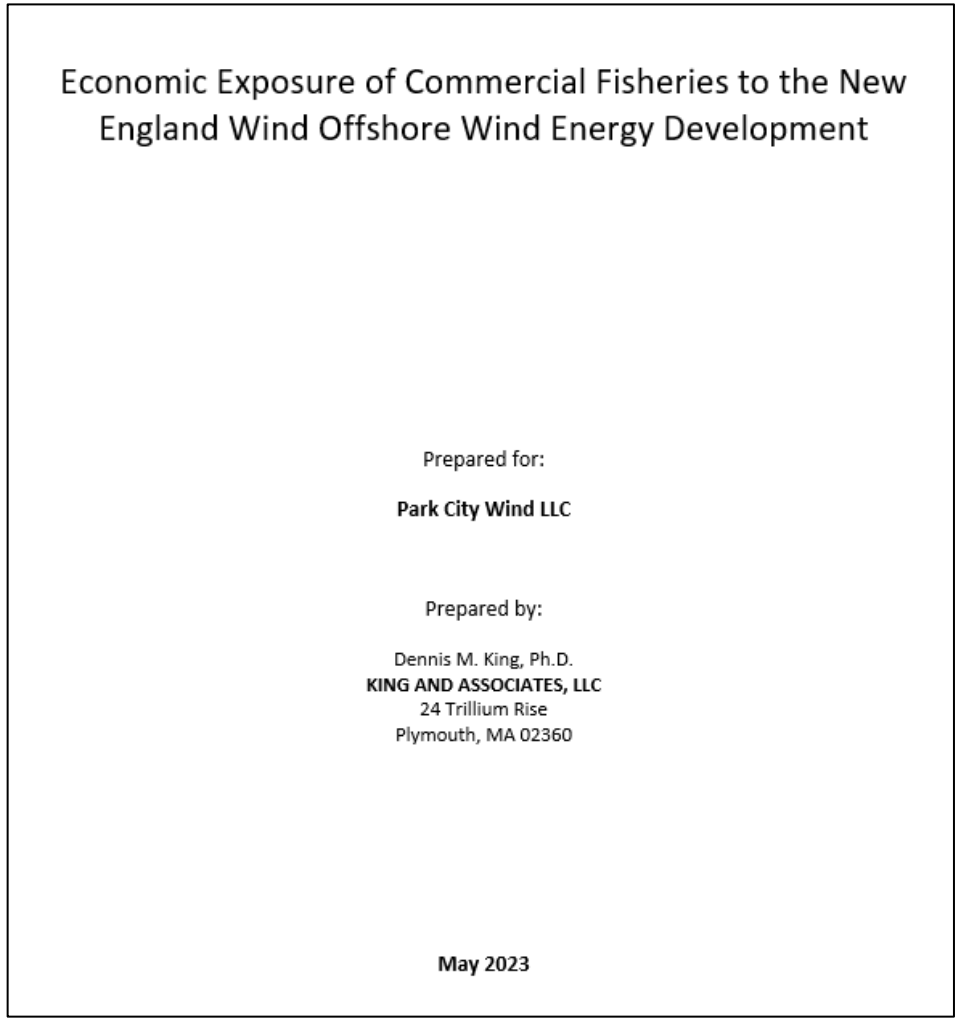
New England Wind
AVANGRID

Average AIS-Equipped Fishing Vessel Activity in SWDA (2016-2019)

- AIS data indicate relatively low levels of fishing effort in the SWDA
  - Average annual number of unique AIS-equipped fishing vessels that fished in the SWDA during at least one trip was 33 vessels
  - Fewer than six AIS-equipped vessels fishing in the SWDA during 10 months of any year (excludes Aug. and Sept.)
  - The average number of unique AIS-equipped vessels fishing in the SWDA only rose to 10 or above in the months of August (10 vessels) and September (19 vessels)
  - The average number of unique fishing vessel tracks per month by these vessels in the SWDA peaked in September at 72 tracks, which is approximately four fishing tracks per vessel per month
- On average, approximately 75% of time spent on unique fishing tracks that intersect the SWDA is spent outside the SWDA
- AIS data was used to assess fishing congestion impacts outside SWDA

Estimates of Commercial Fisheries Economic Exposure

- *Economic Exposure of Commercial Fisheries to the New England Offshore Wind Energy Development* (Appendix III-N of COP Vol III)
- Following BOEM guidance, **economic exposure** is a measure of max. potential losses of commercial fishing revenues based on the assumptions that NE Wind will result in:
  - The total cessation of fishing and loss of all fishing revenues in the Lease Area during construction and parts of OECC during cable installation
  - None of the lost fishing revenue from the Lease Area and OECC will be recouped as a result of fishing effort shifting from those areas to other fishing areas
- Sources of potential fishery-related economic exposure include:
  - Construction, operation, and decommissioning of WTGs and ESPs in Lease Area
  - Installation, use, and decommissioning of offshore export cables within OECC


Economic Exposure of Commercial Fisheries to the New England Wind Offshore Wind Energy Development

Prepared for:

Park City Wind LLC

Prepared by:

Dennis M. King, Ph.D.
KING AND ASSOCIATES, LLC
24 Trillium Rise
Plymouth, MA 02360

May 2023

Estimates of Commercial Fisheries Economic Exposure

- Types of potential fishery-related economic losses include:
  - Lost fishing revenues in the Lease Area and OECC
  - Increased fishing vessel transit times/costs (passing through or around Lease Area)
  - Increased fishing congestion outside the Lease Area as fishing vessels divert fishing effort from Lease Area to other areas.

- Economic exposure estimates for commercial fisheries:
  - Lease Area= $622,683 annually (adjusted for Jonah crab and lobster)
  - OECC= $14,748 (estimated for cable installation for both Phases using annual average fishing revenue per km^2)

- Economic impacts are expected to be significantly less than economic exposure

Estimates of Commercial Fisheries Economic Exposure in Lease Area

Unadjusted for Lobster and Jonah Crab (2008-2021)

Total Fishing Revenues (2008–2021)	Annual Average Revenues	Annual Average Fishing Revenues per km²
$7,484,427	$534,602	$1,301

Adjusted for Lobster and Jonah Crab (2008-2021)

Total Fishing Revenues (2008–2021)	Annual Average Fishing Revenue	Annual Average Fishing Revenues per km²
$8,720,081	$622,863	$1,515

- VTR records used to develop annual fishing revenue were adjusted to account for lobster and Jonah crab landings by vessels that land only these two species and do not file VTRs
- Used the federal permit data to identify number of pots permitted to vessels that file VTRs and that do not file VTRs in order to measure potential revenue of these two species in LMA 2 by both vessels that file VTRs and vessels that don't file VTRs
- Annual revenue of lobster and Jonah crab in Lease Area per permitted pot for vessels that do file VTRs was used to impute annual landed value of those two species per permitted pot for vessels that don't file VTRs

Estimates of Commercial Fisheries Economic Exposure in the Lease Area by State (2008-2021) Adjusted for Lobster and Jonah Crab

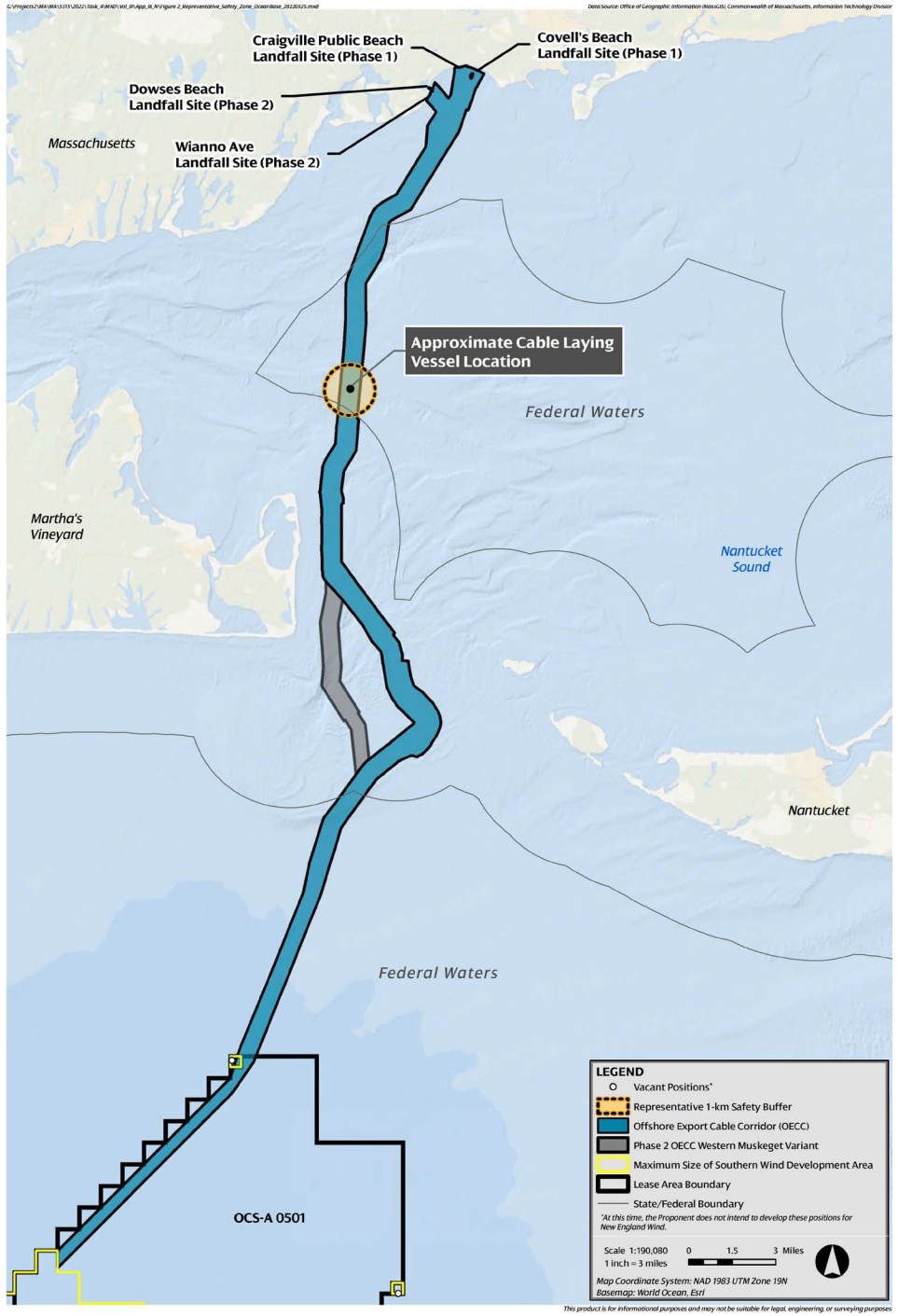
State	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Massachusetts	$274,557	44%
Rhode Island	$262,510	42%
New York	$39,784	6%
Connecticut	$19,941	3%
Virginia	$10,350	2%
North Carolina	$9,814	2%
New Jersey	$5,356	1%
All Others	$550	0.1%

Estimates of Commercial Fisheries Economic Exposure in the Lease Area by Gear Type (2008-2021) Adjusted for Lobster and Jonah Crab

Gear Type	Annual Average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Bottom Trawl	$286,491	46%
Lobster Pot	$164,946	26%
Gillnet (sink)	$79,275	13%
All Others	$39,684	6%
Clam Dredge	$33,661	5%
Scallop Dredge	$18,822	3%

Estimates of Commercial Fisheries Economic Exposure in OECC

- Economic exposure estimate:
  - Annual ave. fishing revenue per km^2 in OECC = $2,505
  - Safety buffer of 1 km around cable installation activities results in a fishing preclusion area of 3.14 km^2
  - Total duration of cable installation activities for 5 cables (during both Phases) = 1.875 years
  - Expected economic exposure during cable installation =$2,505 x 3.14 km^2 x 1.875 years = **$14,748**
  - Similar estimate of economic exposure for the Phase 2 OECC Western Muskeget Variant
  - See Appendix III-N for additional details on economic exposure estimate using monthly average revenue per km^2 for nine highest value months



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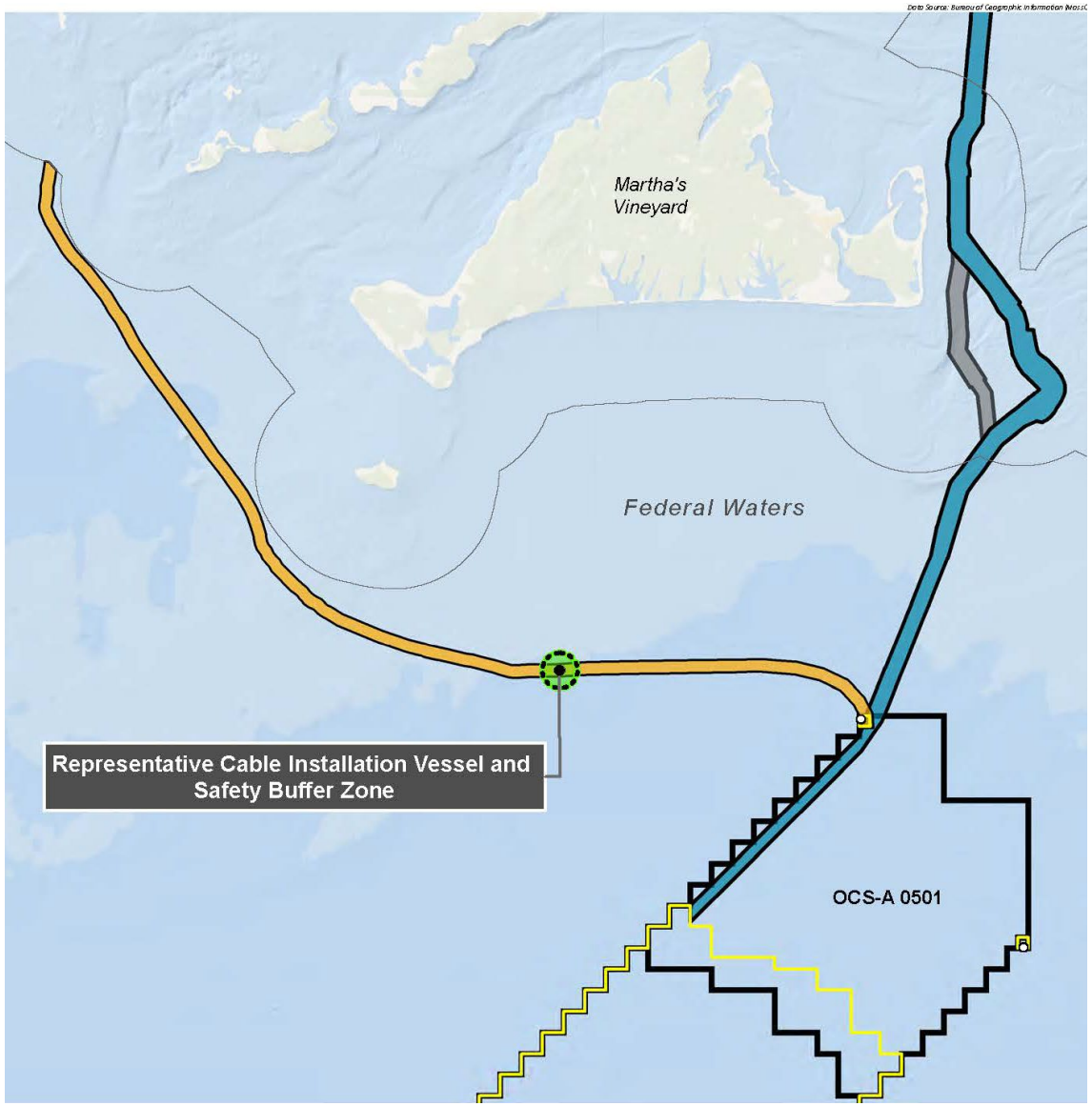
Estimates of Commercial Fisheries Economic Exposure in Phase 2 OECC South Coast Variant

- Economic exposure estimate:
  - Annual ave. fishing revenues per km^2 in Phase 2 OECC South Coast Variant= $2,559
  - Safety buffer of 1 km around cable installation activities results in a fishing preclusion area of 3.14 km^2
  - Total duration of cable installation activities for 1 cable (during Phase 2) = 0.375 year
  - Expected economic exposure during cable installation =$2,559 x 3.14 km^2 x 0.375 year = **$3,013**



New England Wind
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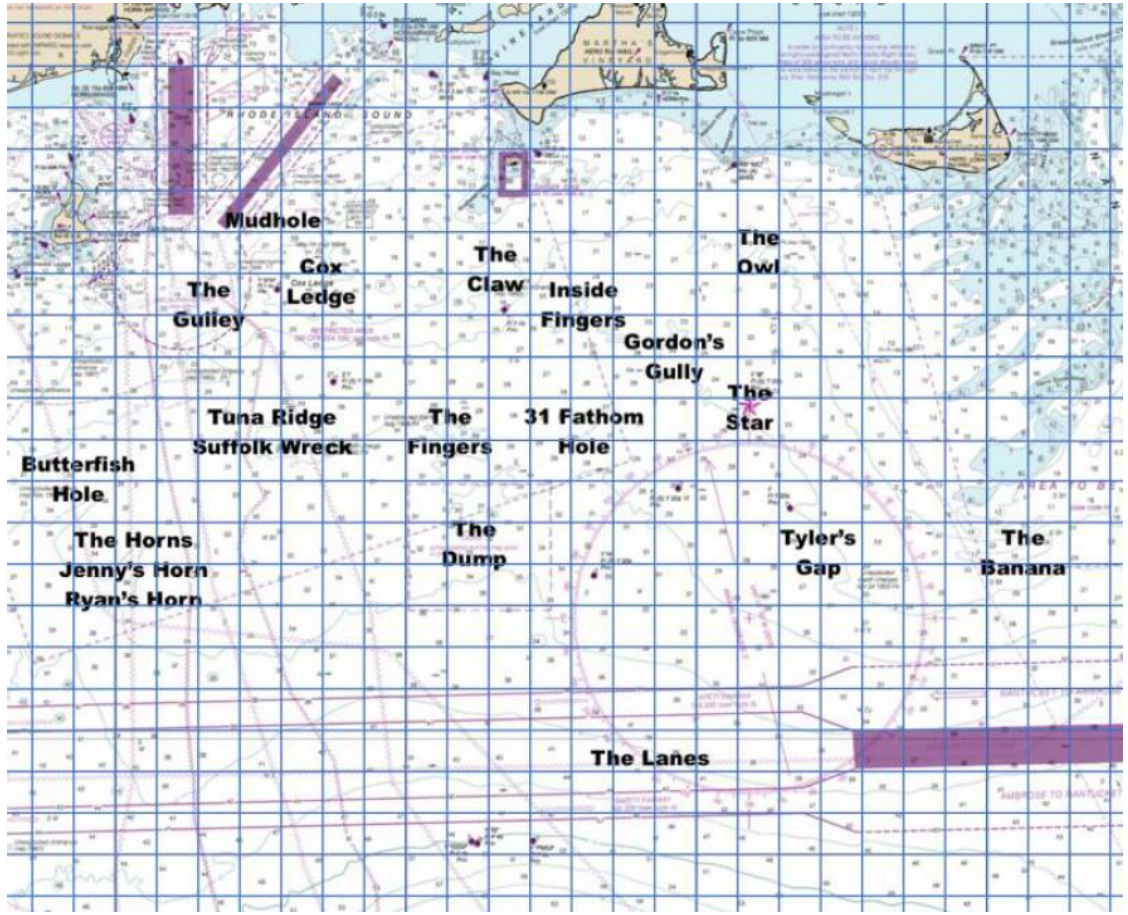
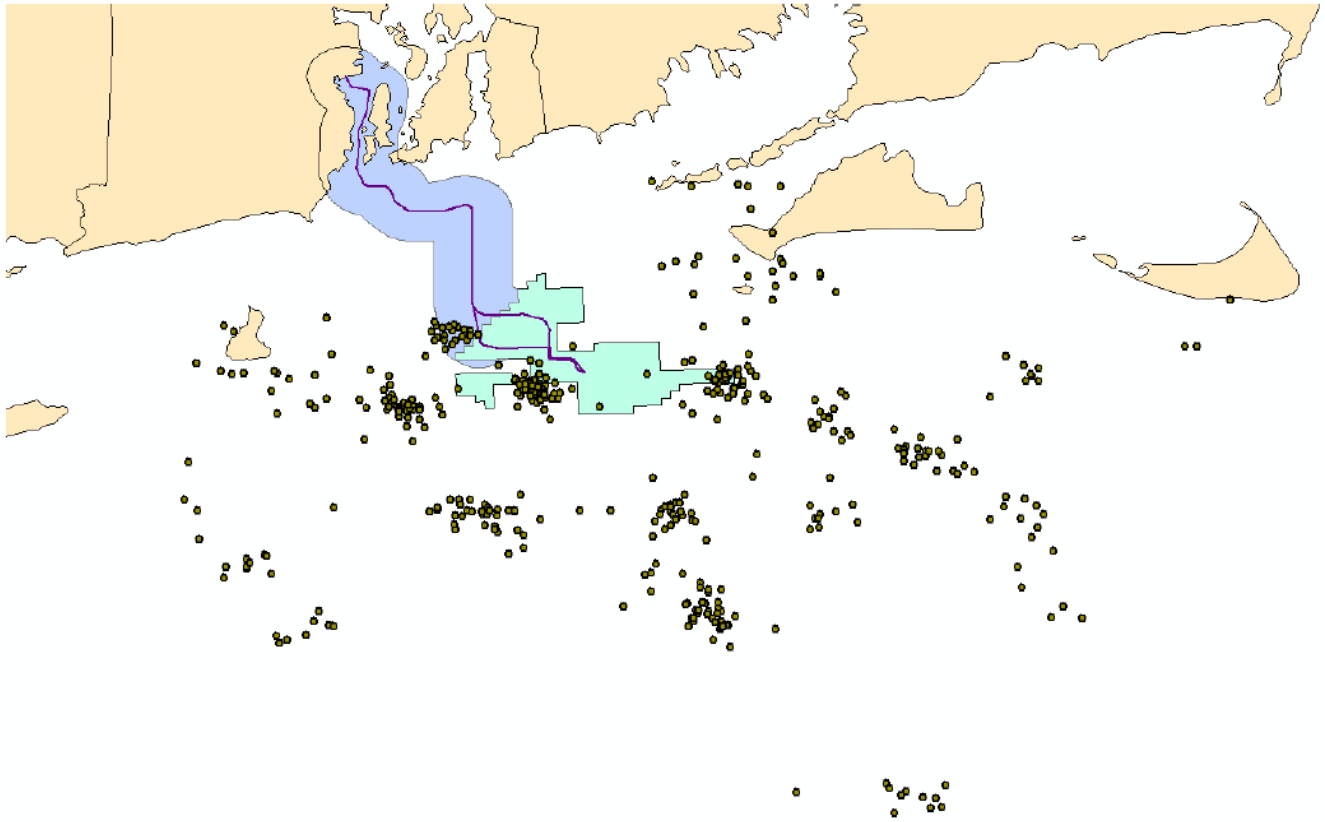
For-hire Fisheries Assessment Approach

- For-hire fisheries assessment from Revolution Wind (WHOI survey and reports)



WHOI survey area



Charter fishing locations (2017-2021) identified in WHOI survey responses

New England Wind
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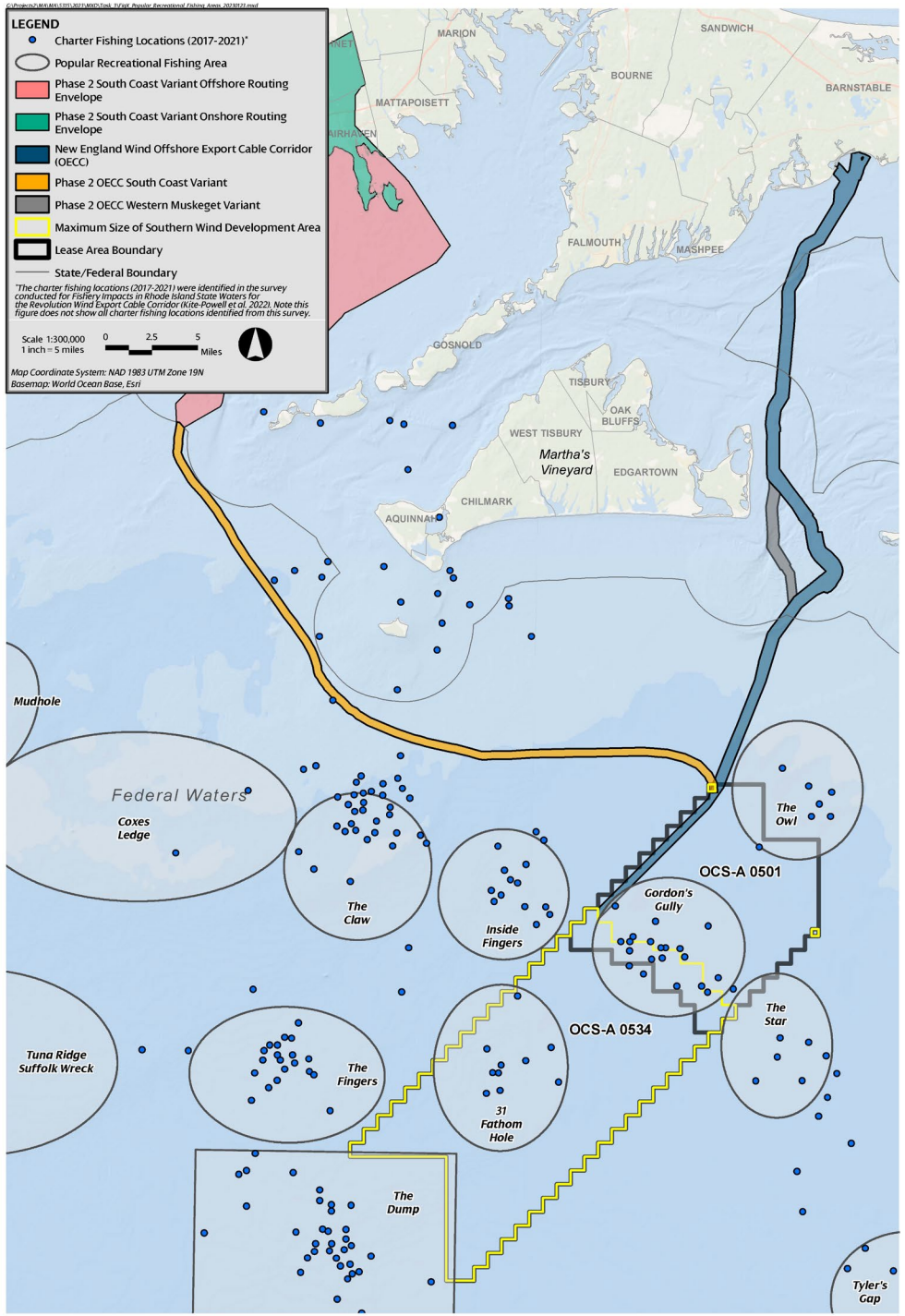
For-hire Fisheries Assessment Approach

- Economic exposure estimate for MA for-hire fisheries based on an extrapolation of data from WHOI report :
  - Percent of charter fishing locations from WHOI survey in Lease Area = 3.6%
  - Annual economic exposure of MA-based for-hire fishing vessels in the Lease Area = $104,883
  - Economic impacts are expected to be significantly less than economic exposure



Discussion/Questions?

Avangrid A member of the Iberdrola Group

New England Wind

Lease Area OCS -A 0534 Commercial and For -Hire Fisheries Assessment

June 2023

Agenda

01 Introductions & Project Overview

02 Assessment & Economic Exposure of Commercial Fisheries

03 Assessment & Economic Exposure of For-Hire Recreational Fisheries

04 Avoidance, Minimization, and Mitigation Measures

05 Economic Impact Methodology

06 Discussion and Q&A

Introductions & Project Overview

New England Wind Team

Christina Hoffman
Director - Development

Caela Howard
Fisheries Liaison

Stephanie Wilson
Director - Permitting

John Harker
Lead Fisheries Liaison

Mark Roll
Federal Permitting Manager

Proposed Project Overview

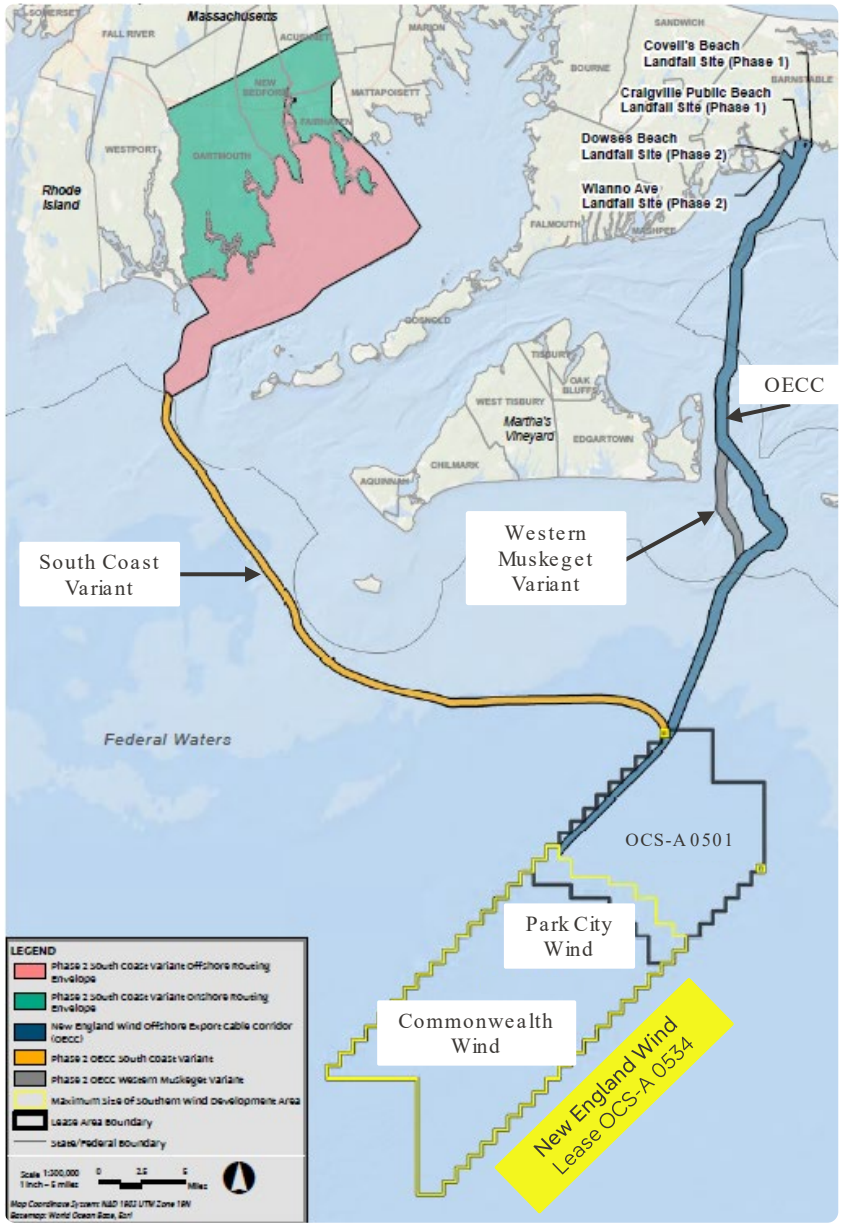
New England Wind includes offshore renewable wind energy facilities in Lease Area OCS-A 0534, along with associated offshore and onshore cabling and onshore substations

Two phases with a total maximum of 130 wind turbine generator (WTG) and electrical service platform (ESP) positions in the Lease Area

- **Phase 1** includes Park City Wind
- **Phase 2** includes Commonwealth Wind

Five offshore export cables within the Offshore Export Cable Corridor (OECC)

- Phase 2 includes two OECC variants



Assessment & Economic Exposure of Commercial Fisheries

Commercial and For -Hire Fisheries Assessment Overview

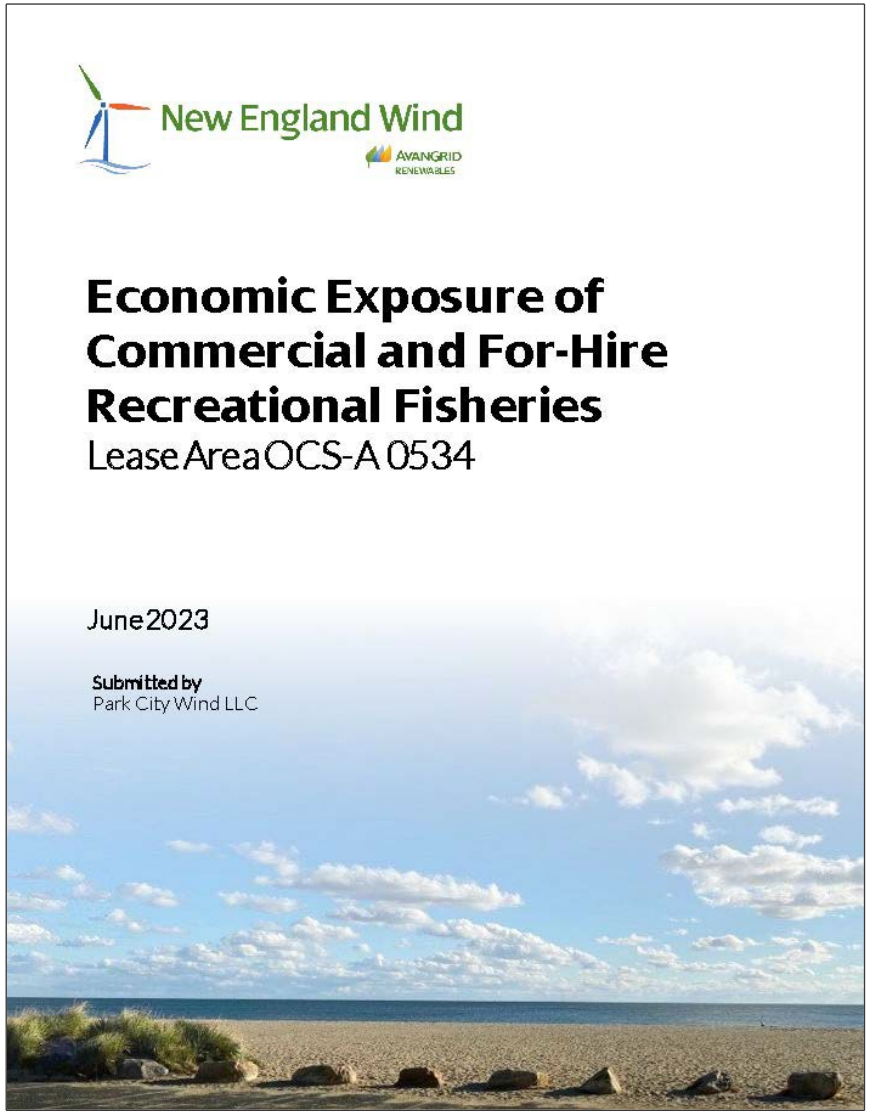
Data sources:

- NMFS Socioeconomic Impacts of Atlantic Offshore Wind Development database (2008-2021landings and revenue data)
- WHOI's 2022 charter captain survey for Revolution Wind

Economic Exposure of Commercial and For -Hire Recreational Fisheries to the New England Offshore Wind Energy Development (Appendix III-N of COP)

Sources of potential fishery-related economic exposure include:

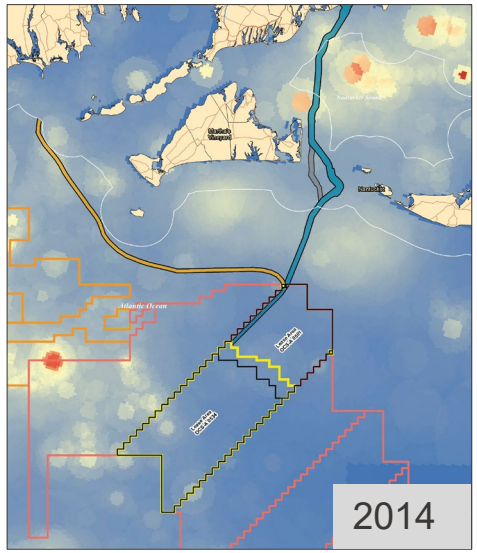
- Construction, operation, and decommissioning of WTGs and ESPs in the Lease Area
- Installation, use, and decommissioning of offshore export cables within the OECC

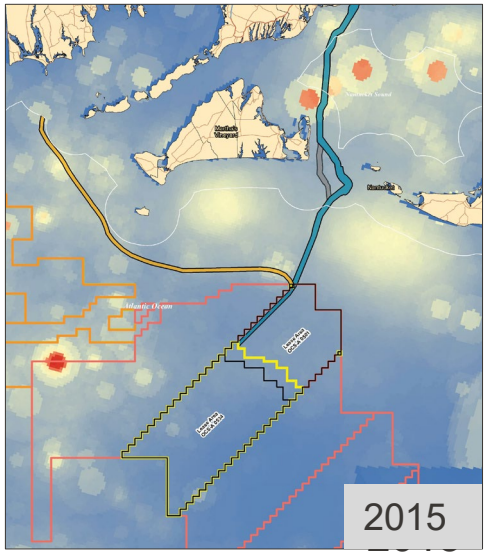


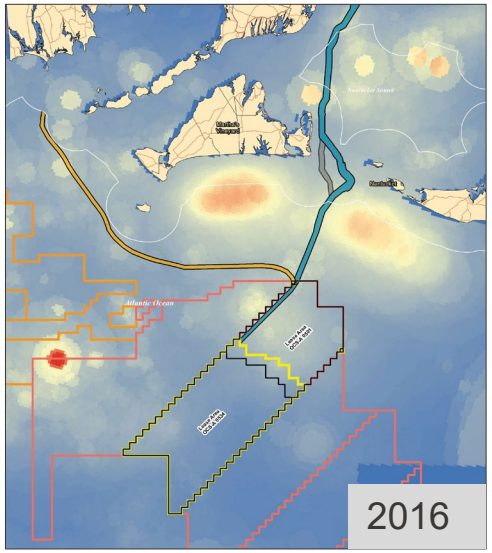
Fishing Revenue Density

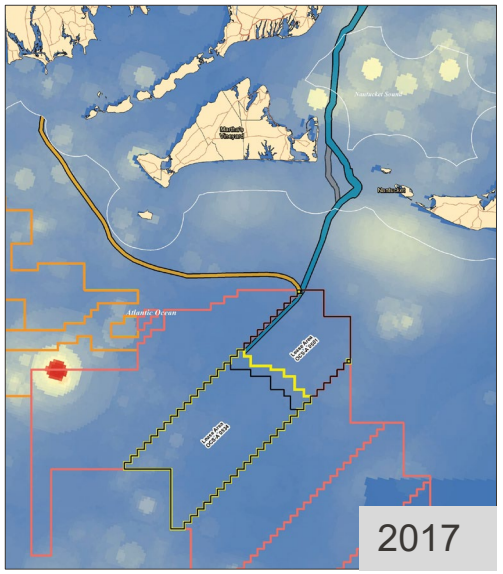
MA/RI Lease Areas	Annual Average Revenue per km^2 (2008 -2021; 2021$)
Lowest Value	$534
New England Wind	$1,301
Average Value	$2,123
Highest Value	$4,700

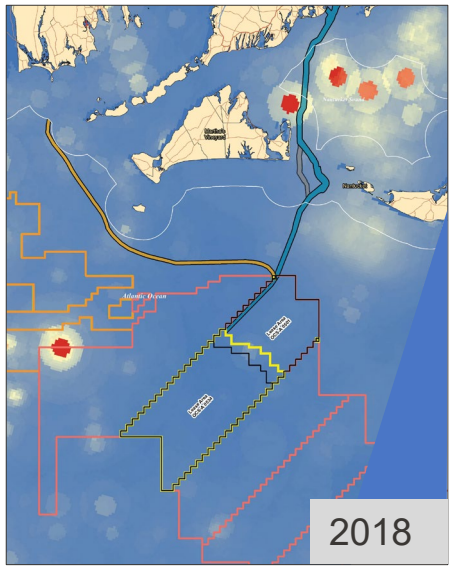
New England Wind	Baseline Annual Average Landing (2008 -2021; pounds)	Baseline Annual Average Revenue (2008 -2021; 2021 dollars)
Lease Area	530,444	$534,602
OECC	133,394	$209,331

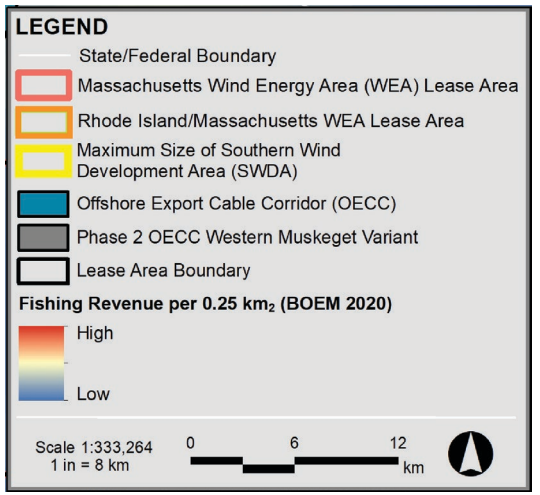












Baseline Commercial Fisheries Revenue in the Lease Area

Unadjusted for Lobster and Jonah Crab (2008 -2021)

Total Fishing Revenues (2008 -2021)	Annual Average Revenues	Annual Average Fishing Revenues per km^2
$7,484,427	$534,602	$1,301

Adjusted for Lobster and Jonah Crab

Total Fishing Revenues (2008 -2021)	Annual Average Revenues	Annual Average Fishing Revenues per km^2
$8,720,081	$622,863	$1,515

Estimates of Commercial Fisheries Revenue in the Lease Area by State (2008 -2021) Adjusted for Lobster and Jonah Crab

Most valuable species landed in the Lease Area include:

- Squid
- Silver hake
- Monkfish
- Jonah crab
- Skates

Most common gear types:

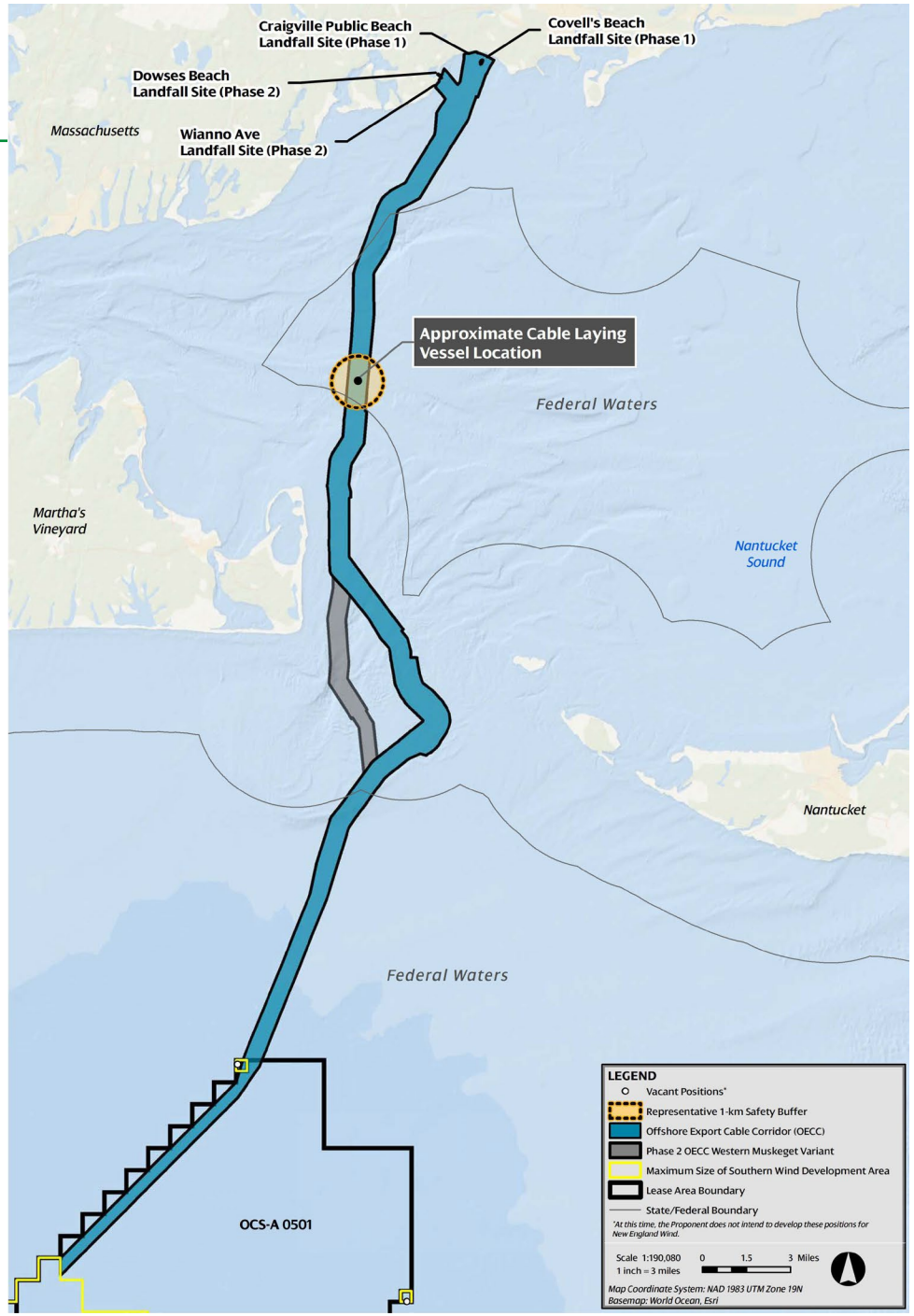
- Bottom trawls
- Lobster pots
- Gillnets (sink)

State	Average Annual Value (2021dollars)	Percentage of Annual Average Lease Area Value
Massachusetts	$274,557	44%
Rhode Island	$262,510	42%
New York	$39,784	6%
Connecticut	$19,941	3%
Virginia	$10,350	2%
North Carolina	$9,814	2%
New Jersey	$5,356	1%
All Others	$550	0.1%

Estimates of Commercial Fisheries Economic Exposure in OECC

Economic exposure estimate:

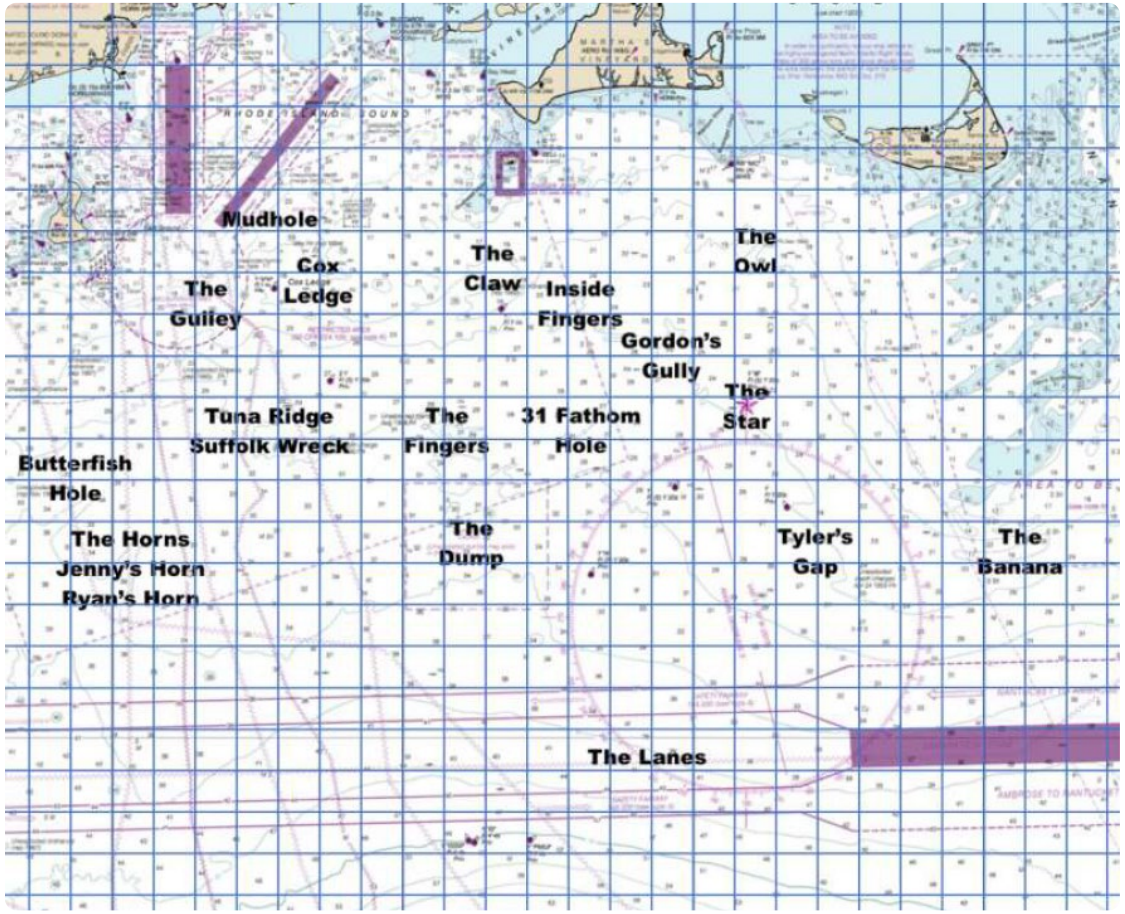
- Annual average fishing revenue per km^2 in OECC = $2,505
- Safety buffer of 1km around cable installation activities results in fishing preclusion area of 3.14 km^2
- Total duration of cable installation activities for 5 cables (during both phases) = 1.875 years
- Expected economic exposure during cable installation = $2,505 x 3.14 km^2 x 1.875 years = **$14,748**
- Similar estimate of economic exposure for the Phase 2 OECC Western Muskeget Variant
- South Coast Variant: expected economic exposure during cable installation = $2,559 x 3.14 km^2 x 0.375 year = **$3,013**



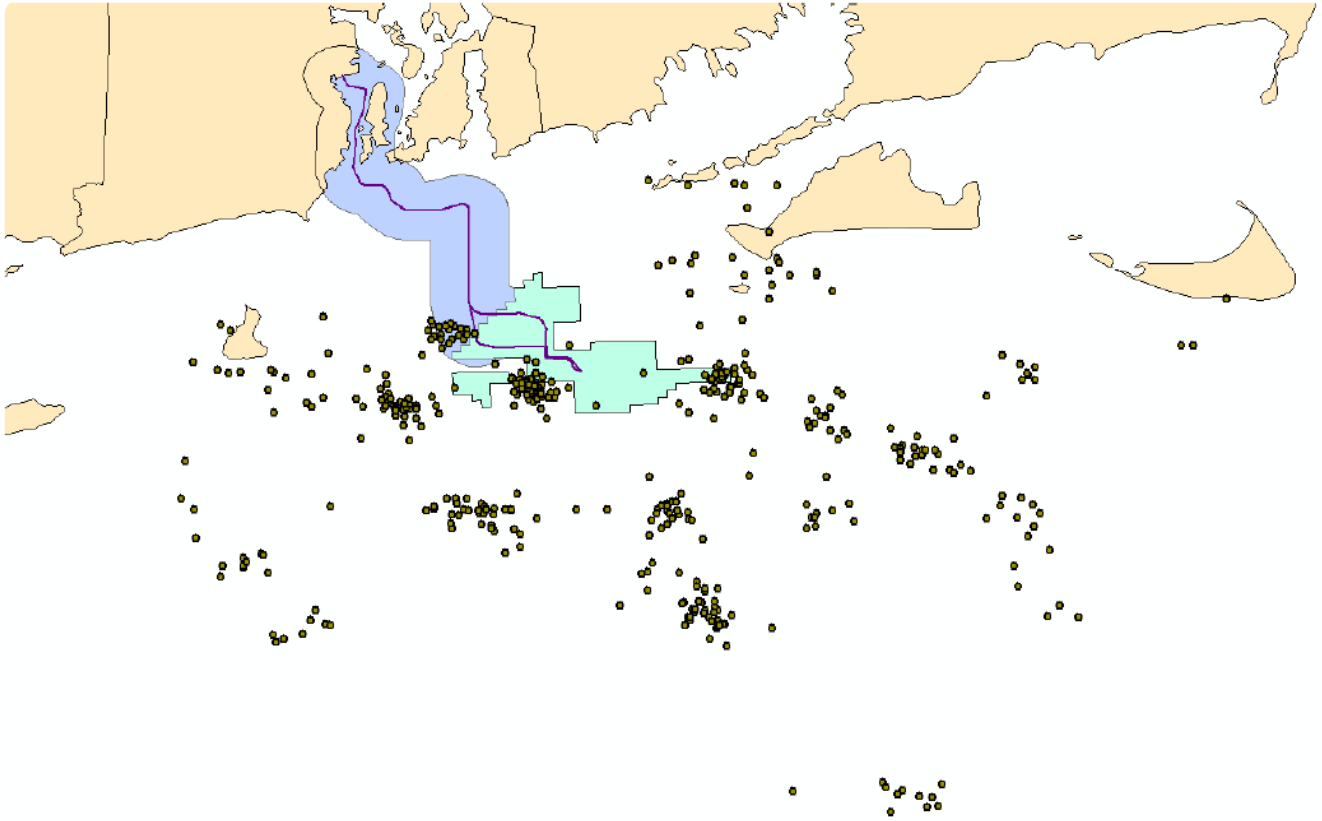
Assessment & Economic Exposure of For -Hire Recreational Fisheries

For-Hire Recreational Fisheries Assessment Approach

WHOI 2022 survey of MA - and RI-based charter vessel operators conducted for the for-hire fisheries assessment for Revolution Wind



WHOI 2022 MA- and RI-based charter captain survey – survey area

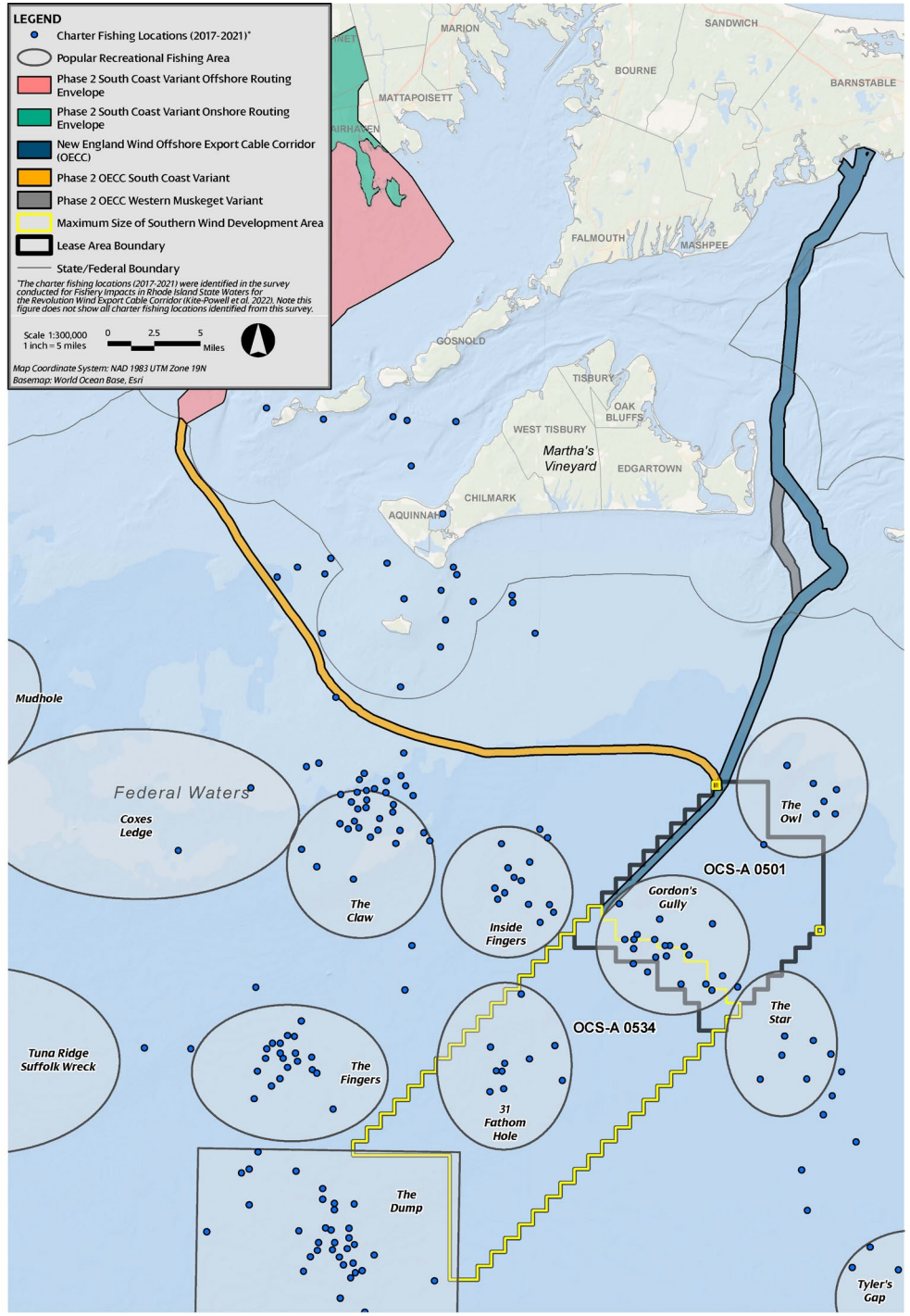


Charter fishing locations (2017 -2021) identified in WHOI survey responses

For-Hire Recreational Fisheries Assessment Approach

Economic exposure estimate for MA for -hire fisheries based on an extrapolation of data from 2023 WHOI report:

- Percent of charter fishing locations from 2022 WHOI survey in Lease Area = 3.7%
- Annual economic exposure of MA-based for-hire fishing vessels in the Lease Area = $105,729
- Economic impacts are expected to be significantly less than economic exposure



Avoidance , Minimization , and Mitigation

Avoidance, Minimization, and Mitigation

–Biological impacts

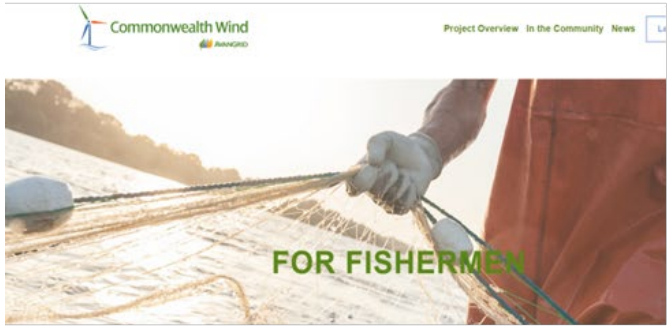
–Constrained access/navigation

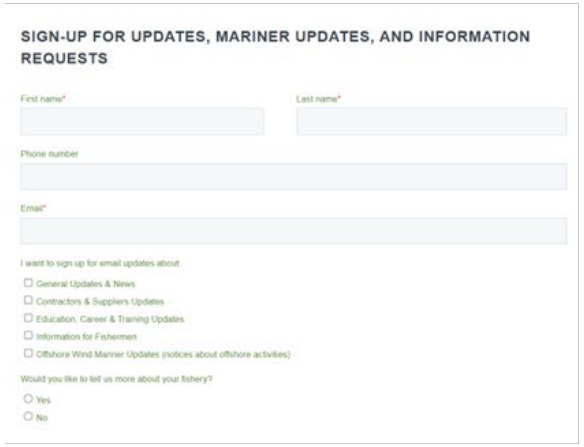
Avoid

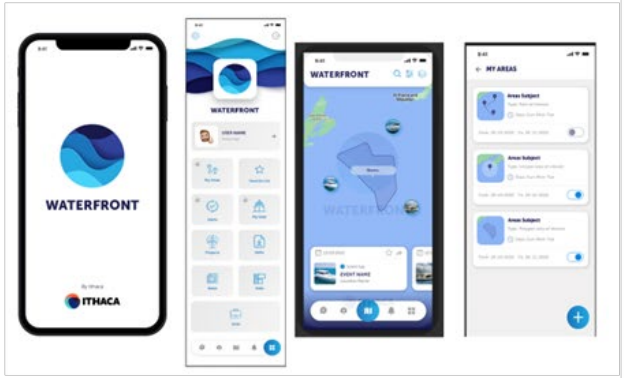
Minimize

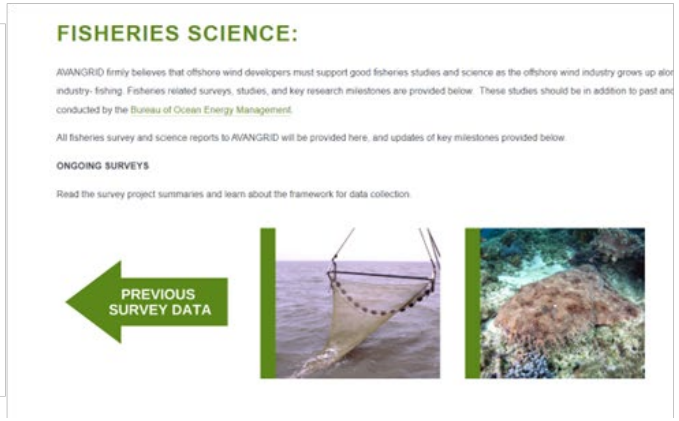
Mitigate

Residual Impact









Economic Impact Methodology

New England Wind Economic Impact Methodology - Massachusetts

Project Phase	Project Area	Assumptions/Effects	Duration
Construction	Lease Area	All (100%) commercial and for-hire charter landings lost	2 years
	OECC	All (100%) commercial landings lost from 3.14 km^2 safety buffer around cable installation activities	2 years
O&M	Lease Area	Draft BOEM guidance: • Yr 1: all (100%) commercial landings lost • Yr 2: 80% of commercial landings lost • Yr 3: 70% of commercial landings lost • Yr 4: 60% of commercial landings lost • Yr 5: 50% of commercial landings lost Plus: • Yrs 6-30: 5% of commercial landings lost	30 years
	OECC	None	n/a
Decommissioning	Lease Area	All (100%) commercial and for-hire charter landings lost	2 years
	OECC	All (100%) commercial landings lost from 3.14 km^2 safety buffer around cable decommissioning activities	2 years

Discussion and Q&A

Contact Us

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Avangrid
A member of the
Iberdrola Group

New England Wind
(Lease Area OCS-A 0534)
MA Fisheries Mitigation Proposal

September 8, 2023

New England Wind
AVANGRID

New England Wind Economic Exposure Methodology
Massachusetts

NE Wind Economic Exposure Analysis Assumptions			
Project Phase	**Area**	**Assumptions/Effects**	**Duration of Economic Exposure**
Construction	Lease Area	All (100%) commercial and for-hire charter revenue lost	3 years
	OECC	All (100%) commercial revenue lost from 3.14 km^2 fishing preclusion area around cable installation activities	2 years
O&M	Lease Area	Draft BOEM guidance 1-5 years (100-50% reduction in revenue)	5 years
		Commercial fisheries revenue reduced by 5%	25 years
	OECC	None	n/a
Decommissioning	Lease Area	All (100%) commercial and for-hire charter revenue lost	3 years
	OECC	All (100%) commercial revenue lost from 3.14 km^2 fishing preclusion area around cable installation activities	2 years

New England Wind Economic Exposure/Impact Results
Massachusetts

NE Wind Fisheries Economic Exposure Analysis Assumptions		
Project Phase	**Project Area**	**Massachusetts Fisheries Revenue**
Construction	Lease Area	$819,935
	OECC	$8,177
O&M	Lease Area	$967,595
	OECC	$0
Decommissioning	Lease Area	$163,882
	OECC	$1,634
Commercial Fisheries Economic Exposure		$1,961,223
For-hire Recreational Fisheries Economic Exposure		$379,546
Total Massachusetts Fisheries Economic Exposure		$2,340,769

Notes:

Dollar values are fixed in 2023 dollars (GDP Implicit Price Deflator values were applied up to April 1, 2023).

Present value over 36 years; discounted using 5% discount rate.

Massachusetts fisheries revenue includes the potential use of one cable installed in the Phase 2 OECC Western Muskeget Variant or one cable installed in the Phase 2 OECC South Coast Variant.

Economic Impacts with Multipliers for Commercial and For-Hire Fisheries

Fisheries	Massachusetts Fisheries Economic Impacts with
Commercial Fisheries	$5,216,854
For-Hire Fisheries	$617,521
Total Fisheries	$5,834,374

Notes:

The multiplier for MA commercial fisheries is 2.66, which includes a upstream multiplier of 1.83 and a downstream multiplier of 0.83 (Fisheries Economics of the US 2020 Report); the multiplier for MA-based for-hire recreational fisheries is 1.627 (Lovell et al. 2020).

Dollar values are fixed in 2023 dollars (GDP Implicit Price Deflator values were applied up to April 1, 2023).

Present value over 36 years; discounted using 5% discount rate.

MA Fisheries Mitigation Package

- Direct Compensation: $5,834,374 (net present value)
  - Disbursement of funds will be tied to financial close of each Phase of New England Wind
  - Funds will be paid into either:
    - An escrow account managed by a third-party administrator; or
    - A regional fund (if established and mutually agreed)

- Additional Funding to Support Commercial and For-Hire Charter Fishing Operations: $500,000 (net present value)
  - Purpose to include, but would not be limited to, grants, training programs, research initiatives, or a voucher program for equipment support
  - Disbursement of funds will be tied to financial close of each Phase of New England Wind
  - Funds to be paid to state or directly to entities or accounts established to hold and distribute such funds

Total Mitigation: $6,334,374

Avangrid A member of the Iberdrola Group

New England Wind

Lease Area OCS -A 0534 Commercial and For -Hire Fisheries Assessment and Proposed Mitigation

September 2023

Agenda

01 Introductions & Project Overview

02 Assessment & Economic Exposure of Commercial Fisheries

03 Assessment & Economic Exposure of For-Hire Recreational Fisheries

04 Economic Impact Methodology and Proposed Mitigation

05 Discussion and Q&A

Project Overview

Proposed Project Overview

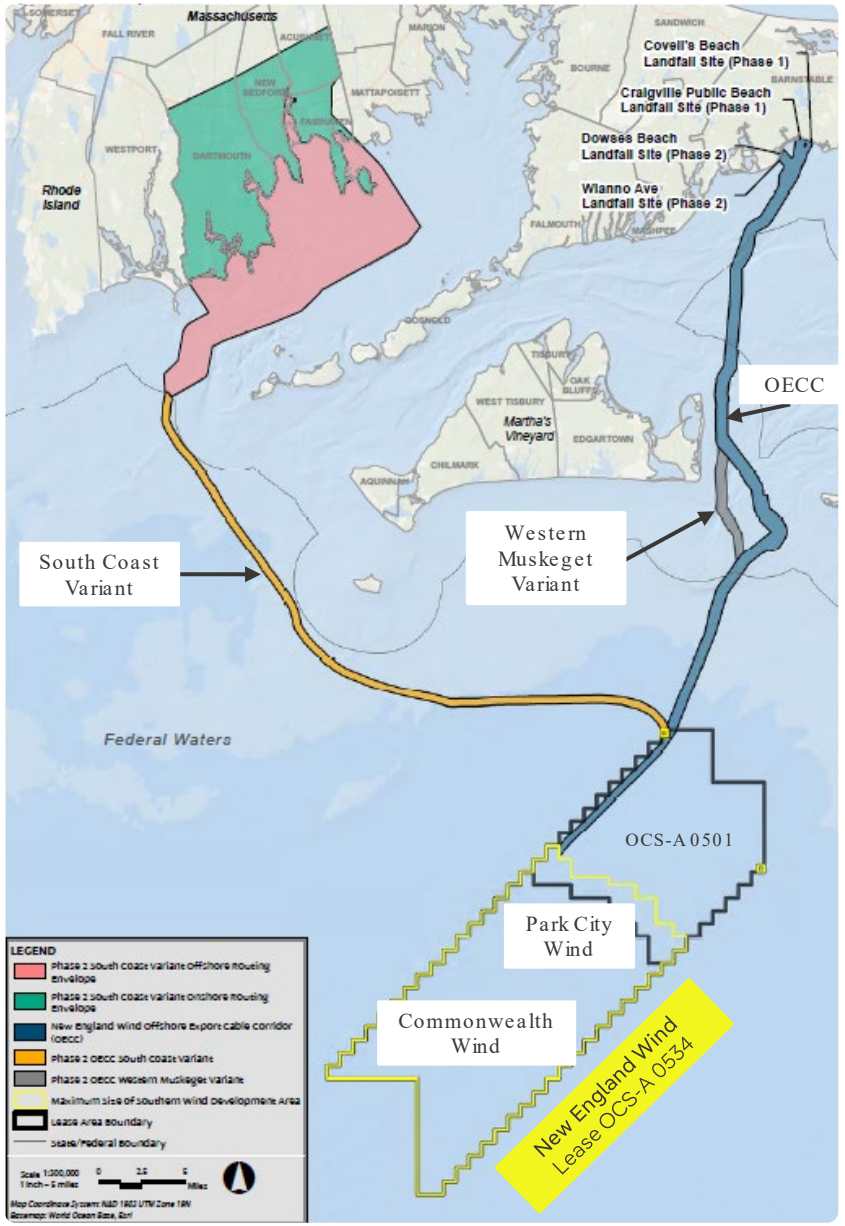
New England Wind includes offshore renewable wind energy facilities in Lease Area OCS-A 0534, along with associated offshore and onshore cabling and onshore substations

Two phases with a total maximum of 130 wind turbine generator (WTG) and electrical service platform (ESP) positions in the Lease Area

- **Phase 1** includes Park City Wind
- **Phase 2** includes Commonwealth Wind

Five offshore export cables within the Offshore Export Cable Corridor (OECC)

- Phase 2 includes two OECC variants



Assessment & Economic Exposure of Commercial Fisheries

Commercial and For -Hire Fisheries Assessment Overview

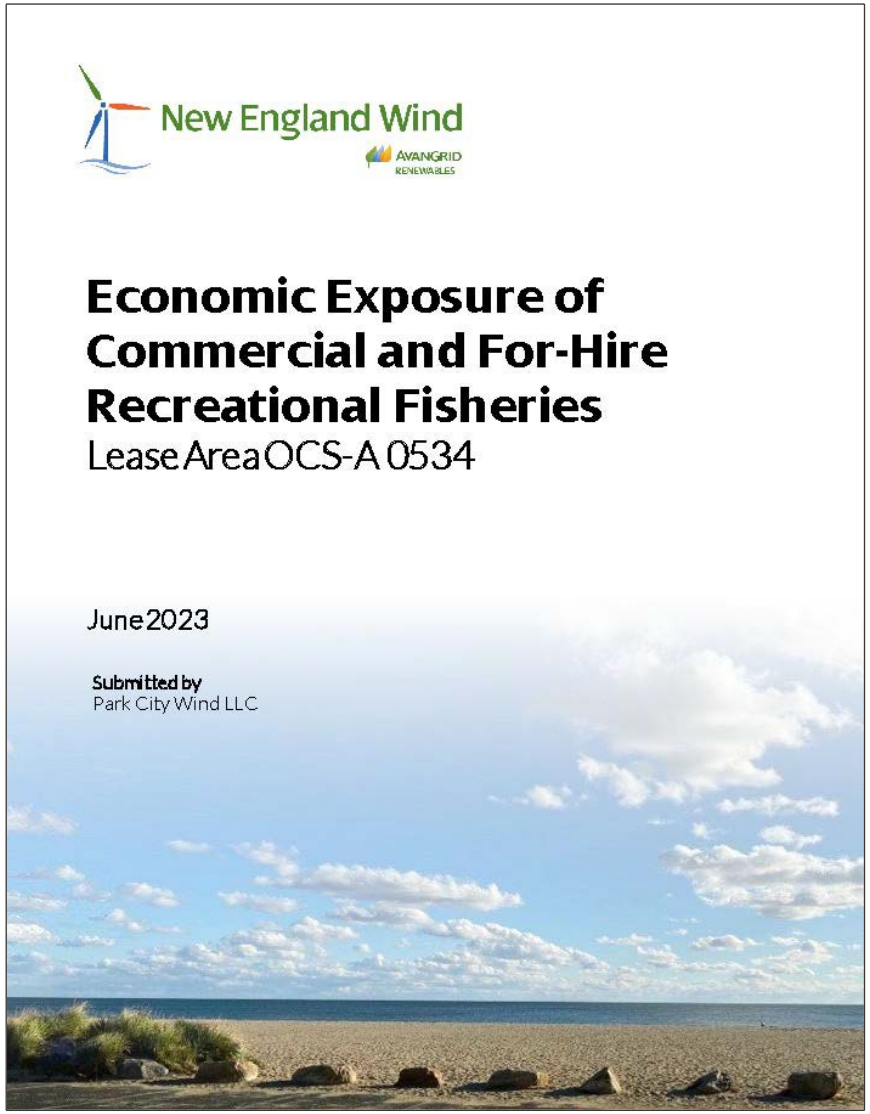
Data sources:

- NMFS Socioeconomic Impacts of Atlantic Offshore Wind Development database (2008-2021landings and revenue data)
- WHOI's 2022 charter captain survey for Revolution Wind

Economic Exposure of Commercial and For -Hire Recreational Fisheries to the New England Offshore Wind Energy Development (Appendix III-N of COP)

Sources of potential fishery-related economic exposure include:

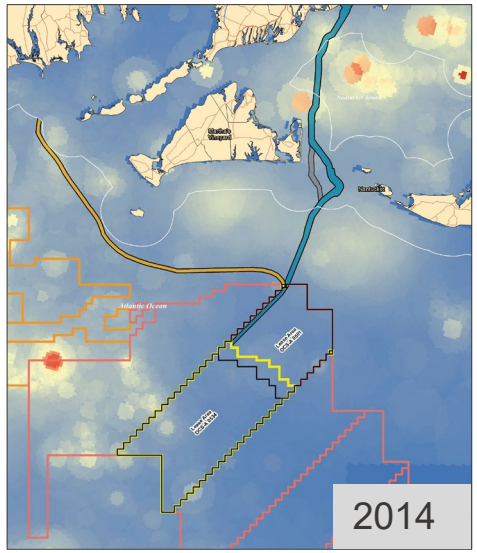
- Construction, operation, and decommissioning of WTGs and ESPs in the Lease Area
- Installation, use, and decommissioning of offshore export cables within the OECC

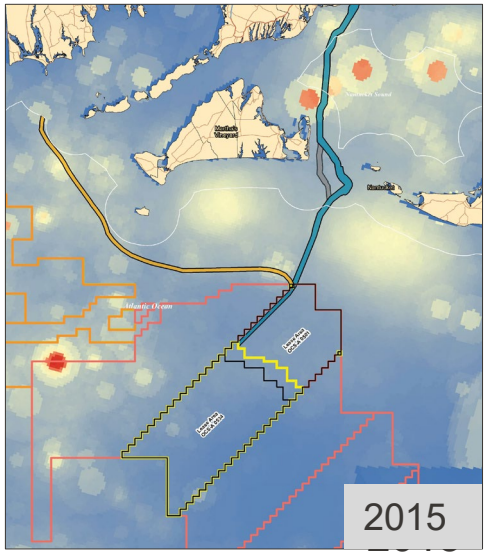


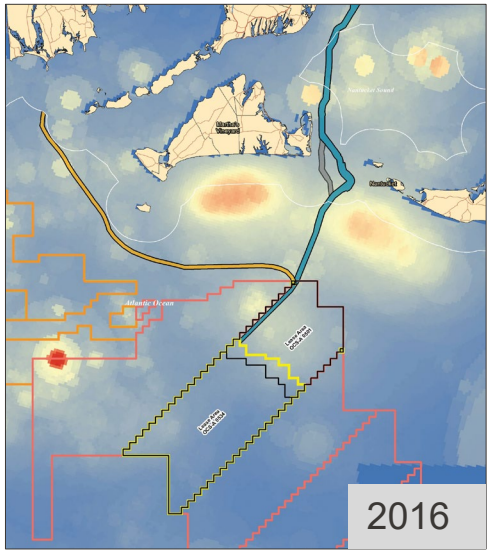
Fishing Revenue Density

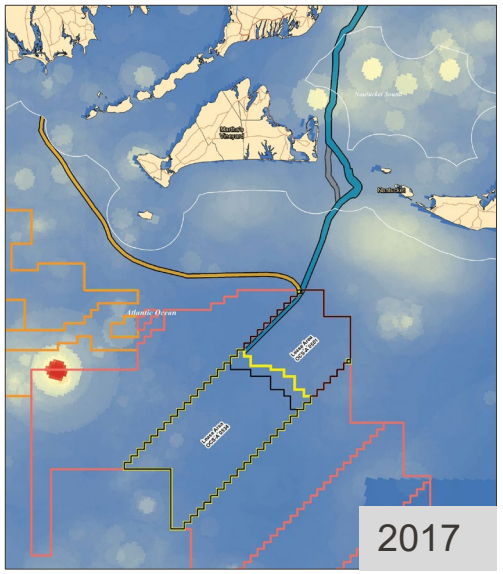
MA/RI Lease Areas	Annual Average Revenue per km^2 (2008 -2021; 2021$)
Lowest Value	$534
New England Wind	$1,301
Average Value	$2,123
Highest Value	$4,700

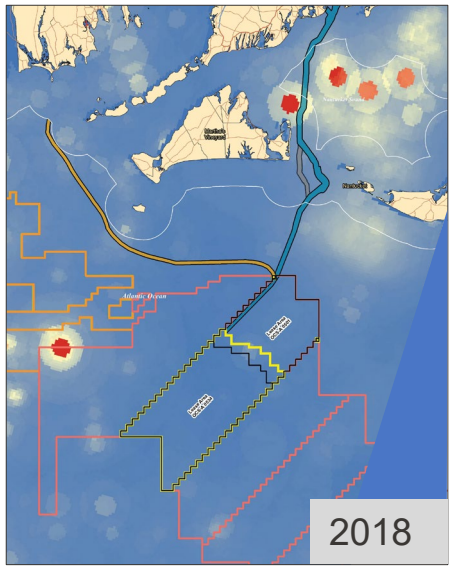
New England Wind	Baseline Annual Average Landing (2008 -2021; pounds)	Baseline Annual Average Revenue (2008 -2021; 2021$)
Lease Area	530,444	$534,602
OECC	133,394	$209,331

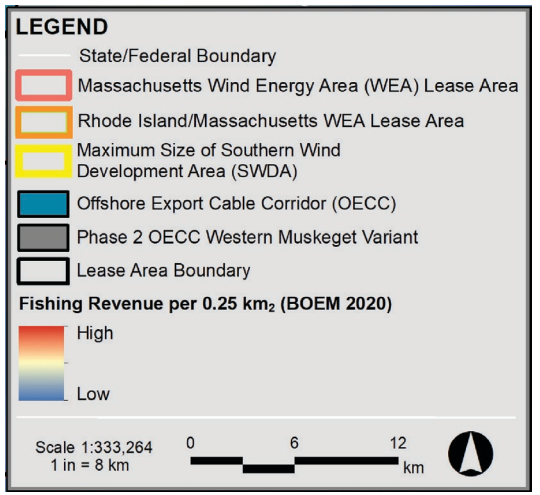












Baseline Commercial Fisheries Revenue in the Lease Area

Unadjusted for Lobster and Jonah Crab (2008 -2021; 2021$)

Total Fishing Revenues (2008 -2021)	Annual Average Revenues	Annual Average Fishing Revenues per km^2
$7,484,427	$534,602	$1,301

Adjusted for Lobster and Jonah Crab

Total Fishing Revenues (2008 -2021)	Annual Average Revenues	Annual Average Fishing Revenues per km^2
$8,720,081	$622,863	$1,515

Estimates of Commercial Fisheries Revenue in the Lease Area by State (2008 -2021) Adjusted for Lobster and Jonah Crab

Most valuable species landed in the Lease Area include:

- Squid
- Silver hake
- Monkfish
- Jonah crab
- Skates

Most common gear types:

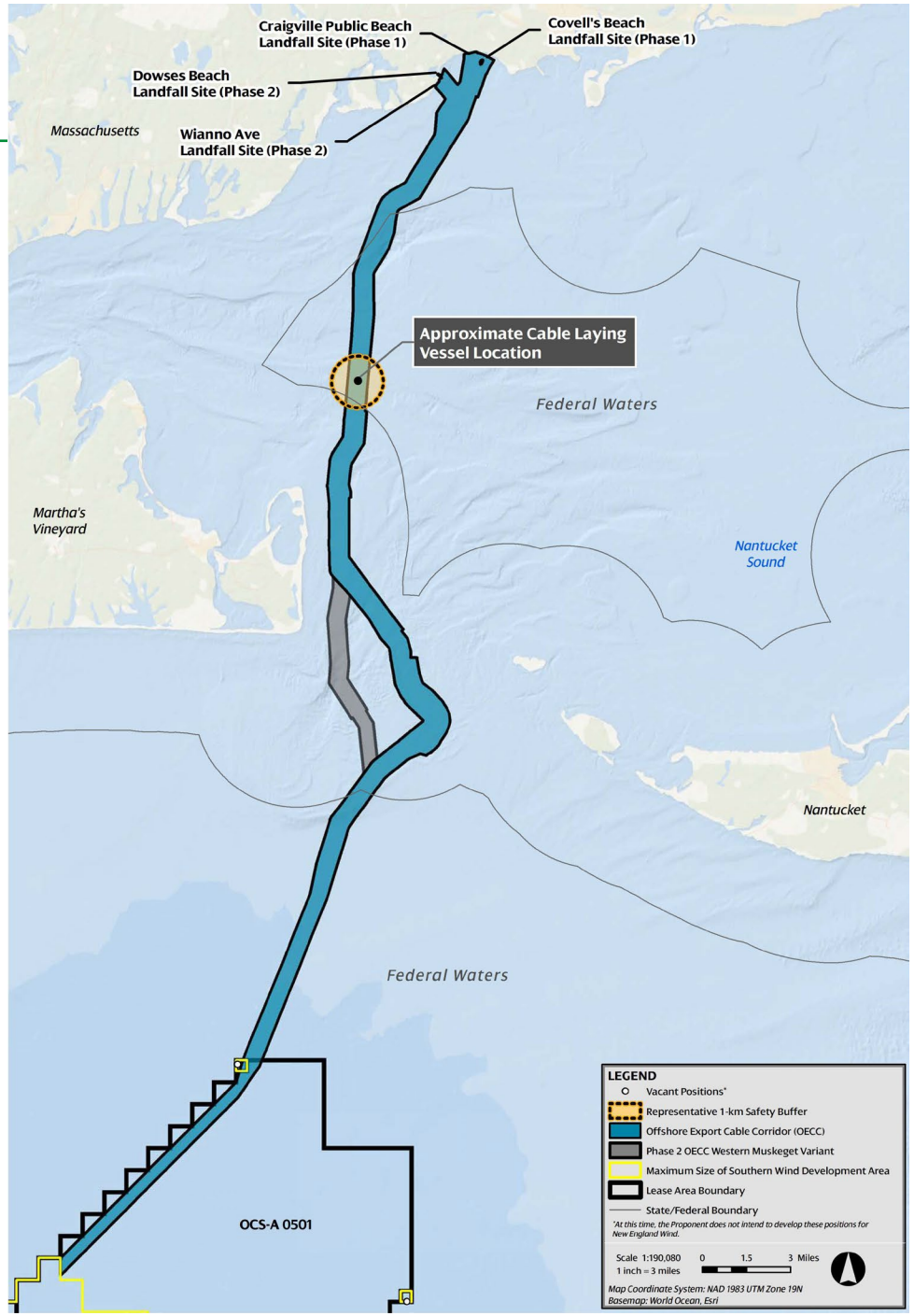
- Bottom trawls
- Lobster pots
- Gillnets (sink)

State	Average Annual Value (2021$)	Percentage of Annual Average Lease Area Value
Massachusetts	$274,557	44%
Rhode Island	$262,510	42%
New York	$39,784	6%
Connecticut	$19,941	3%
Virginia	$10,350	2%
North Carolina	$9,814	2%
New Jersey	$5,356	1%
All Others	$550	0.1%

Estimates of Commercial Fisheries Economic Exposure in OECC

Economic exposure estimate:

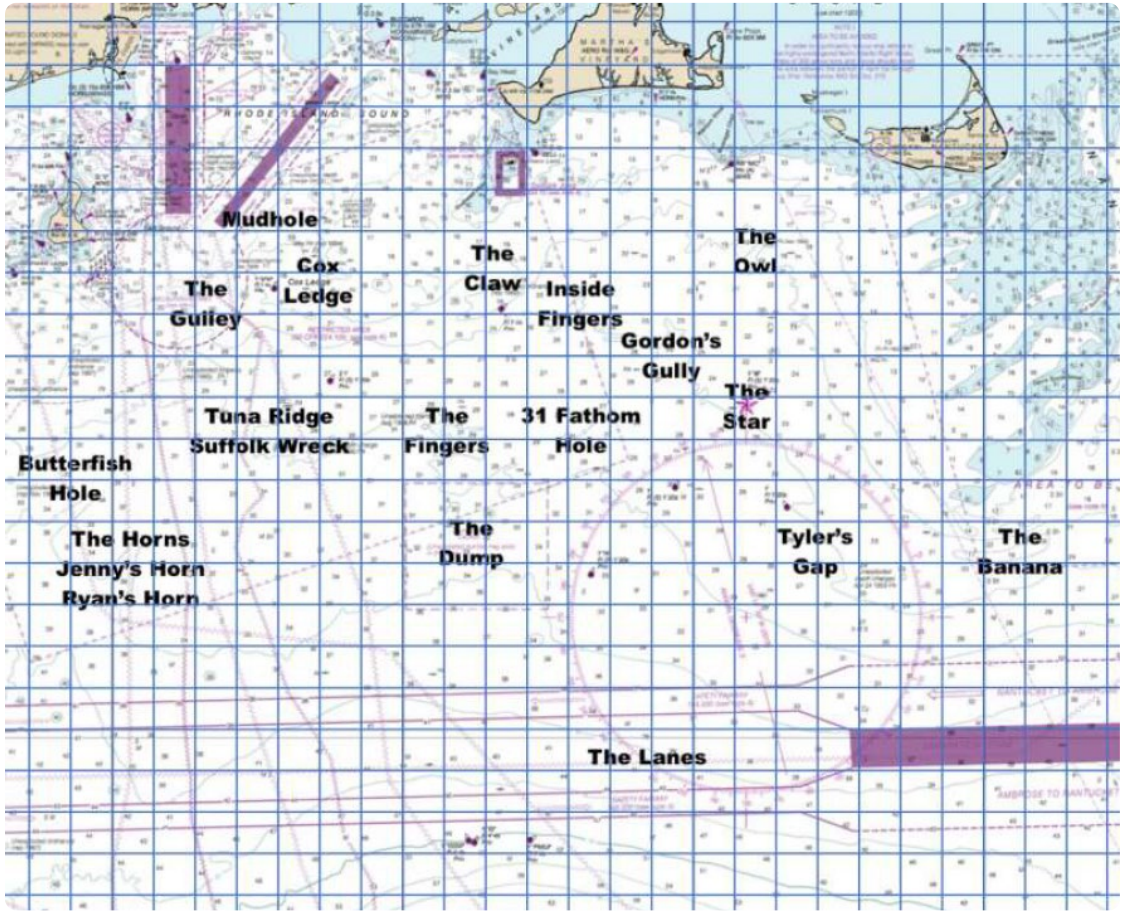
- Annual average fishing revenue per km^2 in OECC = $2,505
- Fishing preclusion area of 1km around cable installation activities results in fishing preclusion area of 3.14 km^2
- Total duration of cable installation activities for 5 cables (during both phases) = 1.875 years
- Expected economic exposure during cable installation = $2,505 x 3.14 km^2 x 1.875 years = **$14,748**
- Similar estimate of economic exposure for the Phase 2 OECC Western Muskeget Variant
- South Coast Variant: expected economic exposure during cable installation = $2,559 x 3.14 km^2 x 0.375 year = **$3,013**



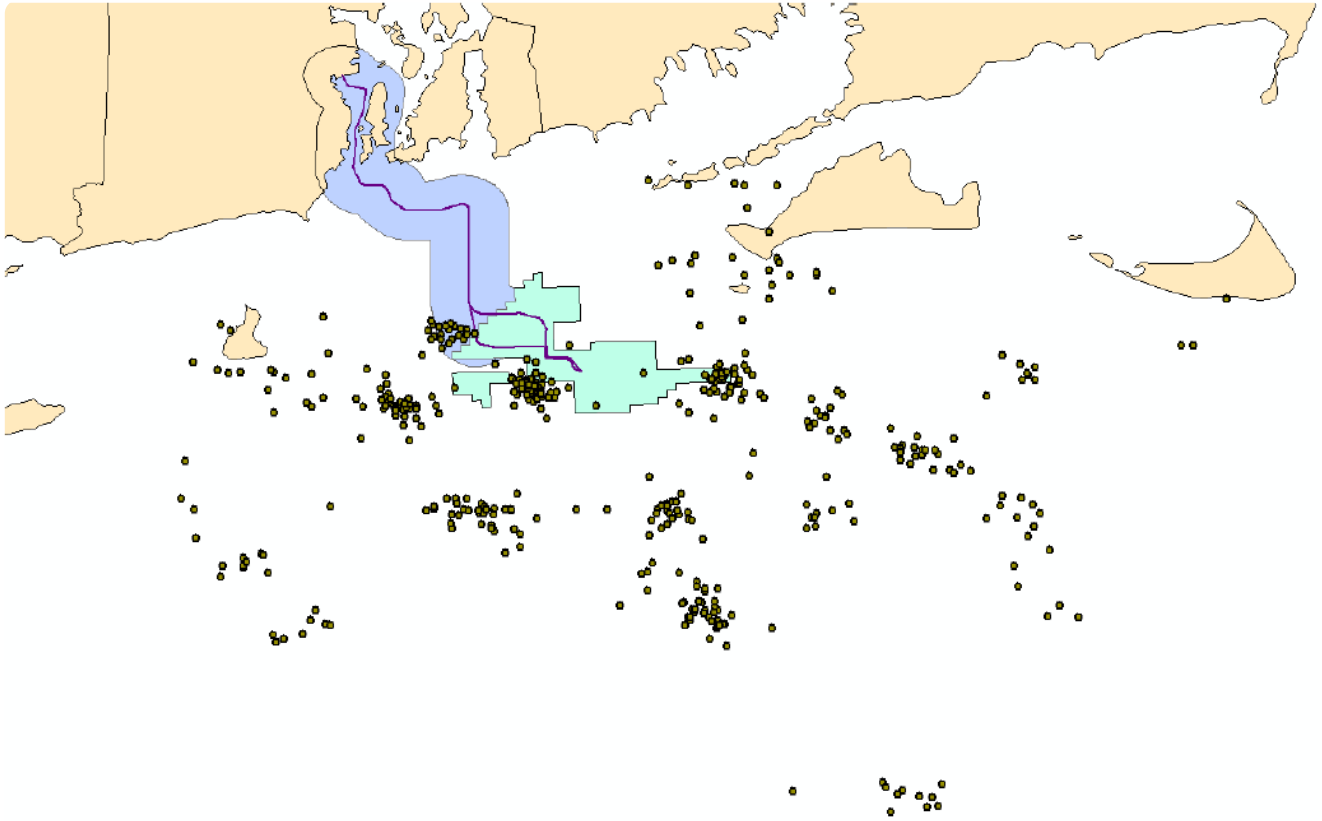
Assessment & Economic Exposure of For -Hire Recreational Fisheries

For-Hire Recreational Fisheries Assessment Approach

WHOI 2022 survey of MA - and RI-based charter vessel operators conducted for the for-hire fisheries assessment for Revolution Wind



WHOI 2022 MA- and RI-based charter captain survey – survey area

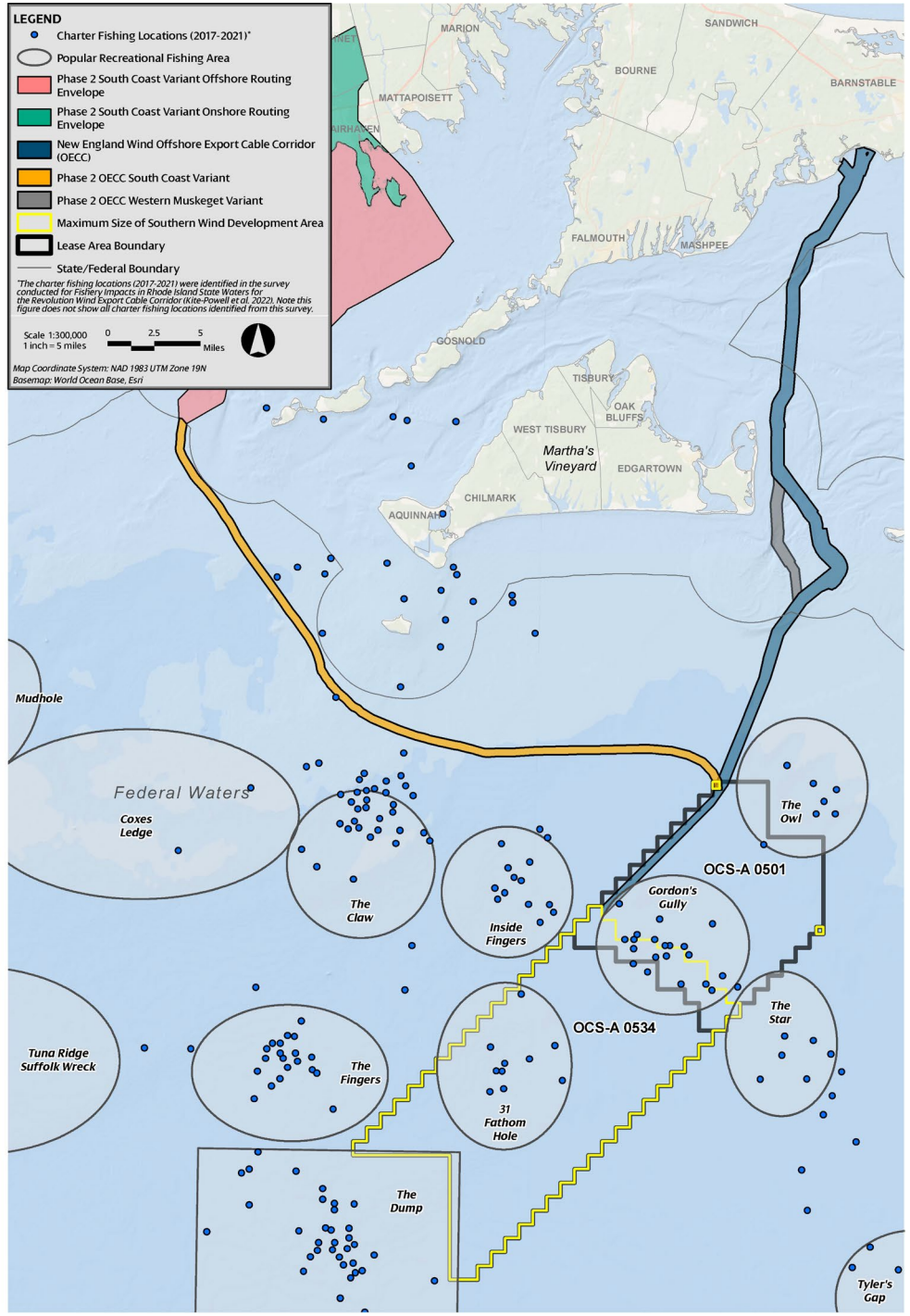


Charter fishing locations (2017 -2021) identified in WHOI survey responses

For-Hire Recreational Fisheries Assessment Approach

Economic exposure estimate for MA for -hire fisheries based on an extrapolation of data from 2023 WHOI report:

- Percent of charter fishing locations from 2022 WHOI survey in Lease Area = 3.7%
- Annual economic exposure of MA-based for-hire fishing vessels in the Lease Area = $105,729
- Economic impacts are expected to be significantly less than economic exposure



Economic Impact Methodology and Proposed Mitigation

New England Wind Economic Impact Methodology

Project Phase	Project Area	Assumptions/Effects	Duration
Construction	Lease Area	All (100%) commercial and for-hire charter revenue lost	3 years
	OECC	All (100%) commercial revenue lost from 3.14 km^2 fishing preclusion area around cable installation activities	2 years
O&M	Lease Area	Draft BOEM guidance: • Yr 1: all (100%) commercial revenue lost • Yr 2: 80% of commercial revenue lost • Yr 3: 70% of commercial revenue lost • Yr 4: 60% of commercial revenue lost • Yr 5: 50% of commercial revenue lost Plus: • Yrs 6-30: 5% of commercial revenue lost	30 years
	OECC	None	n/a
Decommissioning	Lease Area	All (100%) commercial and for-hire charter revenue lost	3 years
	OECC	All (100%) commercial revenue lost from 3.14 km^2 fishing preclusion area around cable decommissioning activities	2 years

New England Wind Economic Exposure – Massachusetts

Project Phase	Project Area	Impacted Massachusetts Fishing Revenues
Construction	Lease Area	$819,935
	OECC	$8,177
O&M	Lease Area	$967,595
	OECC	$0
Decommissioning	Lease Area	$163,882
	OECC	$1,634
Commercial Fisheries Economic Exposure		$1,961,223
For-hire Recreational Fisheries Economic Exposure		$379,546
Total Massachusetts Fisheries Economic Exposure		$2,340,769

Notes:

Dollar values are fixed in 2023 dollars (GDP Implicit Price Deflator values were applied up to July 1, 2023).

Present value of estimated annual revenue losses over 36 years is discounted using a 5% discount rate.

Massachusetts fisheries revenue in the OECC includes the potential of one export cable being installed in the Phase 2 OECC Western Muskeget Variant or one export cable installed in the Phase 2 OECC South Coast Variant.

New England Wind Economic Impact – Massachusetts

Fishery	Massachusetts Fisheries Economic Impacts Including Multipliers
Commercial Fisheries	$5,216,854
For-hire Recreational	$617,521
Total	$5,834,374

Notes:

The multiplier for MA commercial fisheries is 2.66, which includes an upstream multiplier of 1.83 and a downstream multiplier of 0.83 (NMFS Fisheries Economics of the US 2020 Report); the multiplier for MA-based for-hire recreational fisheries is 1.627 (Lovell et al. 2020).

Dollar values are fixed in 2023 dollars (GDP Implicit Price Deflator values were applied up to July 1, 2023).

Present value of estimated annual revenue losses over 36 years is discounted using a 5% discount rate.

Proposed Fisheries Mitigation Package - Massachusetts

Direct Compensation: $5,834,374 (net present value)

- Disbursement of funds will be tied to financial close of each Phase of New England Wind
- Funds will be paid into either:
  - An escrow account managed by a third-party administrator; or
  - A regional fund (if established and mutually agreed)

Additional Funding to Support Commercial and For-Hire Charter Fishing Operations: $500,000 (net present value)

- Purpose to include, but would not be limited to, grants, training programs, research initiatives, or a navigational/safety equipment support program
- Disbursement of funds will be tied to financial close of each Phase of New England Wind
- Funds to be paid to state or directly to entities or accounts established to hold and distribute such funds

Total Mitigation: $6,334,374

Discussion and Q&A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Economic Exposure of Commercial Fisheries - South Coast Variant

Lease Area OCS-A0534

May 2023

Submitted by
Park City Wind LLC

Economic Exposure of Commercial Fisheries to the New England Wind Phase 2 Offshore Export Cable Corridor South Coast Variant

Prepared for:

Park City Wind LLC

Prepared by:

Dennis M. King, Ph.D.
KING AND ASSOCIATES, LLC
24 Trillium Rise
Plymouth, MA 02360

May 2023

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1.0 INTRODUCTION

New England Wind is the proposed offshore renewable wind energy development in Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 (Lease Area) along with associated offshore and onshore cabling, onshore substations, and onshore operations and maintenance (O&M) facilities. New England Wind will be developed in two Phases with a maximum of 130 wind turbine generator (WTG) and electrical service platform (ESP) positions. Five offshore export cables (two for Phase 1 and three for Phase 2) will transmit electricity generated by the WTGs to onshore transmission systems (see Figure 1).[1] Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is the Proponent and will be responsible for the construction, operation, and decommissioning of New England Wind.

The Proponent has identified an Offshore Export Cable Corridor (OECC) for the installation of the offshore export cables (see Figure 1). The OECC travels north from Lease Area OCS-A 0534 along the eastern side of Muskeget Channel towards landfall sites in the Town of Barnstable, Massachusetts. The expected grid interconnection point for both Phases of New England Wind is the West Barnstable Substation. While the Proponent intends to install all Phase 2 offshore export cables within this OECC, the Proponent has identified two variations of the OECC that may be employed for Phase 2: the Western Muskeget Variant, which differs from the OECC only in that it passes along the western side rather than the eastern side of Muskeget Channel, and the South Coast Variant, which follows a different route than the OECC and the Western Muskeget Variant and connects to a potential second grid interconnection point along the southwest coast of Massachusetts (see Figure 1). These variations are necessary to provide the Proponent with commercial flexibility should technical, logistical, grid interconnection, or other unforeseen issues arise during the Construction and Operations Plan (COP) review and engineering processes.

The Proponent has submitted a draft New England Wind COP that describes the OECC and both potential Phase 2 OECC variants, and includes an appendix that provides data, analysis, and estimates of the economic exposure of commercial fisheries to the Lease Area, the OECC, and the Western Muskeget Variant. The purpose of this report is to provide similar estimates of the economic exposure of commercial fisheries to the South Coast Variant. The commercial fisheries economic exposure analysis presented in this report incorporates by reference the results of some general analyses of cable corridor impacts on commercial fishing that were presented in Appendix III-N Economic Exposure of Commercial Fisheries to the New England Wind Offshore Wind Energy Development (Appendix III-N) of COP Volume III and is focused on describing effects that are unique to the South Coast Variant. Accordingly, descriptions of effects that are associated with the OECC or its variants more generally and that are not specific to the South Coast Variant are not repeated in this report.

[1] While the COP allows for four or five offshore export cables in the OECC, based on current capacity for New England Wind, five cables would be required.

The report focuses only on economic exposure of commercial fishing to the South Coast Variant in federal waters. If it becomes necessary to employ the South Coast Variant and a second grid interconnection point is secured, the Proponent understands that BOEM would conduct a supplemental review of those portions of the South Coast Variant not otherwise considered in the final environmental impact statement.

1.1 Overview of the Phase 2 OECC South Coast Variant

As shown in Figure 1, the South Coast Variant diverges from the OECC at the northern boundary of Lease Area OCS-A 0501 and travels west-northwest to the Massachusetts state waters boundary near Buzzards Bay. From the Southern Wind Development Area (SWDA)[2] boundary (excluding the two separate aliquots that are closer to shore) through federal waters to the Massachusetts state waters boundary, the South Coast Variant is approximately 79 kilometers (km) (42 nautical miles [NM]) in length and approximately 720 meters (m) (2,360 feet [ft]) in width. To allow additional cable length for turns and micro-siting of the cable within the corridor, the maximum length of each cable within this variation of the OECC (from the SWDA boundary to the state waters boundary) is estimated to be 84 km (~45 NM).[3] At the state waters boundary, the South Coast Variant broadens to a "Phase 2 South Coast Variant Offshore Routing Envelope" that designates a region within Buzzards Bay where the Phase 2 offshore export cable(s) may be installed before making landfall along the southwest coast of Massachusetts within the Offshore Routing Envelope.

The South Coast Variant is included in the COP to provide the Proponent with an alternative if unforeseen circumstances preclude one or more Phase 2 export cables from using either the OECC or the Western Muskeget Variant to interconnect at the West Barnstable Substation. If the South Coast Variant is used for Phase 2, there will be either: (1) one export cable installed in the South Coast Variant and two export cables installed in the OECC, (2) two export cables installed in the South Coast Variant and one export cable installed in the OECC, or (3) three export cables installed in the South Coast Variant. However, installing two or three cables in the South Coast Variant is extremely unlikely.[4]

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[2] New England Wind will occupy all of Lease Area OCS-A 0534 and potentially a portion of Lease Area OCS-A 0501 in the event that Vineyard Wind 1 does not develop "spare" or extra positions included in Lease Area OCS-A 0501 and Vineyard Wind 1 assigns those positions to Lease Area OCS-A 0534. For the purposes of the COP, the SWDA is defined as all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, as shown in Figure 1.

[3] The offshore export cable length includes a 15% allowance for micro-siting within Lease Areas OCS-A 0534 and OCS-A 0501 and a 5% allowance for micro-siting within the OECC and South Coast Variant outside the lease areas.

[4] Interconnection to the South Coast is currently limited to 400 megawatts (which would be transmitted by one cable); therefore, installing two or three Phase 2 offshore export cables within the South Coast Variant to a grid interconnection point capable of receiving the electrical capacity of Phase 2 is not feasible within the construction timelines contemplated in this COP. Significant capacity upgrades to the electric grid would need to be made by ISO-NE to receive this Phase 2 capacity. These scenarios are only included as a potential option in the event that Phase 2 is significantly delayed beyond the contemplated construction timelines.

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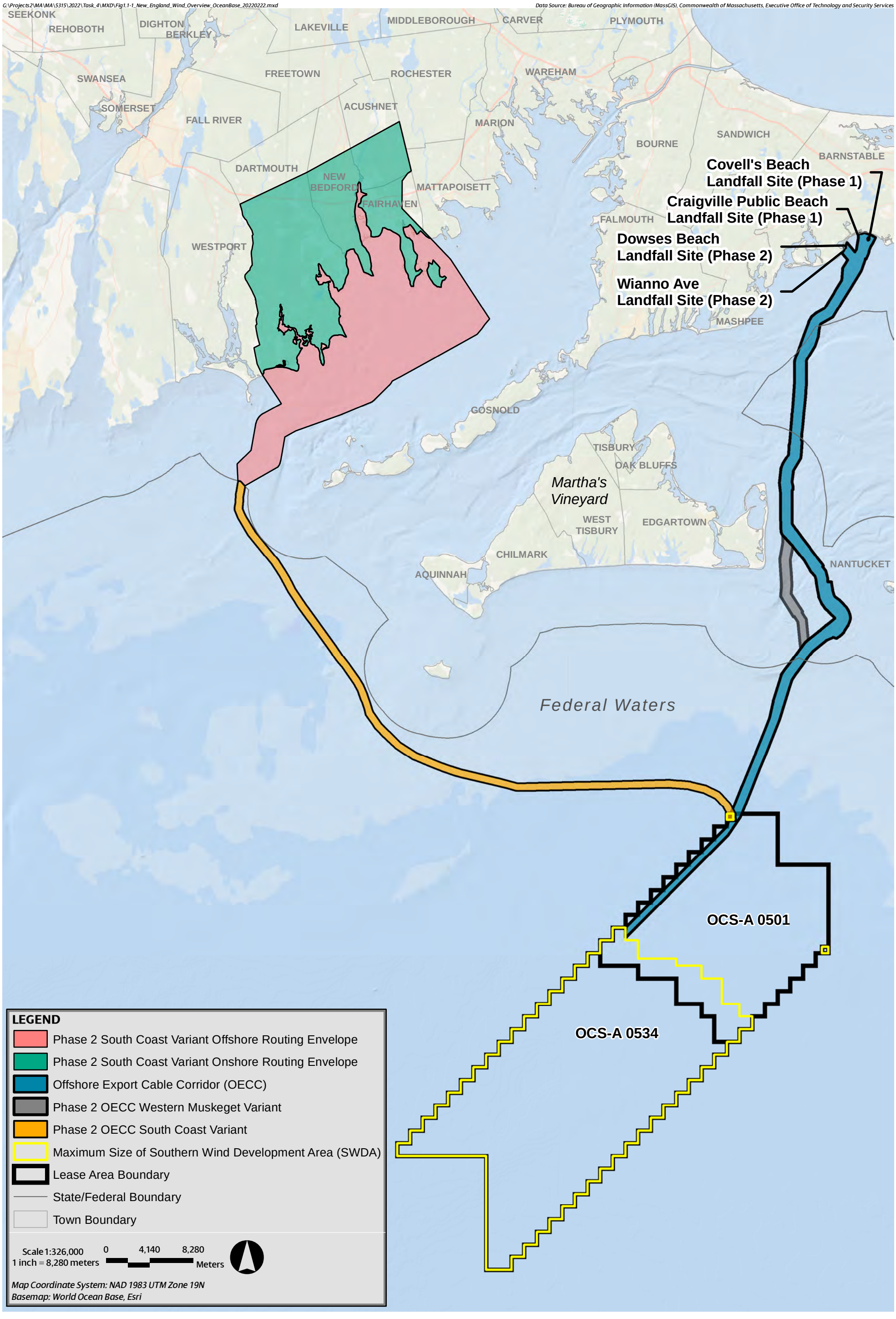
Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



New England Wind

AVANGRID RENEWABLES

Figure 1

New England Wind Overview

1.2 Focus

BOEM states that "*economic exposure* refers to potential economic impacts, not predicted or expected economic impacts" and refers to it as "a starting point to understanding potential *economic impacts* of future offshore wind project development if a harvester opts to no longer fish in the area and cannot recapture that income in a different location" (Kirkpatrick et al. 2017). BOEM emphasizes that "revenue exposure measures should not be interpreted as a measure of economic impact or loss" (BOEM 2021) and that "if alternative fishing grounds are available nearby and may be fished at no additional cost, the *economic impact* will be lower than estimated *economic exposure*" (BOEM 2018).

Following BOEM guidance, estimates of economic exposure developed in this report are based on the assumption that the South Coast Variant will result in the cessation of all fishing activity in areas of active cable installation activity along the South Coast Variant resulting in the loss of all fishing revenues from those areas. Multiple communication methods will be used to share the locations and durations of planned cable installation activities in the South Coast Variant with commercial fishermen. At any given time during construction ongoing cable laying activity will only preclude commercial fishing in a small portion of the cable corridor (approximately 2.5%), leaving the rest of the South Coast Variant and surrounding areas open to commercial fishing (Figure 2). During operations, commercial fishing vessel operators will have the opportunity to continue to operate in the entire South Coast Variant. BOEM guidance indicates that expected economic impacts will be less than economic exposure if fishing vessel operators can adapt and recoup at least some lost revenues by shifting fishing effort from impacted areas to other nearby areas.

Research conducted for this report also addresses two potential indirect sources of fishery-related economic exposure. These are associated with: (1) potential for fishing effort diverted from the South Coast Variant to cause adverse "fishing congestion" impacts in other fishing areas and (2) potential increases in fishing vessel transit times associated with vessels being forced to steam around temporary safety buffers around cable installation activities. As the analyses presented in Section 2.1 and Section 2.2 indicate the small size and short duration of fishing area closures associated with cable installation activities in the South Coast Variant, and the limited amount of fishing effort and fish harvest that could be impacted by these activities, result in potential indirect economic exposure associated with these sources being insignificant and not measurable.

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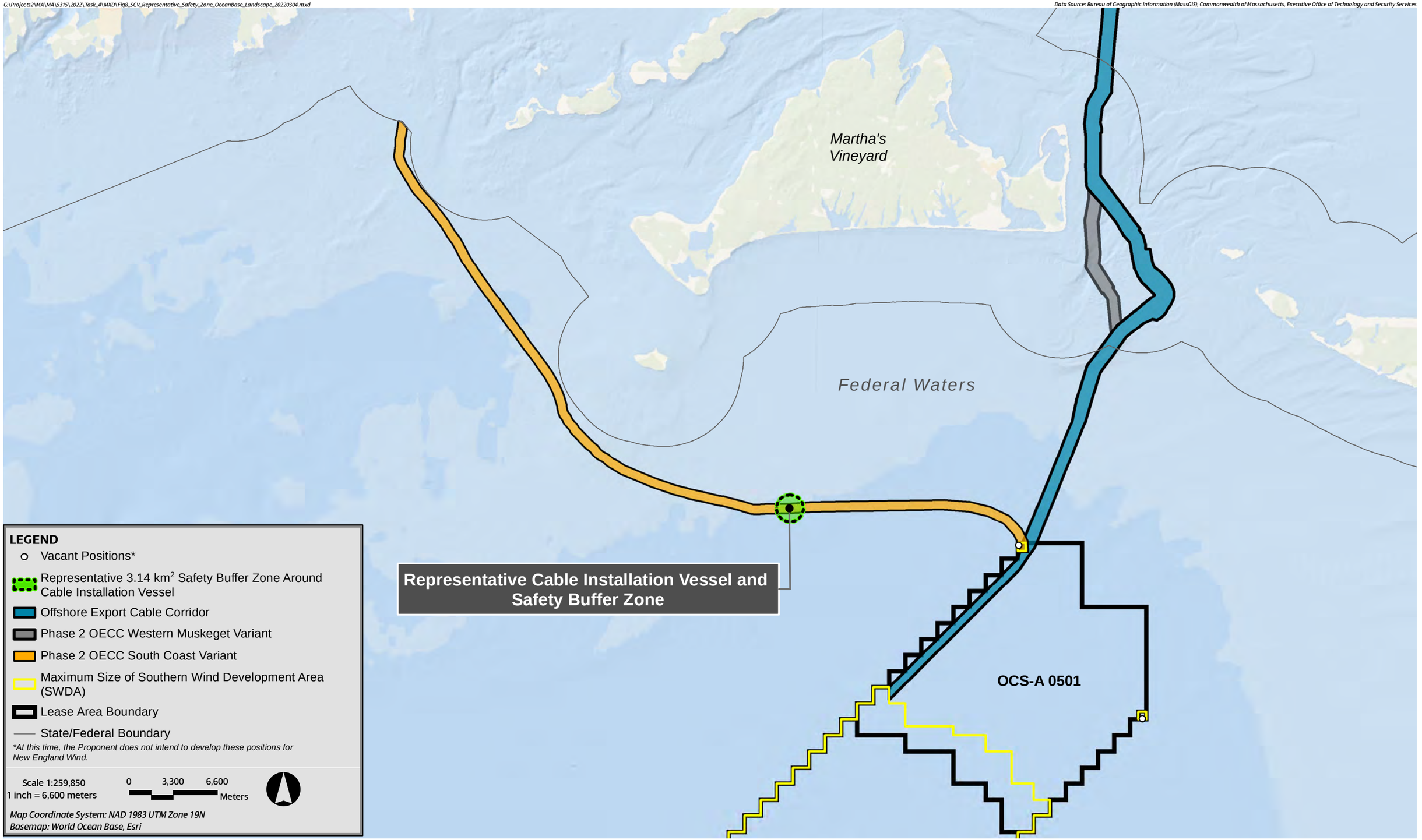
Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



New England Wind

AVANGRID RENEWABLES

Figure 2

Representative Safety Buffer Zone for Cable Installation in the Phase 2 OECC South Coast Variant

1.3 Data Sources

The main sources of fishing revenue data that are available to estimate expected fishing revenues in the South Coast Variant are Vessel Trip Report (VTR) data, vessel monitoring System (VMS) data, commercial landings data, and fishing revenue density (FRD) data. [5] Upon request from the Proponent, NOAA Fisheries provided landing and revenue data (2008–2021) for the South Coast Variant (NOAA Fisheries 2023).

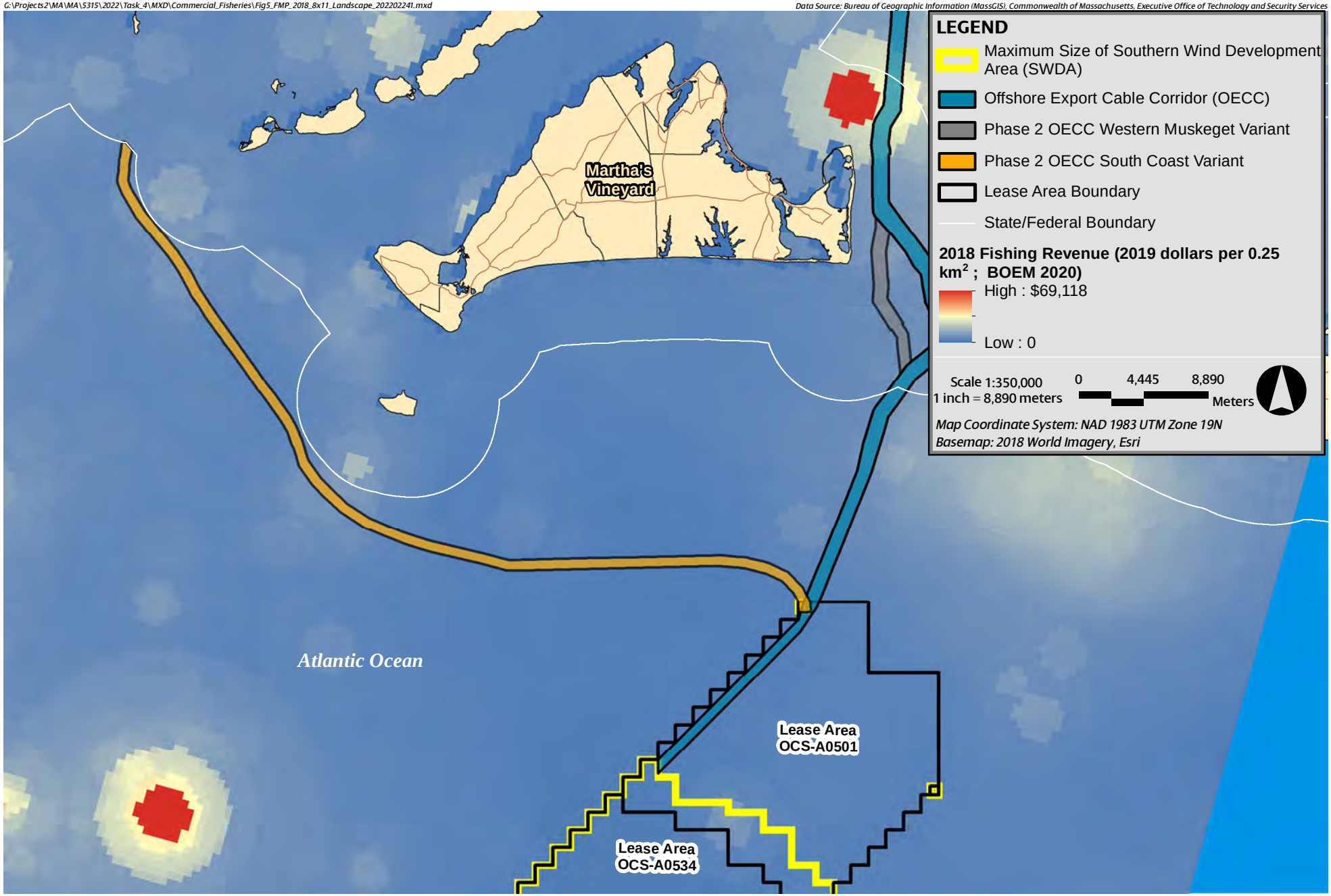
Figures 3 displays annual FRD data in and around the South Coast Variant for 2018, the most recent year FRD data are available, and Figure 4 displays FRD data for the previous four years, 2014-2017 (BOEM 2020). These figures provide two types of useful general indicators: how much fishing revenues might be exposed to impacts from the South Coast Variant; and how much fishing revenues lost in the South Coast Variant might be expected to be recouped as a result of fishing effort shifting from there to adjacent and nearby fishing areas. The figures also provide context for assessing the magnitude of fishing revenue exposure estimates presented in this report by confirming three observations:

- The South Coast Variant is not a high value fishing area.
- The South Coast Variant is surrounded by many equally or higher valued fishing areas.
- Fishing revenues generated within the South Coast Variant are fairly uniformly distributed and relatively consistent from year to year.

In order to use fishing revenue data to estimate the economic exposure of commercial fishing to offshore wind energy development assumptions must be made about thresholds or minimum standards for defining what BOEM refers to as fishing values that "may be impacted" (Kirkpatrick et al. 2017). For the purposes of this report, it is assumed that all fishing revenue in areas of cable installation activity in the South Coast Variant are taking place "may be impacted." After construction it is assumed that fishing revenues associated with harvests by mobile bottom fishing gear in areas where cable protection may be placed on the seafloor "may be impacted."

[5] The fishing revenue data available are described fully in Section 1.3 of Appendix III-N of COP Volume III.

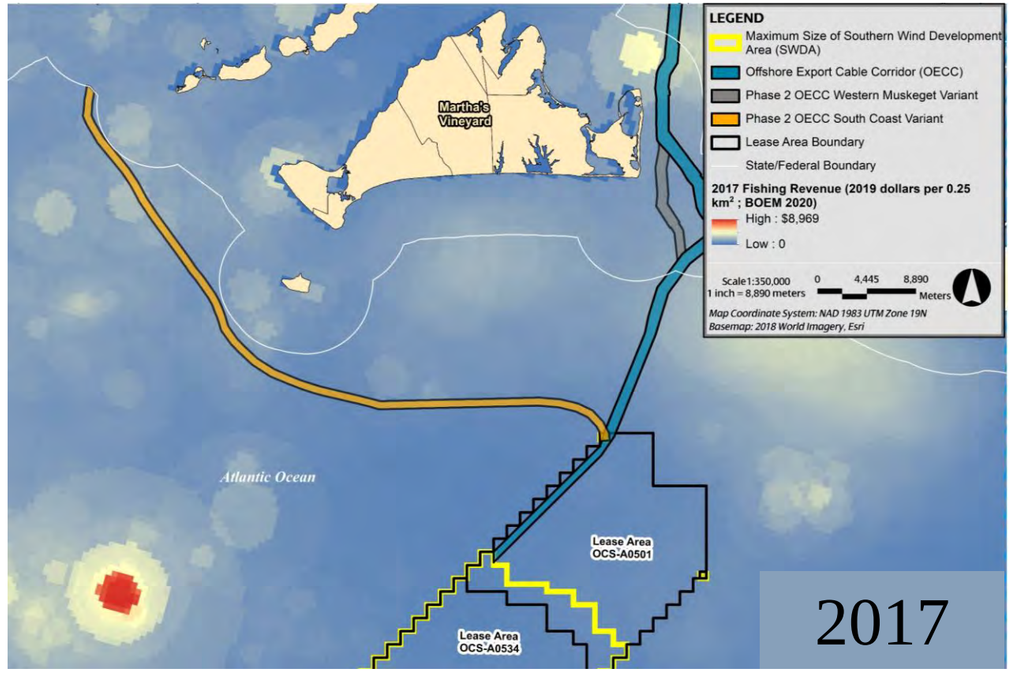
Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

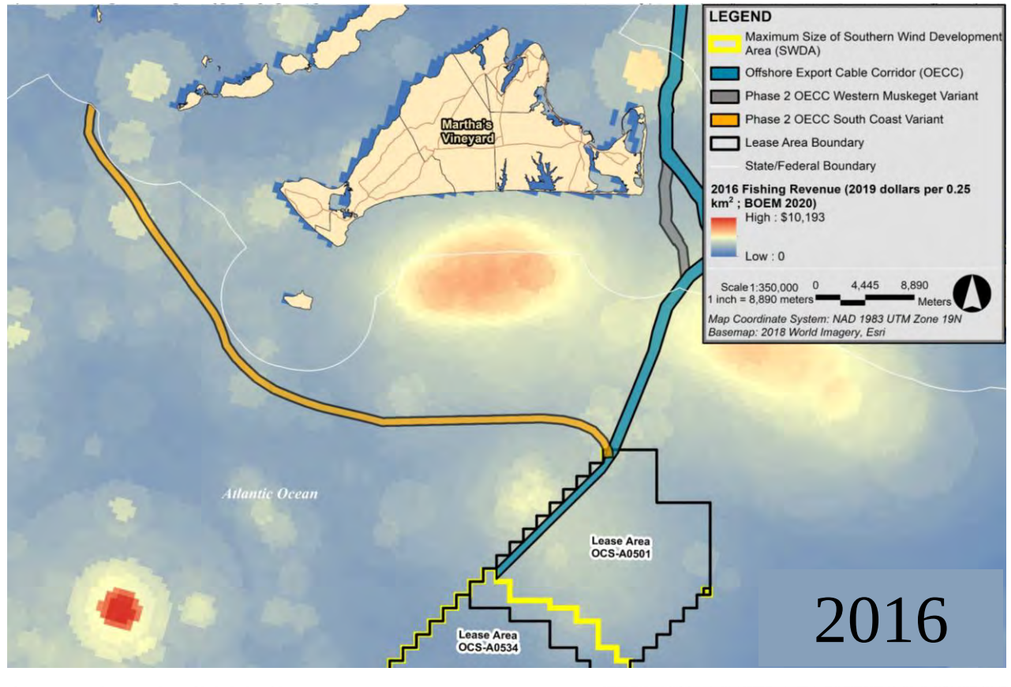


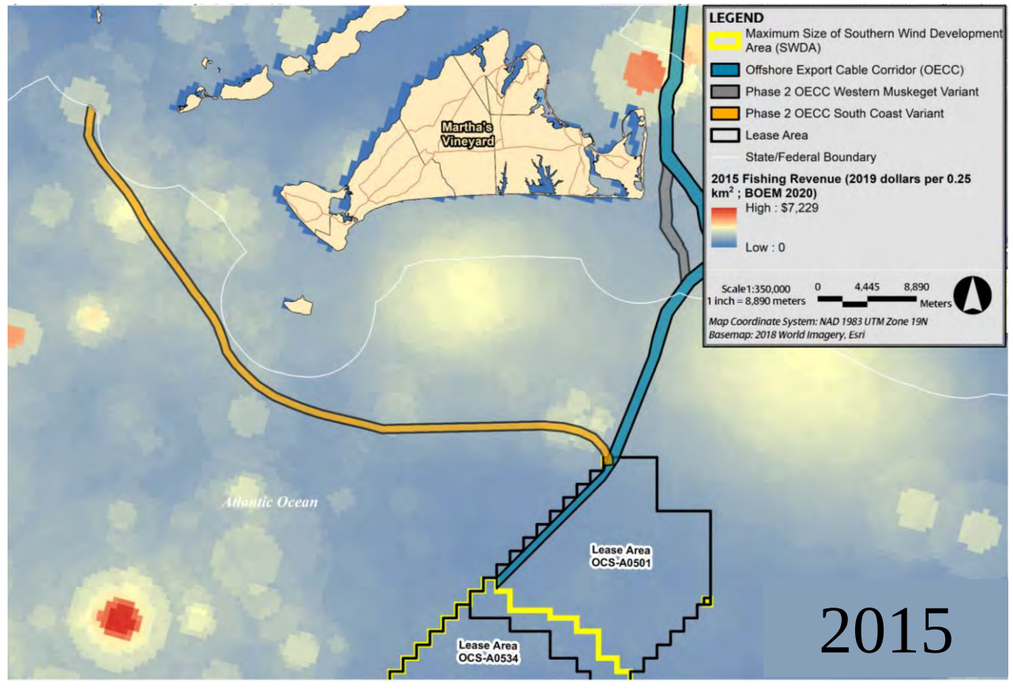
New England Wind
AVANGRID RENEWABLES

Figure 3

Fishing Revenue Density, All Fishery Management Plans, 2018







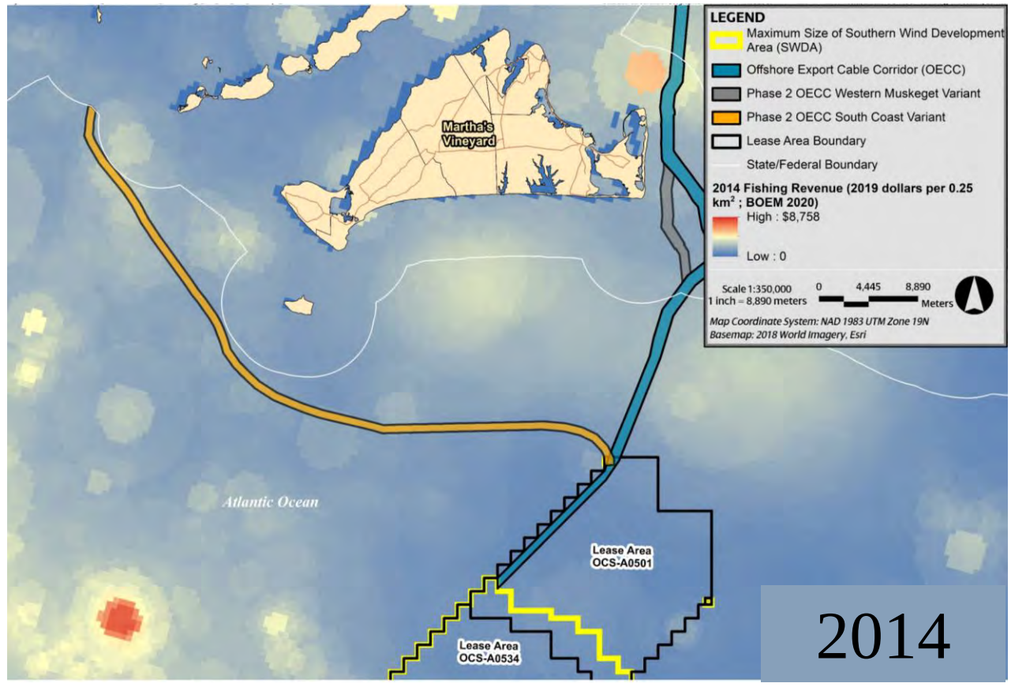


Figure 3
Fishing Revenue Density, All Fishery Management Plans, 2014 - 2017

2.0 ESTIMATE OF ECONOMIC EXPOSURE

2.1 Economic Exposure in the South Coast Variant

2.1.1 Duration of Cable Installation Activity

As described in Section 1.1, one to three cables may be installed within the South Coast Variant, however, installing two or three cables in the South Coast Variant is extremely unlikely.[4] Based on analyses by New England Wind's export cable engineers, typical cable laying speeds in the South Coast Variant are expected to range from 328 ft to 656 ft (100 to 200 meters) per hour and cable laying is expected to occur 24 hours per day. Cable installation will require several "pre-lay activities" such as a survey of the cable alignment, a pre-lay grapnel run of the cable alignment, and boulder relocation, and some "post-lay activities" such as cable splicing and the placement of cable protection. These activities have areas of commercial fishing impact that are similar to those associated with cable laying itself. Based on analyses completed by New England Wind's export cable engineers, it is currently expected that the full potential duration of cable installation impacts on commercial fisheries in the portion of the South Coast Variant in federal waters, including all cable laying and pre-lay and post-lay activities, is approximately 4.5 months per cable for a maximum duration of 13.5 months if three cables are installed.

2.1.2 Area of Cable Installation Activity

Based on U.S. Coast Guard guidance, a safety buffer will be established around where cable installation activities are taking place. While safety buffer zones typically have a radius of 500 m, a radius of 1 km is used for the purposes of this economic analysis to account for the possibility that multiple vessels may be used for cable laying and possible variations in the size of the safety buffer zones. This assumed safety buffer of approximately 1 km around where cable installation activities are taking place results in a 3.14 square kilometers (km^2) area where fishing will be precluded around those areas. (Figure 2). As Figure 2 illustrates, the area of fishing impacts shifts along the South Coast Variant as cable installation activities take place resulting in fishing impacts at any particular time only along 2 km, or approximately 2.5%, of the South Coast Variant. At any given time during cable installation, therefore, approximately 97.5% of the South Coast Variant, where cable laying activity is either completed or planned, will be open to commercial fishing.

2.1.3 Fishing Revenues Exposed to Cable Installation Activity

Based on fishing revenue data generated by NOAA Fisheries for years 2008-2021, annual fishing revenue intensities in the South Coast Variant area average $2,559 per km^2 (2021 dollars; NOAA Fisheries 2023). Assuming that fishing revenue intensity is relatively uniform across this area, therefore, a reasonable estimate of the economic exposure of commercial fishing in the South Coast Variant during cable installation can be generated by multiplying the three factors described above. That is,

EE_{SCV} = Economic Exposure in the South Coast Variant (measured in 2021 Dollars)

Where:

$EE_{SCV} = A \times B \times C$; and

A = expected annual average fishing revenues per km^2 of the South Coast Variant ($2,559)

B = area precluded to fishing during an ongoing cable installation activity (3.14 km^2); and

C = the 4.5-month duration of cable installation activities associated with one cable installation (0.375 years).

And therefore:

$EE_{SCV} = A \times B \times C = \$2,559 \times 3.14 \times 0.375 = \$3,013$

Based on the analysis described above, economic exposure in the South Coast Variant is estimated to be $3,013 to $9,038 (one to three cables) during cable installation. The New England Wind COP allows for one to three cables in the South Coast Variant, however, installing two or three cables in the South Coast Variant is extremely unlikely.[4]

This economic exposure estimate of $3,013 to $9,038 represents the maximum potential losses in fishing values if the South Coast Variant caused all fishing effort in areas of active cable installation activity to cease. Following BOEM guidelines, this estimate of economic exposure is based on the assumption that none of the fishing revenues lost in areas where fishing will be precluded in the South Coast Variance will be recouped by fishing effort shifting from those areas to other areas (Kirkpatrick et al. 2017). However, as BOEM guidelines indicate, "economic exposure should not be interpreted as a measure of economic impact or loss because economic impacts depend on a vessel's ability to adapt by changing where it fishes" and "if alternative fishing grounds are available nearby and may be fished at no additional cost, the economic impact will be lower" (Kirkpatrick et al. 2017).

This report does not attempt to estimate what portion of lost fishing revenues in the South Coast Variant can or will be recouped by fishing effort shifting from areas temporarily closed to fishing because of cable installation to other fishing areas. However, it is reasonable to assume that if fishermen are temporarily precluded from fishing in small parts of the South Coast Variant because of cable installation activity they will act in an economically rational manner and shift fishing effort to other areas. The highly unlikely alternative would be for them to choose to generate no offsetting fishing revenues by remaining idle at sea or staying in port.[6] That is, while it is reasonable to assume that fishing disruptions in the South Coast Variant may result in

[6] After construction, the entire South Coast Variant will be open to commercial fishing so opportunities for fishermen to continue generating fishing revenues during O&M of New England Wind will include fishing in the South Coast Variant, as well as redirecting fishing effort to other areas.

modifications to fishing strategies that could reduce fishing revenues, it is not reasonable to assume that these disruptions will result in fishing vessels spending more time in port or idle at sea, resulting in reductions in overall fishing effort and lost fishing revenue as high as estimated economic exposure.[7]

2.2 Assessment of Economic Exposure During Operations and Maintenance

The offshore export cables will have a target burial depth of 1.5 to 2.5 m (5 to 8 ft) below the seafloor, which the cable burial risk assessment determined is more than twice the burial depth required to protect the cables and prevent them from interfering with commercial fishing operations. While the Proponent will make every effort to achieve that target burial depth, if a sufficient burial depth cannot be achieved, cable protection will be designed to minimize potential impacts to bottom fishing gear to the maximum extent practicable, and fishermen will be informed about where cable protection exists. After cable installation there will remain a limited possibility that mobile bottom fishing gear could snag on cable protection resulting in gear damage, lost fishing time, and associated economic losses. This is the only potential source of economic exposure in the South Coast Variant during the O&M phase of New England Wind.

It is not possible at this time to assess the likelihood or potential magnitude of fishery-related economic losses associated with bottom fishing gear snags on cable protection along the South Coast Variant. However, the area where cable protection may be required will be small and NOAA Fisheries data show that there is little bottom trawling or dredging along the South Coast Variant, so it is reasonable to expect that economic exposure associated with such incidents will be very low (NROC 2009; MARCO 2016; Fontenault 2018; NOAA Fisheries 2023). The Proponent will be designing and installing cable protection to the maximum practicable extent to avoid interfering with bottom fishing gear and expects to establish a gear loss/damage protocol that will compensate fishermen for economic losses associated with incidents involving cable protection if and when they occur.

2.3 Conclusions

Fishing revenue data and fishing revenue density rasters published by BOEM and NOAA Fisheries indicate that the South Coast Variant does not include high-value commercial fishing grounds. During approximately 4.5 to 13.5 months of construction activities in the South Coast Variant, it is expected that commercial fishing will be restricted only in the 3.14 km^2 temporary safety buffer zone established around where cable installation activities are taking place. Based on an analysis of fishing revenues in the South Coast Variant, annual fishing revenues in these areas during periods when cable installation activities will be taking place can be expected to range from approximately $3,013 to $9,038, depending on the number of cables used in the South Coast

[7] A basic tenet of economics is that businesses will continue to operate in the short-term as long as revenues (e.g. ex-vessel value of landings) exceed operating costs (trip expenses), which allows net operating profits to offset at least some fixed costs. In many meetings related to Vineyard Wind 1, commercial fishermen themselves acknowledged that fishing will likely continue in or at least around offshore wind farms.

Variant.[4] This represents the expected economic exposure of commercial fisheries to the South Coast Variant in federal waters during cable installation. The expected economic impact of the South Coast Variant on commercial fishing revenues during cable installation will be significantly lower than expected economic exposure of $3,013 to $9,038 because any fishing effort diverted from the South Coast Variant to other fishing areas within and outside the South Coast Variant during cable installation can be expected to generate at least some fishing revenues to offset at least some of the fishing revenues lost in Areas where fishing is temporarily precluded.

During O&M of New England Wind, the South Coast Variant is expected to have nearly no impact on commercial fishing, with the exception of mobile bottom fishing gear, such as bottom trawl nets, possibly snagging on cable protection that may need to be installed on the seafloor in parts of the South Coast Variant. While every effort will be made to achieve sufficient cable burial depth, if a sufficient burial depth cannot be achieved, cable protection will be designed and installed to minimize interfering with bottom fishing gear to the maximum extent practicable and fishermen will be informed of exactly where cable protection exists. The Proponent is in the process of developing a program that will compensate commercial fishermen for economic losses associated with damaged gear. Therefore, while there is a small possibility that cable protection in the South Coast Variant could result in fishery-related economic impacts during the O&M phase of New England Wind, but this possibility does not constitute a significant source of economic exposure in the South Coast Variant and is not likely to result in any net economic losses in commercial fisheries.

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New England Wind

AVANGRID RENEWABLES

Economic Exposure of Commercial and For-Hire Recreational Fisheries

Lease Area OCS-A 0534

June 20232023

Submitted by
Park City Wind LLC

Economic Exposure of Commercial Fisheries to the New England Wind Offshore Wind Energy Development

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June 2023

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List of Acronyms

AIS	automatic identification system
BEA	U.S. Bureau of Economic Analysis
BOEM	Bureau of Ocean Energy Management
CFSI	Commercial Fishing & Seafood Industry
COP	Construction and Operations Plan
CZMA	Coastal Zone Management Act
EE	economic exposure
EI	economic impacts
ESP	electrical service platform
FAD	fish aggregation device
FE	fishing effort
FRD	fishing revenue density
ft	feet
GDP	gross domestic product
km	kilometers
kts	knots
LMA	Lobster Management Area
m	meters
MA/RI WEA	Massachusetts/Rhode Island Wind Energy Area
MARIPARS	Massachusetts and Rhode Island Port Access Route Study
NM	nautical miles
NOAA	National Oceanic Atmospheric Administration
O&M	operations and maintenance
OCS	Outer Continental Shelf
OECC	offshore export cable corridor
SWDA	Southern Wind Development Area
US	United States
USCG	United States Coast Guard
VMS	vessel monitoring system
VTR	vessel trip report
WEA	Wind Energy Area
WTG	wind turbine generator

EXECUTIVE SUMMARY

Context

New England Wind is the proposed offshore renewable wind energy development in Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 (Lease Area) along with associated offshore and onshore cabling, onshore substations, and onshore operations and maintenance (O&M) facilities. New England Wind will be developed in two Phases with a maximum of 130 wind turbine generator (WTG) and electrical service platform (ESP) positions, and five offshore export cables installed within an Offshore Export Cable Corridor (OECC) that will transmit electricity generated by the WTGs to onshore transmission systems in the Town of Barnstable, Massachusetts (see Figure 1-1).[1]

This report addresses the "economic exposure" of commercial fisheries to New England Wind based on historical commercial fishing revenues in the Lease Area and the OECC. BOEM states that "economic exposure refers to potential economic impacts, not predicted or expected economic impacts" (Kirkpatrick et al. 2017) and is "a starting point to understanding potential economic impacts of future offshore wind project development if a harvester opts to no longer fish in the area and cannot recapture that income in a different location" (BOEM 2021a). This report focuses on "economic exposure" and does not address potential "economic impacts". Expected economic impacts are likely to be significantly lower than full "economic exposure" because that fishing effort temporarily precluded in the Lease Area and OECC is likely to be diverted to other areas where it will continue generating at least some of the fishing revenues lost in the Lease Area and OECC. Direct sources of economic exposure involve commercial fishing disruptions in the Lease Area and OECC of New England Wind, potential indirect sources of economic exposure include: (1) potential "fishing congestion impacts" outside the Lease Area and OECC caused by fishing effort shifting from the Lease Area or OECC to those other areas; and (2) increased fishing vessel transit times and costs associated with vessels being forced to steam around or alter routes through the Southern Wind Development Area (SWDA).[2]

Additionally, fishing vessels will not be restricted from operating in or transiting through the Lease Area or OECC (including the Western Muskeget Variant) other than where temporary safety zones are established around construction vessels engaged in ongoing construction and/or cable laying activity.

Within the Lease Area some fishing tracks and vessel transit routes will need to be modified to account for the presence of WTGs and ESPs. Within the OECC the target burial depth for offshore export cables will be 1.5 to 2.5 meters (m) (5 to 8 feet [ft]) below the seafloor which the cable burial risk assessment

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[1] While the COP allows for four or five offshore export cables in the OECC, based on current capacity for New England Wind, five cables would be required.

[2] New England Wind will occupy all of Lease Area OCS-A 0534 and potentially a portion of Lease Area OCS-A 0501 in the event that Vineyard Wind 1 does not develop "spare" or extra positions included in Lease Area OCS-A 0501 and Vineyard Wind 1 assigns those positions to Lease Area OCS-A 0534. For the purposes of the COP, the SWDA is defined as all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, as shown in Figure 1-1.

determined is more than twice the burial depth required to prevent cables from interfering with fishing activity or fishing vessel transits. While every effort will be made to achieve sufficient cable burial depth, if a sufficient burial depth cannot be achieved, cable protection will be designed and installed to minimize interfering with bottom fishing gear to the maximum extent practicable and fishermen will be informed of exactly where cable protection exists. After cable installation there will remain a limited possibility that mobile bottom fishing gear could snag on cable protection resulting in gear damage, lost fishing time, and associated economic losses. This is the only potential source of economic exposure in the OECC during the O&M phase of New England Wind. The Proponent is in the process of developing a program that will compensate commercial fishermen for economic losses associated with damaged gear.

Findings

Estimates of Economic Exposure

Economic Exposure in the Lease Area

Based on National Oceanic Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) data, annual commercial fishing revenues in the Lease Area during 2008–2021, adjusted upward to fully account for unreported lobster and Jonah crab revenues, averaged $622,863 (2021 dollars; NOAA Fisheries 2022). This estimate of annual fishing revenues from the Lease Area provides an estimate of full economic exposure, that is lost commercial fishing revenues if all commercial fishing ceased in the entire Lease Area for a full year with none of the resulting losses in fishing revenues recouped as a result of fishing effort being diverted from the Lease Area to other fishing areas.

Economic Exposure in the OECC

Based on NOAA Fisheries data, annual fishing revenue in the OECC during 2008–2021 averaged $2,505 per km^2 (2021 dollars; NOAA Fisheries 2023). This provides a baseline value for estimating economic exposure in parts of the OECC where commercial fishing will be temporarily precluded during cable installation.

Based on USCG guidance, a safety buffer with a radius of 500 m should be established around where cable installation activities are taking place. However, a safety radius of twice that distance, 1 km, is used for the purposes of this economic analysis to account for vessel activity supporting cable installation. This results in the assumption that commercial fishing will be precluded in the OECC in a safety buffer area of approximately 3.14 sq km^2 (776 acres) around where pre-installation and cable installation activities are underway. It is not expected that commercial fishing will be precluded or impaired in other parts of the OECC where cable installation is either planned or has been completed.

Based on the expected duration of cable installation activities in the OECC (1.87 years for Phase 1 and Phase 2), economic exposure in the OECC during both Phases of cable installation is estimated to be $14,748-$16,532. Use of the West Muskeget Variant would result in a very small increase in overall economic exposure estimated for the OECC.

Indirect Sources of Potential Economic Exposure

As described above, New England Wind has potential to generate two indirect types of economic exposure related to commercial fisheries, including:

(1) Potential "fishing congestion" impacts outside the SWDA and OECC

(2) Potential increases in fishing vessel transit times in and around the SWDA and OECC

Lease Area

During construction and decommissioning, commercial fishing will be precluded only in segments of the Lease Area defined by safety buffers around where WTGs and ESPs are being installed or decommissioned. As described in Section 3.1, there is a low level of fishing effort in the SWDA (average of 146 fishing trips annually based on automatic identification system [AIS] data) and most fishing time on fishing tracks that intersect the SWDA is spent outside of the SWDA. These two factors indicate there is no risk that restricting those parts of fishing trips that transect the SWDA will result in enough new fishing effort being generated in other fishing areas to result in fishing congestion impacts outside the SWDA.

Within the Lease Area, WTGs and ESPs will be oriented in fixed east-to-west rows and north-to-south columns with 1 nautical mile (NM) (1.85 km) spacing between WTG/ESP positions. The recent United States Coast Guard (USCG) Massachusetts and Rhode Island Port Access Route Study (MARIPARS) finds that this will allow multiple straight-line options for fishing vessels to transit safely through the SWDA (USCG 2020). As described in Section 3.2, if unusually severe weather causes some fishing vessel operators to decide to reroute around the Lease Area when transiting between fishing ports and fishing areas, the resulting increases in steaming time and costs would also not be significant.

OECC

The analysis described in Section 2.2 indicates that the small areas and limited durations of commercial fishing impacts during cable installation in the OECC, along with the absence of any significant impacts of OECC operations on commercial fishing after cable installation, make additional indirect economic exposure in the OECC highly unlikely.

Potential Impacts on the Abundance and Distribution of Fish

As described in Section 6.6 of COP Volume III, studies related to other proposed wind farms in U.S. waters (and studies of established offshore wind energy farms in Europe) indicate that impacts of offshore wind farms on fish population dynamics are primarily local and short-term. The potential impacts of New England Wind on fish population dynamics is not a source of economic exposure in commercial fisheries.

Concern has also been expressed that WTG and ESP foundations may function as fish aggregation devices (FADs) that will attract fish to locations in the Lease Area where they will become less accessible to some types of commercial fishing. While these FADs may provide advantages and disadvantages to different

types of fishing methods, the available studies indicate that they could have overall positive economic impacts on commercial fisheries (Wilhelmsson, et al. 2006; Riefolo et al. 2016; Raoux et al. 2017; Wilber, et.al, 2022).

Conclusions

As shown in Table 2-2, potential annual economic exposure in the Lease Area is estimated to be $622,863; and as shown in Tables 2-4 and 2-6, economic exposure during cable installation of the OECC is estimated to be $14,748-$16,532. These are estimates of full economic exposure based on the assumption that none of the annual fishing revenues lost in the Lease Area and in impacted segments of the OECC will be recouped as a result of fishing effort being diverted to other fishing areas.

Economic impact estimates based on estimates of economic exposure presented in this report will be determined based on updated BOEM guidance and consultations with the states through the Coastal Zone Management Act (CZMA) review processes.

1 INTRODUCTION

1.1 New England Wind Overview

New England Wind is the offshore renewable wind energy development proposed for BOEM Lease Area OCS-A 0534 along with associated offshore and onshore cabling, onshore substations, and onshore O&M facilities. New England Wind will be developed in two Phases with a maximum of 130 WTG and ESP positions located in the 453 sq km (175 sq mi) of the SWDA (See Figure 1-1). Five offshore export cables installed along the OECC will transmit electricity generated by the WTGs to onshore transmission systems in the Town of Barnstable, Massachusetts.[1] The OECC is the corridor identified for routing both the Phase 1 and Phase 2 offshore export cables between the SWDA and the landfall sites. Each Phase of New England Wind will be developed using a Project Design Envelope that defines and brackets the characteristics of the facilities and activities for purposes of environmental review while maintaining a reasonable degree of flexibility with respect to the selection of key components, such as the WTGs, foundations, offshore cables, and ESPs.

New England Wind's offshore renewable wind energy facilities are located immediately southwest of Vineyard Wind 1, which is located in Lease Area OCS-A 0501. New England Wind will occupy all of Lease Area OCS-A 0534 and potentially a portion of Lease Area OCS-A 0501 in the event that Vineyard Wind 1 does not develop "spare" or extra positions included in Lease Area OCS-A 0501 and Vineyard Wind 1 assigns those positions to Lease Area OCS-A 0534. For the purposes of the COP, the SWDA is defined as all of Lease Area OCS-A 0534 and the southwest portion of Lease Area OCS-A 0501, as shown in Figure 1-1. The SWDA may be approximately 411–453 sq km (101,590– 111,939 acres) in size depending upon the final footprint of Vineyard Wind 1. At this time, the Proponent does not intend to develop the two positions in the separate aliquots located along the northeastern boundary of Lease Area OCS-A 0501 as part of New England Wind (see Figure 1-1). The SWDA (excluding the two separate aliquots that are closer to shore) is just over 32 km (20 mi) from the southwest corner of Martha's Vineyard and approximately 38 km (24 mi) from Nantucket. The WTGs and ESPs in the SWDA will be oriented in an east-west, north-south grid pattern with one NM (1.85 km) spacing between positions.

While the Proponent intends to install all five New England Wind offshore export cables within the OECC that travels from the SWDA northward through the eastern side of Muskeget Channel towards landfall sites in the Town of Barnstable, the Proponent is reserving the fallback option to install one or two Phase 2 cables along the western side of Muskeget Channel, referred to as the Phase 2 OECC Western Muskeget Variant (see Section 4.1.3.2 of COP Volume I).[1] Throughout this section, unless the Western Muskeget Variant is specified, "the OECC" refers to the OECC that travels along the eastern side of Muskeget Channel. Commercial fishing vessels using fixed and mobile gear operate in and around the SWDA and OECC, and travel through these areas as they

transit between fishing ports and fishing grounds (see Figure 3-1). Fishing vessels will not be precluded from operating in or transiting through the SWDA or the OECC other than where temporary safety buffer zones are established around where construction and installation vessels are operating.

However, for the purposes of estimating economic exposure of commercial fisheries, the Lease Area was used throughout this report because a portion of Lease Area OCS-A 0501 is included in the SWDA and commercial fisheries economic impacts in that part of the SWDA were already analyzed and mitigated as part of Vineyard Wind 1.[3]

1.2 Focus

This report develops estimates of the "economic exposure" of commercial fisheries to the New England Wind Lease Area and OECC. BOEM states that "economic exposure refers to potential economic impacts, not predicted or expected economic impacts" and refers to it as "a starting point to understanding potential economic impacts of future offshore wind project development if a harvester opts to no longer fish in the area and cannot recapture that income in a different location" (Kirkpatrick et al. 2017). BOEM emphasizes that "if alternative fishing grounds are available nearby and may be fished at no additional cost, the economic impact will be lower than estimated economic exposure" (BOEM 2018).

Following BOEM guidance, estimates of economic exposure are developed in this report based on the assumption that New England Wind will result in the cessation of all fishing activity in the Lease Area and in areas of active construction along the OECC, with none of the resulting losses in fishing revenues recouped as a result of fishing effort shifting from the Lease Area and the OECC to other fishing areas.

As stated above, however, BOEM guidance indicates that expected economic impacts will be less than economic exposure if fishing vessel operators can recoup at least some lost fishing revenues by shifting fishing effort from impacted areas to other nearby areas. In the case of New England Wind, most of the Lease Area and most of the OECC will remain open to fishing during and after construction so fishing vessel operators will have the opportunity to retain at least some fishing revenues by continuing to operate in those areas as well as the opportunity to recoup at least some lost fishing revenues from those areas by diverting fishing effort to other nearby fishing areas.

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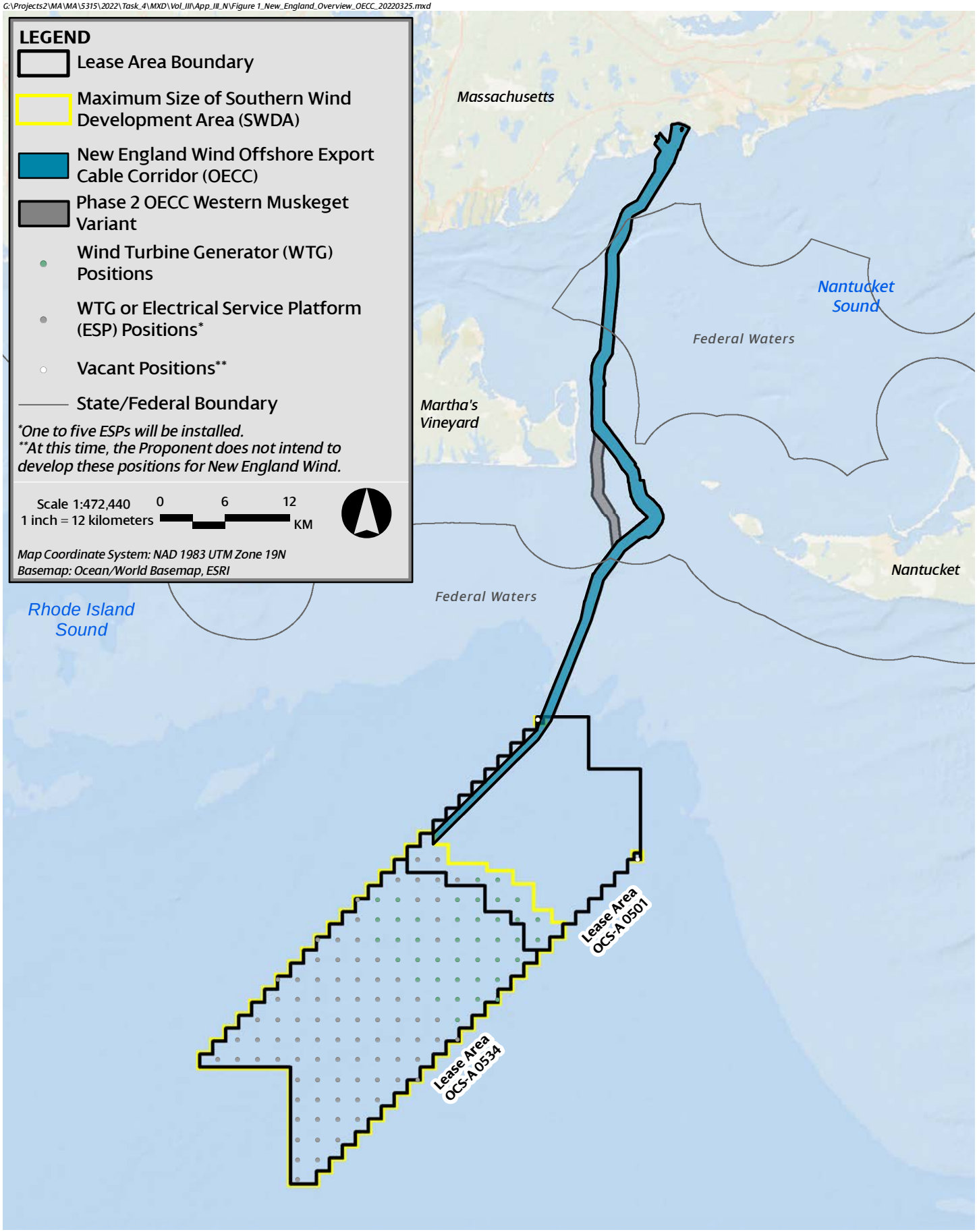
[3] The Lease Area was chosen to define the impact area for this analysis because a portion of the Southern Wind Development Area (SWDA) is included in Lease Area OCS-A 0501 and economic exposure and economic impacts of commercial fisheries in that part of the SWDA were previously analyzed and mitigated for Vineyard Wind 1. Economic exposure and economic impacts of commercial fisheries to Lease Area OCS-A 0501 were previously analyzed and mitigated for Vineyard Wind 1 (see Section 6.3 in the Vineyard Wind 1 Terms and Conditions of COP Approval Letter; BOEM 2021b).



New England Wind
AVANGRID RENEWABLES

Figure 1-1
New England Wind Overview

This report focuses on measures of economic exposure. The two most significant sources of potential commercial fishery economic exposure from New England Wind addressed in this report are:

- Potential lost fishing revenues in the Lease Area during construction of a total of 130 WTG and ESP positions.
- Potential lost in fishing revenues in the OECC during construction resulting from commercial fishing being precluded from areas around where cable installation activities are underway.

The report also addresses two potential indirect sources of fishery-related economic exposure, including:

- Potential costs associated with increased fishing congestion outside the SWDA and OECC if enough fishing effort is diverted from those areas to other fishing areas to cause "fishing power penalties" that result in lower fishing revenues, higher fishing costs, or both.
- Potential costs and lost fishing time associated with increased fishing vessel transit times if New England Wind results in fishing vessels that typically steam through the SWDA using less direct routes through or around the SWDA as they transit between fishing ports and fishing areas.

1.2.1 Indicators of Economic Exposure in the Lease Area

During 2016–2019, AIS-equipped commercial fishing vessels were recorded fishing in the SWDA during an average of 146 trips annually. It is important to note that only 25% of time spent on fishing tracks during those 146 trips that transect the SWDA took place in the SWDA; the remaining 75% of fishing time on trips that transected the SWDA was spent outside the SWDA.[4] This indicates that the SWDA is a relatively small part of a much larger fishing area that includes adjacent and nearby locations where fishing vessels that occasionally operate in, and more frequently transit through the SWDA spend most of their fishing time.

This relatively low level of commercial fishing effort in the SWDA is consistent with the relatively low fishing revenue density (FRD) in the Lease Area ($1,515 per km^2) and the relatively low value of the expected harvest in the Lease Area (annual average of $622,863 [2021 dollars] between years 2008 and 2021).[5]

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[4] See Baird 2021.

[5] These values of fishing revenues and fishing revenue density in the Lease Area are based on NOAA Fisheries (2022) landings and revenue data for 2008-2021 which are based on VTR records, then adjusted to include fishing revenues associated with lobster and Jonah crab harvests that are not included in VTR records (see Table 2-1 and Table 2-2).

This estimate of annual average fishing revenues in the Lease Area of $622,863 is the best available estimate of full economic exposure in the Lease Area (NOAA Fisheries 2022). It represents the expected reduction in commercial fishing revenues that would result if commercial fishing was precluded in the entire Lease Area for a full year with none of the resulting loss of fishing revenues recouped as a result of fishing effort shifting from those areas to other fishing areas.

Fishing revenue density charts presented in Figure 1-2 through Figure 1-4 indicate that the Lease Area does not contain exceptionally productive fishing grounds and is surrounded by other comparable fishing areas. On an individual permit basis, most fishermen who spend time operating in the Lease Area generate less than 1% of their annual revenue from the SWDA (NOAA Fisheries 2022). This is consistent with the results of the analysis of AIS data for the SWDA mentioned above which indicate that a significant portion of fishing vessel time on trips that involve some fishing in the SWDA is spent fishing in other nearby areas.

During O&M it is expected that some commercial fishing vessels operating in or transiting through the SWDA may need to modify transit routes or fishing tracks to account for the presence of WTGs and ESP(s). It is also possible that some transiting fishing vessels may route around the Lease Area and some fishing effort may shift from the SWDA to other areas. Changes in fishing revenues associated with these potential changes in commercial fishing practices are sources of potential economic exposure. However, the relatively low level of fishing effort in the SWDA and the correspondingly low amount of fishing revenues generated in the SWDA indicate that direct economic exposure in the SWDA associated with these potential modifications in fishing vessel tracks will be relatively small. Records of fishing activity and fishing revenues in the SWDA also indicate that fishing effort diverted from the SWDA to other fishing areas would not involve a significant enough shift in fishing effort to result in "fishing congestion impacts" in those other areas. The 1 x 1 NM layout that will be established between WTG and ESP positions in the SWDA to accommodate continued fishing is also expected to result in fishing vessels transiting through the SWDA experiencing no significant increases in transit times or costs. As described in Section 3.2, even if fishing vessel operators choose to reroute transits between fishing ports and fishing areas that would typically pass through the Lease Area around the Lease Area it would have relatively small impacts on transit times or costs.

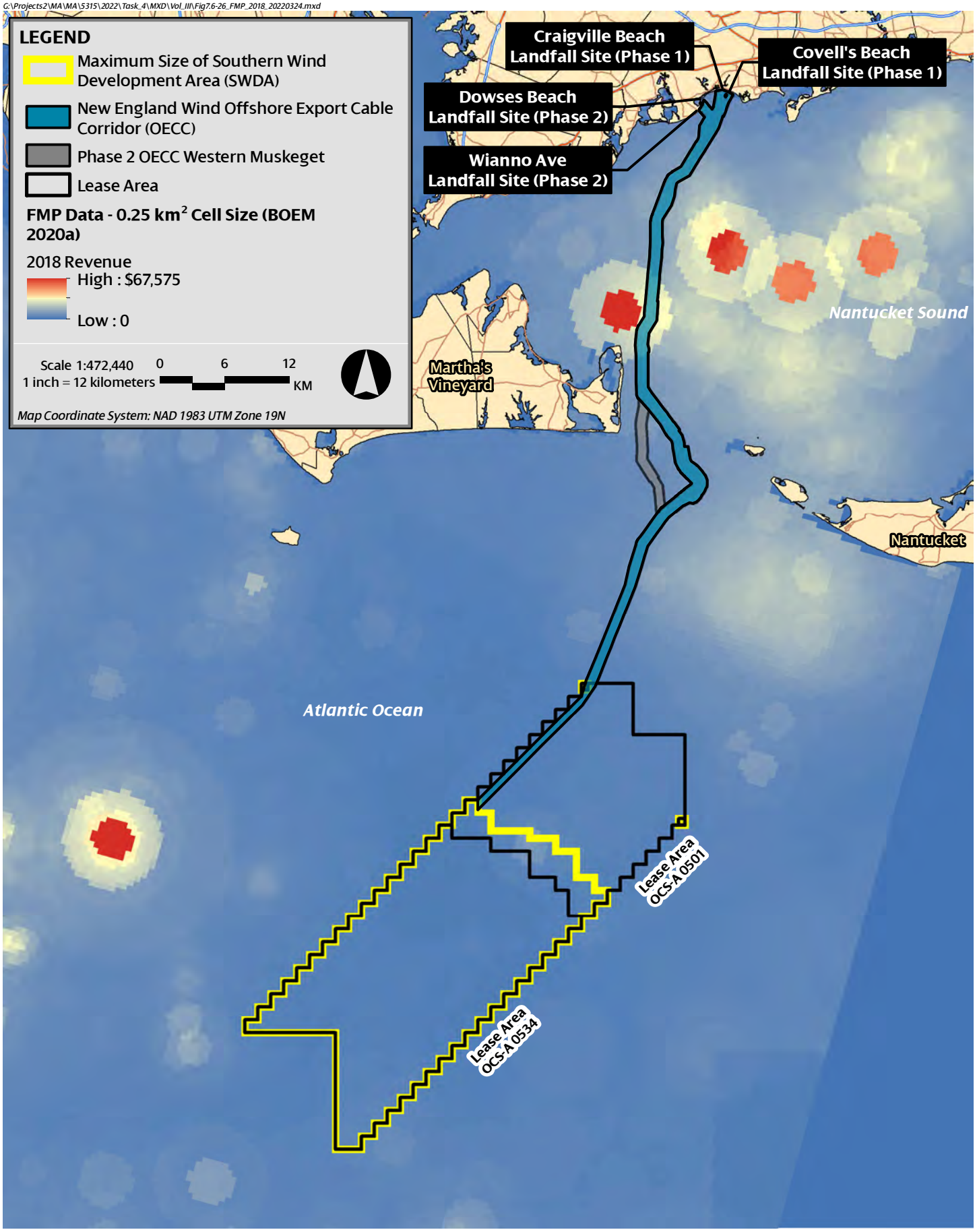


Figure 1-2

Fishing Revenue Density, All Fishery Management Plans, 2018

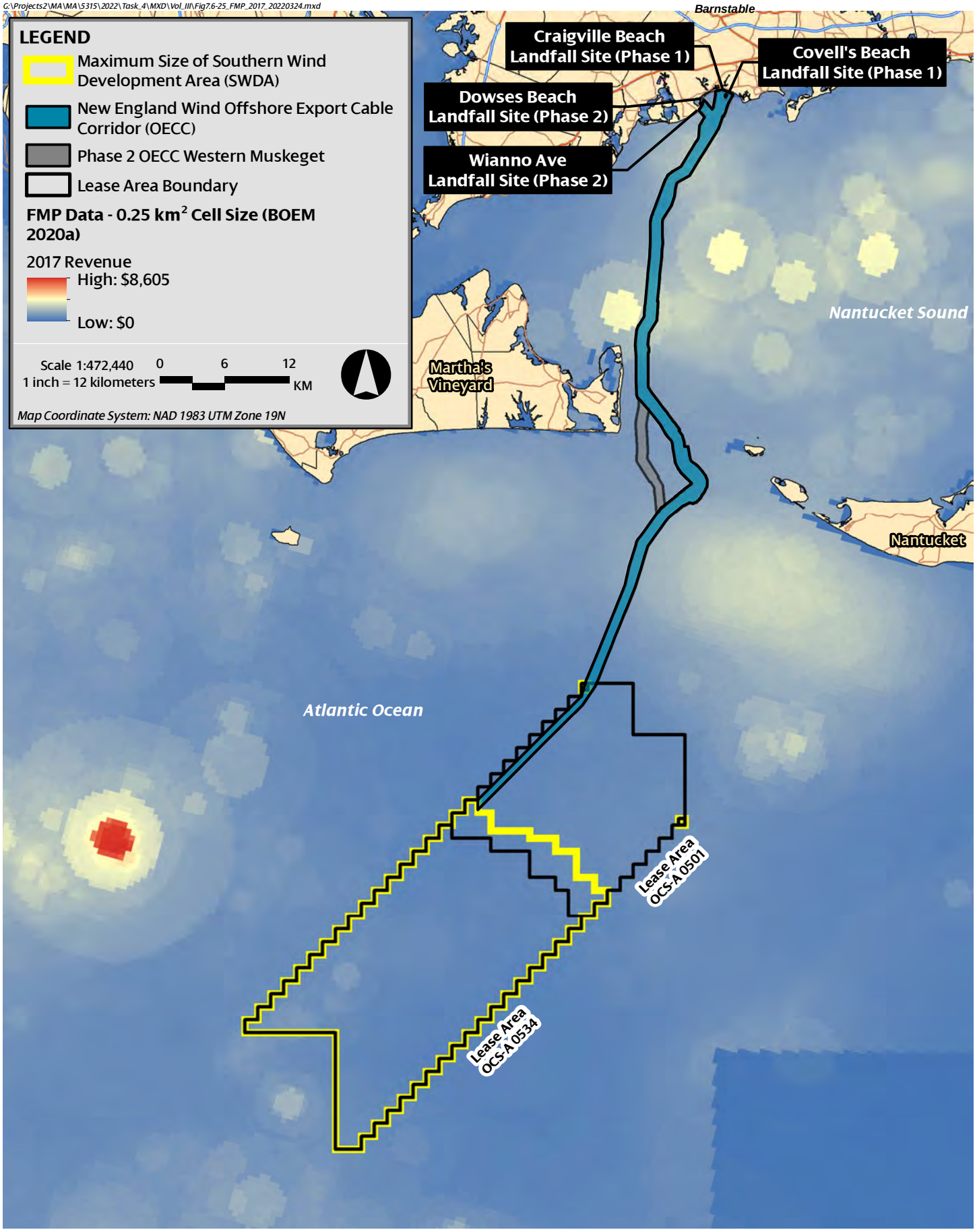


Figure 1-3

Fishing Revenue Density, All Fishery Management Plans, 2017

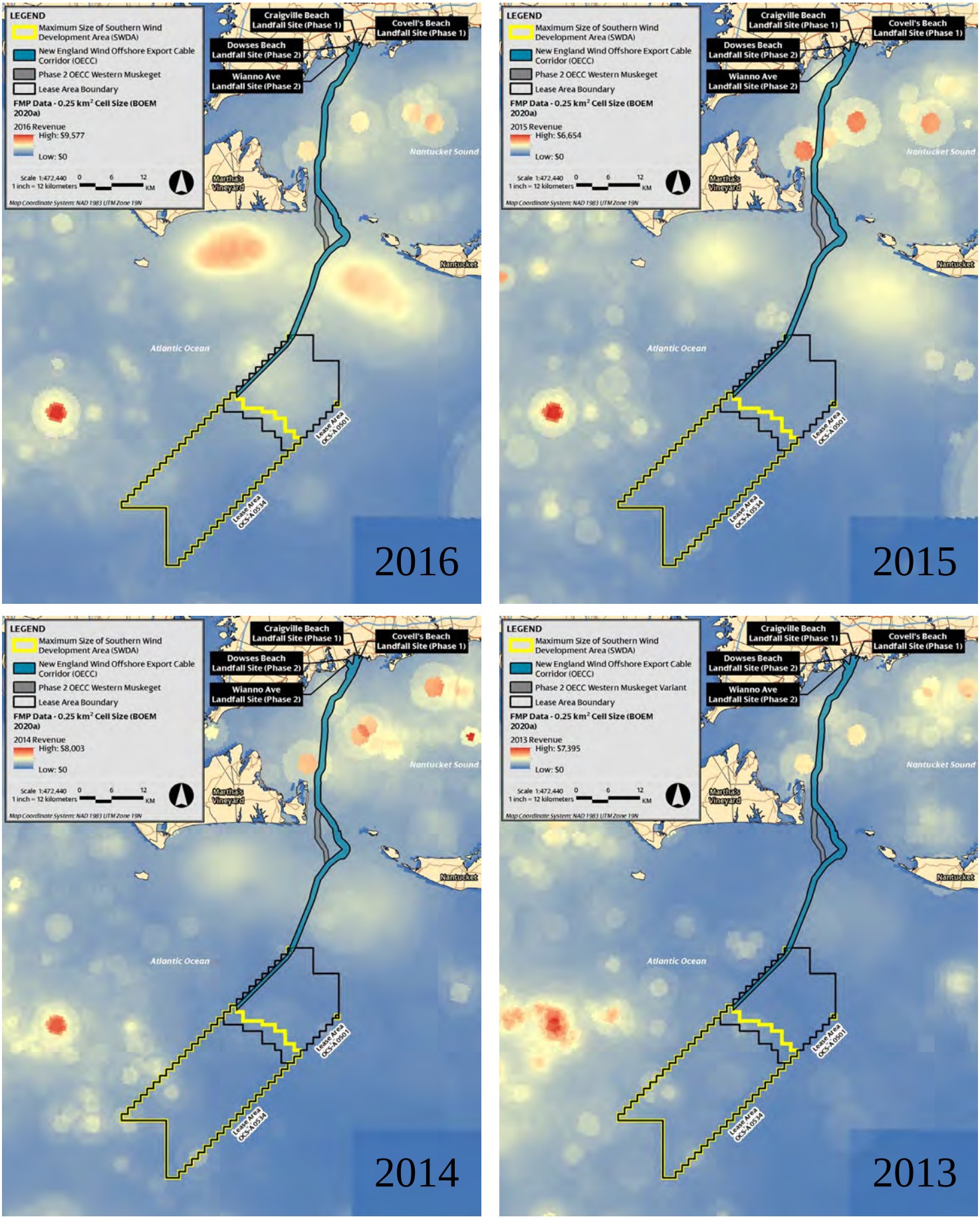


Figure 1-4

Fishing Revenue Density, All Fishery Management Plans, 2013-2016

1.2.2 Indicators of Economic Exposure in the OECC

During OECC Construction

Pre-construction activities and offshore export cable installation are expected to occur in the OECC (approximately 42 NM [78 km]) over a period of approximately nine months during Phase 1 and 13.5 months during Phase 2 (including the Western Muskeget Variant). However, at any given time cable installation activity in the OECC will typically be underway at only one location and fishing in the OECC will be precluded only in the vicinity of that one location while construction activity is underway (Figure 1-5). The USCG is expected to establish temporary 500-meter safety buffers around cable installation activity. However, for the purpose of estimating economic exposure in this report a 1 km safety buffer is assumed, resulting in an estimated fishing preclusion area of 3.14 km^2 (776 acres) around cable installation activity. It is assumed, therefore, that during cable installation commercial fishing will be precluded in the 3% of the OECC where cable installation is underway (1 km in each direction) and not in the remaining 97% of the OECC areas where cable installation has either been completed or is planned. Note that if cable installation activity is occasionally underway at more than one location, the fishing preclusion area during that period will be larger than 3.14 km^2 (776 acres) but there will be an offsetting reduction in the overall duration of cable laying activity which will result in no significant overall change in economic exposure.

After OECC Construction

Offshore export cables will be installed at a target burial depth of 1.5 to 2.5 m (5 to 8 ft) below the seafloor, which the cable burial risk assessment determined is more than twice the burial depth required to prevent them from interfering with commercial fishing operations. While every effort will be made to achieve sufficient cable burial depth, if a sufficient burial depth cannot be achieved, cable protection will be designed and installed to minimize interfering with bottom fishing gear to the maximum extent practicable and fishermen will be informed of exactly where cable protection exists.[6]

Any required cable protection will be designed and installed to minimize interfering with mobile bottom fishing gear to the maximum extent practicable, and fishermen will be fully informed about locations where cable protection has been used. For these reasons, and because there is limited use of trawlers, draggers, and other mobile bottom fishing gear in the OECC, potential fishery-related economic losses associated with bottom fishing gear snagging on cable protection

[6] Potential cable protection methods include rocks, rock bags, concrete mattresses, or half-shell pipes or similar materials.

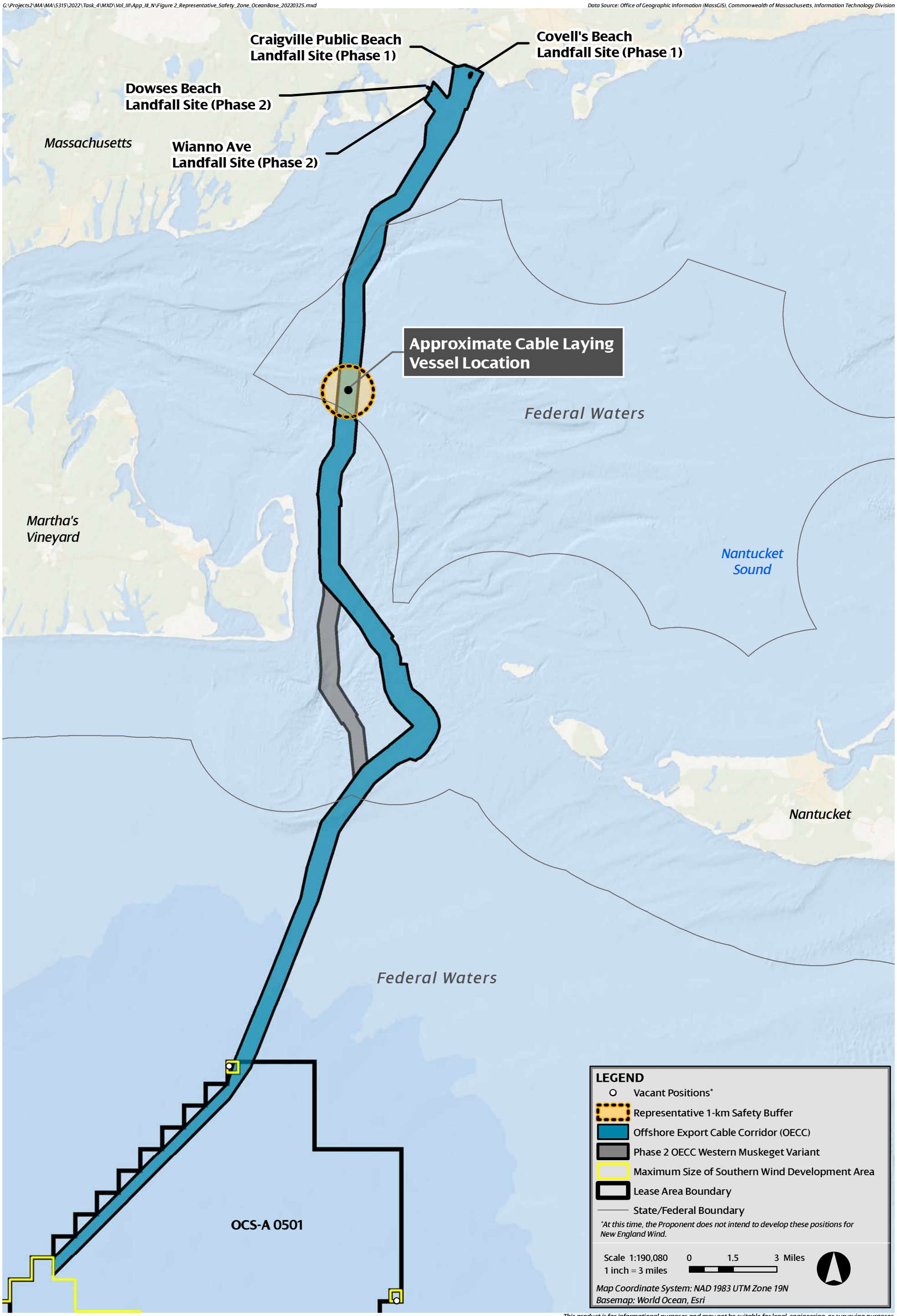


Figure 1-5

Representative Safety Buffer Zone for Cable Installation in the OECC

are expected to be low. The Proponent will also be developing and implementing procedures to compensate fishermen for any unexpected economic losses associated with bottom fishing gear snagging on cable protection. For these reasons, the economic exposure of commercial fishing in the OECC after cable installation is expected to be near zero.

1.3 Data Sources

Reliable sources of fishing revenue data for the Lease Area and OECC or for larger ocean areas that include those areas are described in Table 1-1. One source listed in Table 1-1, *Socioeconomic Impacts of Atlantic Offshore Wind Development* (NOAA Fisheries 2022), is a website that was developed by NOAA Fisheries and includes what are now the most reliable and current estimates of annual fishing revenues in each offshore wind lease area in New England and Mid-Atlantic waters.

Table 1-1 Data Sources

Data Source	Description
Kirkpatrick et al. (2017)	BOEM funded a study prepared by the NOAA Northeast Fisheries Science Center that characterizes commercial fishing from Maine to North Carolina and provides insight into revenue generated by federally permitted fishermen. The report details the average value of fish harvested over the six-year period between 2007 and 2012 and identifies the ports and fishery sectors (e.g., gear, species) supporting that activity. NOAA Fisheries also developed a model to estimate the socioeconomic impact of wind energy development on commercial fishermen. Making use of vessel trip report (VTR) data, spatial data from the Northeast Fisheries Observer Program database, and vessel monitoring system (VMS) data, the study provides information on commercial harvest by location, species caught, gear type, and port group. This study is available at: Volume 1: https://espis.boem.gov/final%20reports/5580.pdf Volume 2: https://espis.boem.gov/final%20reports/5581.pdf
BOEM (2020)	BOEM makes available single-year revenue intensity rasters summarized by Fishery Management Plan. These revenue intensity rasters were developed for Kirkpatrick et al. (2017), described above, and updated by BOEM to account for additional years of data. Revenue intensity rasters can be accessed at: https://www.boem.gov/renewable-energy/mapping-and-data/renewable-energy-gis-data. This data source was used to develop Figure 1-2 through Figure 1-4, which show the fishing revenue density for 2014–2018.

Table 1-1 Data Sources (Continued)

Data Source	Description
NOAA Fisheries (2022)	Socioeconomic Impacts of Atlantic Offshore Wind Development Website NOAA Fisheries developed sets of tables summarizing annual fishing activity within each offshore wind lease or project area and related annual fishing revenues during years 2008–2021. This data is based on modeled results of federal VTR, clam logbook, and queried for spatial overlap and linked to dealer data for value and landings information. These tables highlight annual landings and revenue by species, gear type, and fishery management plan within each wind energy area (WEA), as well as revenue by port and vessel dependence upon operations in each WEA. Landing and revenue data can be accessed at: https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/WIND/ALL_WEA_BY_AREA_DATA.html.
NOAA Fisheries (2023)	Upon request from the Proponent, NOAA Fisheries provided landing and revenue data (2008–2021) for the OECC (including the Western Muskeget Variant). This data from NOAA Fisheries is the same data used for revenue estimates for the lease areas in the Socioeconomic Impacts of Atlantic Offshore Wind Development website (see above).

1.3.1 Thresholds of Data Requirements

In order to use fishing revenue data to estimate the economic exposure of commercial fishing to offshore wind energy projects assumptions must be made about thresholds or minimum standards for defining what BOEM refers to as fishing values that "may be impacted" (Kirkpatrick et al. 2017). For the purposes of this report, it is assumed that all fishing revenues in the Lease Area and in areas of cable installation activity in the OECC "may be impacted." It is also assumed that fishing values outside the Lease Area and OECC "may be impacted" if New England Wind can be expected to result in either increased fishing vessel transit times resulting from vessels avoiding those areas or fishing congestion impacts resulting from vessels diverting fishing effort from those areas to other areas that are already being fished.

1.4 Baseline Commercial Fisheries Landings and Values

Data summarizing commercial fishing activity within the Lease Area during years 2008 through 2021 are available from NOAA Fisheries (NOAA Fisheries 2022). These data include annual landings and revenue by species, fishery management plan (FMP), gear type, state, and port and were used in this report to identify the primary commercial fisheries, species, gear types, ports, and states potentially affected by development in the Lease Area (NOAA Fisheries 2022).

The data summarized in Tables 1-2 through 1-7 are based on NOAA Fisheries' analysis of combined data from VTRs and dealer reports submitted by vessels with federal permits. Annual values reported in these tables have all been deflated to 2021 dollars using the U.S. Bureau of Economic Analysis (BEA) Gross Domestic product (GDP) Implicit Price Deflator.[7]

Table 1-2 provides the annual landed weight and value of all species harvested within the Lease Area between 2008 and 2021.

Table 1-2 Annual Landings from the Lease Area, 2008-2021

Year	Landings (lbs)	Value (2021 dollars)
2008	565,180	$519,479
2009	581,476	$437,906
2010	698,373	$575,805
2011	387,260	$403,508
2012	512,867	$559,010
2013	838,105	$741,944
2014	623,448	$685,778
2015	459,595	$564,633
2016	920,341	$958,501
2017	415,918	$425,740
2018	313,375	$331,341
2019	401,696	$423,934
2020	281,835	$294,468
2021	426,745	$562,379
Annual Average	530,444	$534,602

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

[7] Both NOAA Fisheries and BOEM recommend making inter-annual fish price adjustments using the GDP Price Deflator rather than Producer Price Indices for seafood products. Descriptions of the annual GDP Price Deflator and how it differs from annual Producer Price indices can be found at the BEA website at: https://www.bea.gov/data/prices-inflation.

The 14-year annual average weight and value of the 15 most exposed species in the Lease Area are shown in Table 1-3. According to NOAA Fisheries' analysis, the five most exposed species in the Lease Area are longfin squid, silver hake, monkfish, Jonah crab, and skates. These 15 species account for approximately 88% of annual average commercial fishing revenues from the Lease Area.

Table 1-3 Landings from the Lease Area by Species, 2008-2021

Species	Annual average Landings (lbs)	Annual average Value (2021 dollars)	Percentage of Annual average Lease Area Value
Longfin Squid	92,658	$127,631	24%
Silver Hake	71,705	$52,515	10%
Monkfish	29,682	$50,020	9%
Jonah Crab	45,100	$41,535	8%
Skates	83,443	$38,972	7%
Summer Flounder	10,413	$33,613	6%
American Lobster	6,455	$33,333	6%
Scup	42,218	$32,175	6%
Sea Scallop	2,425	$26,726	5%
Yellowtail Flounder	4,613	$8,473	2%
Golden Tilefish	1,478	$6,165	1%
Atlantic Herring	41,532	$5,637	1%
Butterfish	7,567	$5,079	1%
Winter Flounder	1,742	$4,930	1%
Black Sea Bass	763	$2,943	1%
All Others	88,650	$64,853	12%
Total	530,444	$534,602	-

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

The 14-year annual average weight and value of the ten most exposed FMPs in the Lease Area are shown in Table 1-4. These FMPs account for approximately 89% of annual average commercial fishing revenues from the Lease Area. According to NOAA Fisheries (NOAA 2022), between 2008 and 2021, the three highest value FMPs within the Lease Area were Mackerel, Squid, and Butterfish; the Atlantic States Marine Fisheries Commission (ASMFC) FMP; [8] and Summer Flounder, Scup, and Black Sea Bass.

[8] The ASMFC FMP includes the following species: American lobster, cobia, Atlantic croaker, black drum, red drum, menhaden, NK sea bass, NK seatrout, spot, striped bass, tautog, Jonah crab, and pandalid shrimp.

Table 1-4 Landings from the Lease Area by Fishery Management Plan, 2008-2021

Fishery Management Plan	Annual average Landings (lbs)	Annual average Value (2021 dollars)	Percentage of Annual Average Lease Area Value
Mackerel, Squid, and Butterfish	104,400	$134,318	25%
ASMFC FMP	51,596	$74,963	14%
Summer Flounder, Scup, Black Sea Bass	53,395	$68,732	13%
Small-Mesh Multispecies	80,756	$55,812	10%
Monkfish	29,682	$50,020	9%
Skates	83,443	$38,972	7%
Sea Scallop	2,425	$26,726	5%
Northeast Multispecies	7,254	$14,819	3%
Tilefish	1,480	$6,170	1%
Atlantic Herring	41,532	$5,637	1%
All Others	74,482	$58,432	11%
Total	530,444	$534,602	-

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

The 14-year annual average weight and value of landings from specific gear types are shown in Table 1-5. These five gear types account for approximately 93% of annual average commercial fishing revenues from the Lease Area.

Table 1-5 Landings from the Lease Area by Gear Type, 2008-2021

Gear Type	Annual average Landings (lbs)	Annual average Value (2021 dollars)	Percentage of Annual average Lease Area Value
Bottom Trawl	287,050	$286,491	54%
Gillnet (sink)	82,245	$79,275	15%
Lobster Pot	54,560	$76,685	14%
Clam Dredge	41,837	$33,661	6%
Scallop Dredge	1,726	$18,822	4%
All Others	63,049	$39,684	3.5%
Total	530,466	$534,618	-

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

The 14-year annual average weight and value of landings in the five most exposed states to fishing revenue losses in the Lease Area are shown in Table 1-6. These states account for approximately 97% of the landed value of the annual average commercial fish harvest from the Lease Area.

Table 1-6 Landings from the Lease Area by State, 2008-2021

State	Annual average Landings (lbs)	Annual average Value (2021 dollars)	Percentage of Annual average Lease Area Value
Massachusetts	247,383	$235,245	44%
Rhode Island	231,487	$224,923	42%
New York	25,408	$34,087	6%
Connecticut	16,238	$17,086	3%
Virginia	3,962	$8,868	2%
All Others	5,313	$13,470	3%
Total	529,791	$533,679	-

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

The 14-year annual average weight and value of five most exposed ports in the Lease Area are shown in Table 1-7. These five ports account for approximately 78% of the landed economic value of fish harvested in the Lease Area.

Table 1-7 Landings from the Lease Area by Port, 2008-2021

Port	Annual average Landings (lbs)	Annual average Value (2021 dollars)	Percentage of Annual average Lease Area Value
Point Judith, RI	175,301	$184,904	35%
New Bedford, MA	161,651	$159,551	30%
Montauk, NY	24,873	$33,096	6%
Chatham, MA	20,251	$20,936	4%
Fairhaven, MA	20,306	$20,164	4%
All Others	127,409	$115,027	22%
Total	529,790	$533,678	-

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

2 ESTIMATES OF ECONOMIC EXPOSURE

2.1 Economic Exposure in the Lease Area

2.1.1 Unadjusted Estimates of Fishing Values for the Lease Area

Table 2-1 presents the 14-year total and annual average fishing revenues generated in the Lease Area during years 2008–2021, valued in 2021 dollars (NOAA Fisheries 2022). These annual values range from $294,468 to $958,501 and average $534,602 or $1,301 per km^2. They are referred to in this report as "unadjusted" fishing revenues because they do not include the value of lobster and Jonah crab landings harvested in the Lease Area by vessels that fish only for those two species and do not need to file federal VTRs on which NOAA Fisheries fishing revenue estimates are based.

Table 2-1 Estimates of Annual Commercial Fishing Economic Exposure in the Lease Area, Unadjusted for Lobster and Jonah Crab

Total Fishing Revenues (2008–2021)	Annual average Revenues	Annual average Fishing Revenues per km^2
$7,484,427	$534,602	$1,301

2.1.2 Adjustments for Lobster and Jonah Crab

To provide a basis for estimating full economic exposure annual fishing values presented in Table 2-1 were adjusted to account for lobster and Jonah crab landings by vessels that land only these two species and do not file federal VTRs. Federal fishing permit data are available that show how many pots are permitted to fish for lobster and Jonah crab in Lobster Management Area 2 (LMA 2) by vessels that file VTRs and by vessels that do not file VTRs.

Federal lobster fishing permit data for 2022 show that 56,039 pots were permitted to harvest lobster and Jonah crab in LMA 2, and that 34,946 of these pots or 62% of them were permitted to vessels that fish for species other than lobster and Jonah crab and therefore file VTRs. The remaining 21,093 pots, or 38% of all permitting pots in LMA 2, are permitted to vessels that fish only for lobster and Jonah crab and are not required to file VTRs.

NOAA Fisheries (2022) data shows that during the years 2008-2021, the total value of fish harvested in the Lease Area by vessels that filed VTRs included $466,667 worth of lobster, an annual average value of $33,333, and $581,487 worth of Jonah crab, an annual average value of $41,535, resulting in annual average revenues from both species of $74,868. This results in annual average lobster and Jonah crab revenues per pot permitted in LMA 2 to vessels that file VTRs is $2.14.

If the characteristics of lobster and Jonah crab fishing by vessels that do not file VTRs were similar to those of vessels that do file VTRs, the $2.14 in annual lobster and Jonah crab revenues in the Lease Area per pot permitted to vessels that file VTRs could be applied equally to pots permitted

to vessels that do not file VTRs. That would result in lobster and Jonah crab revenues not included in VTR records accounting for 38% of revenues from those two species in the Lease Area and would increase estimated dollar value of lobster and Jonah crab landings in the lease area by $45,139.

However, information received from Massachusetts Division of Marine Fisheries (MADMF) lobster fishery experts indicated that it is not reasonable to assume that revenues per permitted pot are the same for vessels that file and do not file VTRs. They indicated that vessels that fish only for lobster and Jonah crab and do not file VTRs are more dedicated to fishing for those two species than vessels that harvest those two species along with other species and do file VTRs. That feedback indicated that compared with vessels that do file VTRs, vessels that do not file VTRs are likely to: (1) actively fish a higher percentage of permitted pots, (2) deploy a higher percentage of active pots in the wind energy development areas, and (3) achieve higher annual average catch rates and fishing revenues per active pot.

To account for these three factors the annual value of lobster and Jonah crab harvested by non-VTR vessels in the Lease Area is estimated here by assuming that pots permitted to non-VTR vessels are: 25% more active, spend 25% more active fishing time in the Lease Area, and generate 25% more fishing revenues than pots permitted to vessels that file VTRs. In effect, these assumptions result in $4.18 as an estimate of revenues generated in the Lease Area per pot permitted to non-VTR vessels, that is $2.14 x 1.25 x 1.25 x 1.25. That means the 21,093 pots permitted to non-VTR vessels are estimated here to generate approximately $88,261 in annual lobster and Jonah crab revenues from the Lease Area that are not included in fishing revenues reported in NOAA Fisheries data (2022) as shown in Table 2-2.[9]

Table 2-2 Estimates of Annual Commercial Fishing Economic Exposure in the Lease Area, Adjusted for Lobster and Jonah Crab

Total Fishing Revenues (2008–2021)	Annual average Fishing Revenue	Annual average Fishing Revenues per km^2
$8,720,081	$622,863	$1,515

[9] Note this adjustment method is conservative and likely results in a high estimate of the annual lobster and Jonah crab revenues from the Lease Area that are not included in fishing revenues reported in NOAA Fisheries (2022).

2.1.3 Final Estimate of Annual Fishing Revenues (Economic Exposure) in the Lease Area

Table 2-2 shows that annual average fishing revenues generated in the Lease Area during 2008–2021, adjusted to account for unreported lobster and Jonah crab landings, equal $622,863. This represents an estimate of the annual economic exposure of commercial fisheries if all commercial fishing revenues from the Lease Area were lost for a full year and not recouped by fishing effort shifting from the Lease Area to other fishing areas.

Table 2-3 presents estimates of annual economic exposure by state based on each state's shares of fishing revenues in the Lease Area from NOAA Fisheries (2022).[10] Commercial fishing fleets from Massachusetts and Rhode Island face the most economic exposure in the Lease Area, accounting, respectively, for 44% and 42%.

Table 2-3 Estimate of Commercial Fishing Economic Exposure in the Lease Area by State, Adjusted for Lobster and Jonah Crab

State	Annual average Value (2021 dollars)	Percentage of Annual average Lease Area Value
Massachusetts	$274,557	44%
Rhode Island	$262,510	42%
New York	$39,784	6%
Connecticut	$19,941	3%
Virginia	$10,350	2%
North Carolina	$9,814	2%
New Jersey	$5,356	1%
All Others	$550	0.1%

Notes:
1. NOAA Fisheries (2022)
2. Values have been deflated to 2021 dollars.

[10] Note that these state shares of fishing revenues from the Lease Area assume that state shares of unreported lobster and Jonah crab revenues are the same as state shares of all commercially harvested species.

2.2 Economic Exposure in the OECC

2.2.1 Overview

Table 2-4 shows that the annual average FRD in the OECC is $2,505 per km^2 (NOAA Fisheries 2023). This provides a baseline value for estimating economic exposure in the OECC.

As described in Section 1.2.2, this report assumes that a 1 km fishing preclusion buffer will be established around where cable installation is taking place, which will result in a fishing preclusion area of 3.14 km^2 (776 acres). Within the OECC five offshore export cables, two cables for Phase 1 and three cables for Phase 2, will be installed. Typical cable laying speeds are expected to range from 328 ft to 656 ft (100 to 200 meters) per hour and cable laying is expected to occur 24 hours per day. The duration of cable laying activity in the OECC will be only a few months.

However, cable installation requires several pre-lay activities such as surveys of cable alignments, pre-lay grapnel runs of cable alignments, and boulder relocation, and some "post-lay activities" such as cable splicing and the placement of cable protection. Based on the expected durations of those activities and cable installation, the Proponent's export cable engineers have estimated that overall cable installation activity in the OECC will take place during approximately 22.5 months (1.875 years), with Phase 1 estimated to take nine months and Phase 2 estimated to take 13.5 months.

As Figure 1-2 illustrates the area of fishing impacts will move along the OECC as cable installation activities take place resulting in fishing impacts at any particular time along approximately 2 km (1.2 miles) of the OECC; that is, 1 km forward of and 1 km aft of cable installation vessels. This means that approximately 3% of the overall length of the OECC will be precluded to commercial fishing around where cable installation is underway. At any particular time it is not expected that commercial fishing will be precluded or impaired in the remaining 97% of the OECC where cable installation is either completed or planned.

Possibilities exist that disruptions in the rate of cable installation may increase the duration of cable installation impacts on commercial fishing, but the area of fishing impacts at any particular time is expected to be limited to approximately 3.14 km^2 (776 acres) around where cable installation activities are underway. There may also be circumstances where more than one cable installation activity will take place at a particular time which will result in a proportional increase in the area of fishing impacts during those times. However, overlapping cable installation activities will result in a proportional decrease in the expected duration of overall cable installation activities and so is expected to result in no net change in overall commercial fishing impacts.

2.2.2 Estimating Economic Exposure in the OECC

The estimate of economic exposure in the OECC was generated by estimating three factors, A, B, and C, and multiplying them together.

Where:

A = expected FRD (annual average fishing revenues per km^2) in the OECC ($2,505)

B = area precluded to fishing during ongoing cable installation activities (3.14 km^2)

C = the total duration of cable installation activities

Such that

EE_{OECC} = A x B x C = Annual Economic Exposure in the OECC

Table 2-4 presents estimates of A, B, and C for both Phases and for the entire OECC and resulting estimates of economic exposure during cable installation. The estimated overall economic exposure in the OECC during both Phase 1 and Phase 2 using the annual average FRD is $14,748 (2021 dollars). Table 2-5 shows the estimates of economic exposure for the OECC by state. For the OECC (including the Western Muskeget Variant), Massachusetts and Rhode Island experience the highest percentage of economic exposure.

Table 2-4 Estimate of Commercial Fishing Economic Exposure in the OECC During Construction Using Annual Average Fishing Revenue

OECC	A Annual Average Fishing Revenue per km^2	B Fishing Preclusion Area (km^2)	C Construction Period (years)	EE Economic Exposure During Construction
Phase 1 (2 cables)	$2,505	3.14	0.75	$5,899
Phase 2 (3 cables)	$2,505	3.14	1.125	$8,849
Entire OECC (Phase 1 + Phase 2)	$2,505	3.14	1.875	$14,748

The analysis described above was also conducted for the Western Muskeget Variant. Based on fishing revenue data provided by NOAA Fisheries for years 2008-2021, annual average fishing revenue in the Western Muskeget Variant is $2,524 per sq km (2021 dollars), which is just $19 higher than the OECC value of $2,505 per km^2. In the unlikely event the Western Muskeget Variant is used to install one cable for Phase 2, economic exposure is estimated to be $8,871 during the 13.5 months when one cable is being installed in the Western Muskeget Variant and two cables are being installed in the OECC. This would result in overall economic exposure of approximately $14,771, just $22 higher than the OECC.

Table 2-5 Estimate of Commercial Fishing Economic Exposure in the OECC by State

State	Percentage of Annual Average OECC Fishing Revenues (2008–2021)
Massachusetts	53.87%
Rhode Island	37.70%
New York	4.73%
Connecticut	1.96%
North Carolina	0.98%
Virginia	0.53%
New Jersey	0.38%
All Others	1.74%

Notes:
1. NOAA Fisheries (2023)

In order to conservatively account for seasonal variability in landings and revenue in the OECC, the Proponent also estimated the economic exposure in the OECC using the monthly average fishing revenue per km^2 from 2008 through 2021, which ranges from \$20 per km^2 (in January) to \$523 per km^2 (in May) (NOAA Fisheries 2023). Table 2-6 presents estimates of A, B, and C for both Phases using the monthly average fishing revenue per km^2 from the nine highest months (\$234 per km^2 for April through December) since the duration of Phase 1 cable installation is estimated to be nine months. The estimated overall economic exposure in the OECC during both Phase 1 and Phase 2 using the conservative monthly average fishing revenue per km^2 from the nine highest months is \$16,532 (2021 dollars).

Table 2-6 Estimate of Commercial Fishing Economic Exposure in the OECC During Construction using Monthly Average Fishing Revenue

OECC	A Highest Nine Months of Average Fishing Revenue per km^2	B Fishing Preclusion Area (km^2)	C Construction Period (months)	EE Economic Exposure During Construction
Phase 1 (2 cables)	\$234	3.14	9	\$6,613
Phase 2 (3 cables)	\$234	3.14	13.5	\$9,919
Entire OECC (Phase 1 + Phase 2)	\$234	3.14	22.5	\$16,532

2.3 Summary of Economic Exposure

Annual economic exposure in the Lease Area is estimated based on the assumption that all fishing will be precluded for a full year with none of the associated losses in fishing revenues recouped as a result of fishing effort being diverted from the Lease Area to other fishing areas. Since annual fishing revenues in the Lease Area are estimated in Section 2.1 to be $622,863 (2021 dollars), this represents full annual economic exposure in the Lease Area during each year of construction. As shown in Tables 2-4 and 2-6, economic exposure related to cable installation in the OECC is estimated to be $14,748-$16,532. Economic impact estimates based on estimates of economic exposure presented in this report will be determined based on updated BOEM guidance and consultations with the states through the CZMA review processes.

3 INDIRECT SOURCES OF ECONOMIC EXPOSURE

3.1 Fishing Congestion Impacts Outside the Lease Area and the OECC

In fishery economics, the term "congestion externalities" refers to increases in vessel-specific or fleetwide fishing costs and/or reductions in fishing revenues that result when so many vessels are operating in a fishing area that they interfere with one another. This is typically the result of some combination of fish being highly concentrated in an area, the fishery being severely overcapitalized, or regulations that limit fishing times or fishing areas in ways that concentrate fishing effort when and where fishing is allowed.

In general, the likelihood that the introduction of new fishing effort in an area will result in fishing congestion impacts depends on the size of the fishing area, the concentration of fish and existing fishing effort in the area, the amount of new fishing effort entering the area, and whether fleetwide fish harvests in the area are limited by fish stock abundance or fishing regulations, or both. It is uncommon for fishing congestion impacts to be significant in open ocean fisheries. Possible exceptions are when fishing regulations involve fishing area or fishing season closures or quota limitations that cause fishing effort to concentrate in particular ocean areas.

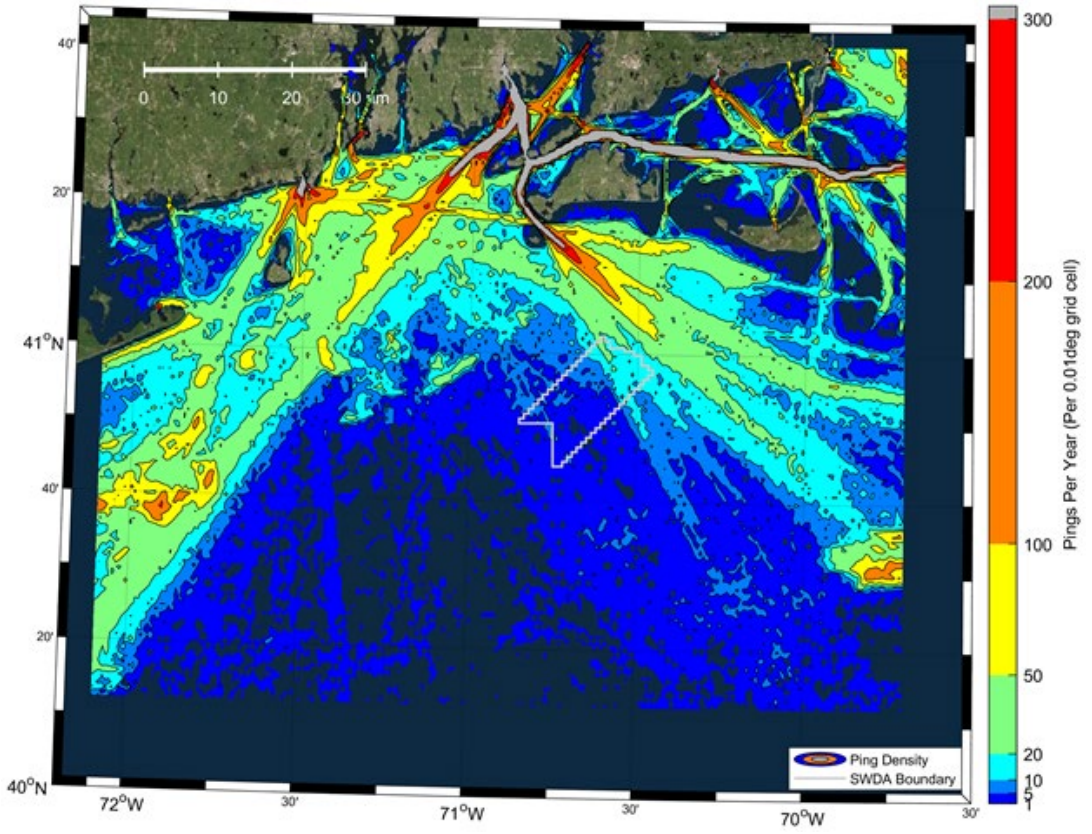
Concentrations of fishing effort and related fishing congestion impacts could result from large offshore wind energy projects. However, the available evidence described below indicates that it is extremely unlikely that the level of potential fishing effort that could be diverted from the SWDA or the OECC to other areas could constitute a significant source of potential fishing congestion impacts. In fact, AIS data indicate that vessels that spend time fishing in the Lease Area and OECC already spend most of their fishing time in adjacent and nearby fishing areas and do not constitute a significant new source of potential fishing effort in those areas.

3.1.1 Potential Fishing Congestion Impacts from the Lease Area

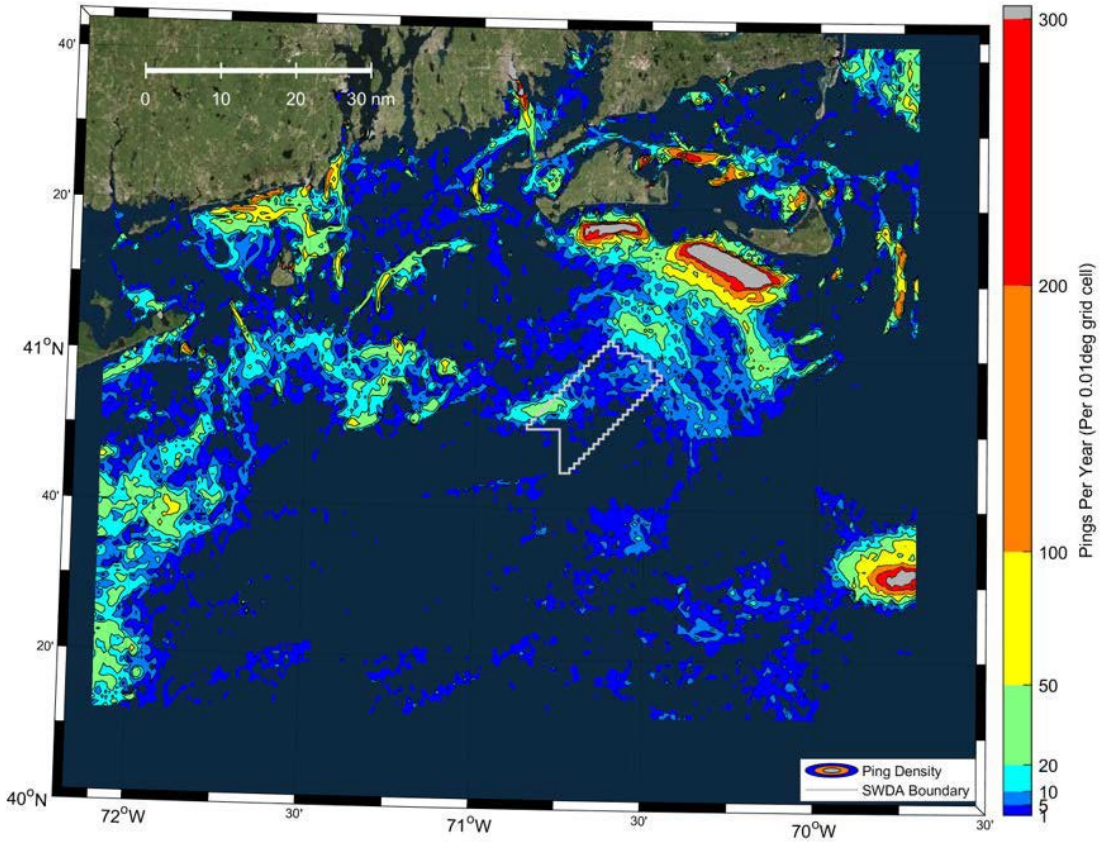
Figure 3-1 and Table 3-1 summarize AIS-equipped fishing vessel traffic in the SWDA. Table 3-1 shows that during 2016–2019 fishing vessels were engaged in fishing in the SWDA on an average of 146 trips per year. During those years the number of fishing trips in the SWDA averaged over ten during only two months (August and September). Based on the analyses of AIS data from 2016 to 2019, Baird (2021) concludes:

"The analyses of AIS data indicated that historical vessel traffic levels within the SWDA are relatively low. The vessel traffic is seasonal in nature with approximately 0.5 vessels every day on average in the winter months to a peak of 6.4 vessels per day on average in the month of August. An evaluation of vessel proximity revealed that two or more vessels are present within the SWDA simultaneously for only 124 hours per year on average (1.4% of the year). There was one short period (a few hours) in September 2016 in which up to 14 vessels were in the SWDA with most of these vessels sailing at speeds less than 4 knots while trawling." (Baird 2021)

This modest level of fishing effort is not a significant enough source of potential new fishing effort entering nearby fishing areas to pose fishing congestion threats in those areas. Also, according to New England Wind's Navigation Safety Risk Assessment (COP Appendix III-I), fishing vessels that operate in the SWDA are already part of the established fishing fleet operating in adjacent and nearby areas and already spend most of their fishing time in those areas. In summary, based on the available data, the development of the SWDA should not be expected to result in fishing congestion impacts in nearby fishing areas.



AIS Vessel Traffic Density Plot for Transiting Fishing Vessels (>4 knots)



AIS Vessel Traffic Density Plot for Trawling Fishing Vessels (<4 knots)

Figure 3-1

Fishing Vessel Activity In and Around the SWDA (2016-2019 AIS Data)

Table 3-1 Average AIS Fishing Vessel Traffic through the SWDA (2016–2019)

Year (2016–2019)	Monthly Average												Annual Average Total (Unique Vessels)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Number of Unique Fishing Vessels (fishing)	0	0	0	1	3	3	5	10	19	4	1	1	33
Number of Unique Fishing Vessel Transits (fishing)	0	0	1	1	4	4	9	50	72	6	1	1	146
Number of Unique Fishing Vessels (transiting)	3	5	6	13	26	30	36	39	36	13	6	3	101
Number of Unique Fishing Vessel Transits (transiting)	8	8	10	18	43	63	81	99	71	20	8	5	422

Notes:

1. Data source is Baird 2021.
2. Analysis has been completed to separate transiting fishing vessels and those fishing vessels that are likely to be fishing (≤4 knots (kts) fishing, >4 kts transiting).
3. Transiting and actively fishing tracks can be doubly counted.

3.1.2 Potential Fishing Congestion Impacts from the OECC

As Figure 1-2 through Figure 1-4 indicate, the OECC represents a small portion of the available fishing grounds in the in the areas it passes through in Nantucket Sound and the areas south of Nantucket Sound and Martha's Vineyard, and accounts for a small share of the fishing effort and fishing revenues generated in those areas. As described above in Section 2.2, during New England Wind construction and installation activities in the OECC commercial fishing will only be precluded in temporary safety buffer zones of 3.14 km^2 (776 acres) established around where cable installation activity is underway. The remainder of the OECC, where cable installation is either completed or planned, will remain open to fishing vessels. It is not expected that these small areas of temporary fishing limitations within the OECC during limited cable installation activities will cause significant enough shifts in fishing effort to other fishing areas or result in fishing congestion impacts.

During O&M of New England Wind, the OECC will have no impact on commercial fishing, except, as described in Section 1.2.2, potentially along short segments of the cable route where cable protection may need to be installed on the seafloor and may pose risks of bottom fishing gear snagging. While this may result in some modifications in the precise tracks of mobile bottom fishing gear in the OECC, it is unlikely to result in enough fishing effort by those vessels shifting away from the OECC to cause fishing congestion impacts in other areas.

3.2 SWDA Impacts on Fishing Vessel Transit Costs

Figure 3-2 shows the proximity of the SWDA to major nearby fishing ports and fishing areas, and the most direct (shortest distance) tracks that fishing vessels would normally use to travel between them. As Table 3-1 indicates, during 2016-2019 the annual average number of fishing vessel transits through the SWDA was 422.

After examining options for accommodating fishing and vessel transit lanes in the Massachusetts/Rhode Island Wind Energy Area (MA/RI WEA), the USCG concluded in its recent *Massachusetts and Rhode Island Port Access Route Study* (MARIPARS) that the standard and uniform grid patterns being planned in wind development areas to facilitate safe and efficient fishing are "sufficient to maintain navigational safety and provide vessels with multiple straight-line options to transit safely through the MA/RI WEA" (USCG 2020).

The Proponent has sited the WTG/ESP positions within the SWDA consistent with the recommendations of the MARIPARS with WTG/ESP positions oriented in fixed east-to-west rows and north-to-south columns with 1 nautical mile (1.9 km) spacing between positions. This grid layout provides multiple 1 NM wide corridors in the east-west and north-south directions as well as 0.6 NM (1.1 km) wide corridors in the northwest-southeast and northeast-southwest directions. As the recent MARIPARS study indicates, this will allow multiple straight-line options for fishing vessels to transit safely through the SWDA (USCG 2020). During O&M of New England Wind, there will be no restrictions on fishing vessels operating in or transiting through the SWDA.

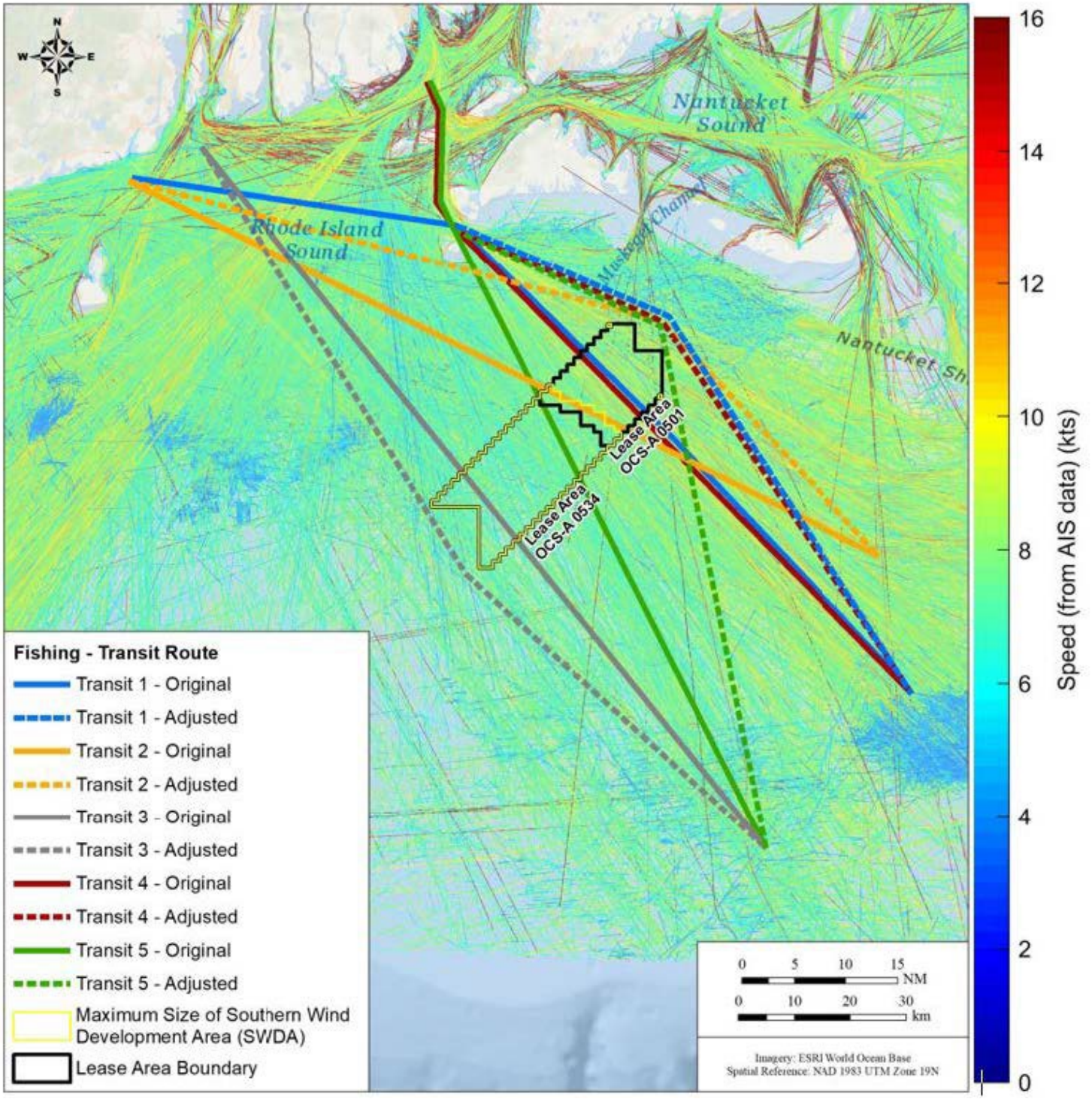


Figure 3-2

Schematic Showing Possible Fishing Vessel Re-Routing Around the SWDA

However, despite the existence of transit/fishing corridors in the SWDA, some fishermen may opt to reroute transits around the SWDA, especially during extreme weather. Figure 3-2 depicts how transiting around, rather than through, the SWDA will affect transit distances by depicting "original" routes through the SWDA (solid lines) and "adjusted" routes (dashed lines) around the SWDA. Table 3-2 presents associated differences in transit distances (NM) and added transit times (minutes) based on the average fishing vessel transit speed through the SWDA of 7.6 knots (Baird 2021).

Table 3-1 displays the average number of unique AIS-equipped fishing vessels that transited the SWDA and the average number of unique fishing vessel transits through the SWDA by month from 2016 to 2019. It shows that during these years, the average monthly number of fishing vessel transits through the SWDA ranged from 5 to 99 vessel transits and annual vessel transits averaged 422 (Baird 2021).

During construction and installation activities in the SWDA, fishing vessels will be allowed to transit through the SWDA but will need to avoid temporary safety buffer zones in the immediate vicinity of construction and installation vessels. This may require at least some of the vessels transiting through the SWDA to implement minor adjustments from the most direct transit route through the SWDA in order to use the transit/fishing corridors created by the WTG/ESP layout in the SWDA.

Table 3-2 Estimated Increase in Fishing Vessel Transit Distances and Times with Re-Routing Around the SWDA and Lease Area OCS-A 0501

Transit Route	Increase in Distance (NM)	Average Increase in Transit Time (minutes)	Percentage Increase in Transit Time
Transit 1 (blue)	1.6	12	2%
Transit 2 (orange)	3	24	4%
Transit 3 (yellow)	0.8	6	1%
Transit 4 (red)	1.5	12	2%
Transit 5 (green)	5.8	46	7%

Notes:

1. Data source is Baird 2021.

It is not possible to predict how many annual transits through the SWDA may be rerouted around the SWDA during and after construction. For purposes of illustrating potential economic exposure, therefore, it is assumed here that 100% of annual fishing vessel transits through the SWDA will reroute around the SWDA.

As shown in Figure 3-2 and Table 3-2, at a typical steaming speed of 7.6 knots, the expected increase in transit time around the SWDA between major fishing ports and important fishing areas ranges from 6 minutes to 46 minutes. If each of the 422 annual transits through the SWDA were

rerouted around the SWDA, and those transits experienced the maximum estimated increase in transit time of 46 minutes, the increase in annual fleetwide transit time would be 324 hours. Assuming the average fishing vessel steaming at 7.6 knots consumes fuel (diesel) at a rate of 25 gallons per hour and purchases diesel fuel at a dockside price of $5.00 per gallon, this additional transit time would add approximately $57.50 to fuel costs per transit and add $24,265 to annual fleet-wide fuel-based transit costs for AIS-equipped vessels.

This estimate of a $24,265 increase in annual fleetwide transit cost if all current annual transits through the SWDA were to detour around the SWDA, is sensitive to assumptions about steaming speeds, fuel consumption rates, and fuel prices, and does not reflect operating costs other than fuel costs or the opportunity cost of any lost fishing time resulting from longer transit times. However, as Table 3-5 illustrates, increases in typical transit times associated with rerouting around the SWDA result in relatively minor increases in overall transit times even if all current transits through the SWDA were to reroute around it. From a fleetwide perspective, therefore, factoring in potential transit cost impacts beyond fuel costs described above will be more than offset by a reduction in estimated costs if the extreme assumption that all fishing vessels that currently transit through the SWDA will be transiting around the SWDA is relaxed. In fact, most vessels that currently transit through the SWDA can be expected to continue transiting through rather than around the SWDA and therefore can be expected to experience little to no increase in transit times or costs.

4 CONCLUSIONS

BOEM refers to economic exposure as "a starting point to understanding potential *economic impacts* … if a harvester opts to no longer fish in the area and cannot recapture that income in a different location" (BOEM 2021a). Section 2 of this report developed $622,863 as an estimate of full annual economic exposure in the Lease Area and $14,748-$16,532 is an estimate of economic exposure during cable installation in the OECC. However, lost fishing revenues would be as high as these estimates of economic exposure only if fishing vessels generate no fishing revenues when they are precluded from fishing in parts of the Lease Area or the OECC. This requires assuming that they will either stay in port or remain idle at sea or will continue fishing while generating no fishing revenues. All of these responses to the areas impacted by New England Wind are highly unlikely because they would require all fishing vessel owner/operators who typically operate in the Lease Area or OECC to act in an economically irrational manner.[11] Economic impact estimates based on estimates of economic exposure presented in this report will be determined based on updated BOEM guidance and consultations with the states through the CZMA review processes.

[11] A basic tenet of economics is that businesses will continue to operate in the short-term as long as revenues (e.g., ex-vessel value of landings) exceed operating costs (e.g., trip expenses), which allows net operating profits to offset at least some fixed costs. It is highly unlikely that the limited areas and durations of fishing preclusions associated with New England Wind would cause fishermen to cease fishing (return to port or remain idle at sea), as opposed to diverting fishing effort away from impact areas. In many meetings related to Vineyard Wind 1, commercial fishermen themselves acknowledged that fishing will likely continue in or at least around offshore wind farms.

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Appendix A – Economic Exposure of For-Hire Recreational Fisheries to the New England Wind Lease Area

1 INTRODUCTION

For-hire recreational fishing vessels include both "charter boats" that take small groups of fishers (usually six or fewer) who hire or "charter" the vessel and "headboats" that take multiple individual anglers (usually more than 6) and/or small groups of anglers on a fee per person basis.

Figure 2.1 depicts for-hire fishing areas south of Martha's Vineyard used by recreational fishing vessels based in Massachusetts and Rhode Island, as identified by Woods Hole Oceanographic Institute's (WHOI) 2022 survey of Massachusetts- and Rhode Island-based charter vessel operators (Kite-Powell et al. 2023a, 2023b). The New England Wind Lease Area OCS-A 0534 (Lease Area) is located in this ocean area. Activities within the Lease Area may temporarily prevent for-hire recreational fishing vessels from operating in the Lease Area. If for-hire recreational fishing vessels are temporarily prevented from accessing certain fishing areas and they cannot earn angler fees by redirecting fishing activity to other fishing areas, they could lose vessel revenues resulting from reduced fishing time and lost angler days.

Based on BOEM guidance, "economic exposure refers to potential economic impacts, not predicted or expected economic impacts" and BOEM refers to economic exposure as "a starting point to understanding potential economic impacts of future offshore wind project development if a harvester opts to no longer fish in the area and cannot recapture that income in a different location" (Kirkpatrick et al. 2017). This report develops estimates of the annual economic exposure of for-hire recreational fishing vessels based in Massachusetts and Rhode Island to the Lease Area. These estimates are based on the best available data related to the annual number of for-hire fishing vessel trips within the Lease Area, expected number of anglers on those trips, and expected vessel revenues per angler.

2 DATA SOURCES

There are two potential sources of reliable and current data regarding for-hire fishing activity in and around the Lease Area. The first is a website (*Socioeconomic Impacts of Atlantic Offshore Wind Development*) that was developed by NOAA Fisheries and includes estimates of annual fishing revenues in each offshore wind lease area in New England and Mid-Atlantic waters (NOAA Fisheries 2023). The second is a set of reports prepared in 2023 by WHOI Marine Policy Center that estimate economic exposure from the Revolution Wind Lease Area and the federal waters section of the Revolution Export Cable Route (Kite-Powell et al. 2023a, 2023b). The WHOI reports include figures and data based on a 2022 survey that addressed for-hire fisheries in a broad area between Block Island and Nantucket, which includes the Lease Area.

2.1 NOAA Fisheries' Socioeconomic Impacts of Atlantic Offshore Wind Development Website

NOAA Fisheries' *Socioeconomic Impacts of Atlantic Offshore Wind Development* website includes annual for-hire fishing data from years 2008 through 2021 for wind lease areas in the Northeast and Middle Atlantic region, including the Lease Area. This data is based on vessel trip reports (VTRs), which include

data regarding fishing locations, fishing times, catches, number of fish kept, numbers of anglers per trip, and other trip-specific information, and marine angler expenditure surveys (Lovell et al 2020; NOAA Fisheries 2023). The website includes annual data on numbers of vessels operating in each lease area and their annual fishing revenues and state-specific estimates of numbers of anglers, numbers of fish kept, and impacts on small and large businesses. However, the data table on the NOAA Fisheries website that describes for-hire fishing activity in the Lease Area shows "no trips" for seven of the 14 years between 2008 and 2021 and "suppressed" for the other seven years (where "suppressed" means that fewer than three vessels reported trips to the Lease Area which prevents NOAA Fisheries from releasing trip data in order to meet the "rule of three" confidentiality standard). It is significant that NOAA Fisheries data indicates that there was little to no for-hire recreational fishing in the Lease Area over the past 14 years. However, the lack of specific information on the NOAA Fisheries website about for-hire recreational fishing that does take place in the Lease Area results in it providing no basis for assessing economic exposure.

2.2 Woods Hole Oceanographic Institute's 2022 Survey of Massachusetts- and Rhode Island-based Charter Vessel Operators

In 2023 WHOI released two reports that estimate the economic exposure of commercial and for-hire recreational fishing fleets based in Massachusetts and Rhode Island to the Revolution Wind development (Lease Area OCS-A 0486). These reports present the results of a 2022 survey of charter vessel operators based in Massachusetts and Rhode Island regarding their operations during 2017-2022 in the area south of Martha's Vineyard which includes both the Revolution Wind Lease Area and the Lease Area (Figure 2-1; Kite-Powell et al. 2023a, 2023b).

While the analysis presented in these WHOI reports is focused on fishing in and around the Revolution Wind project area, the 2022 survey of Massachusetts- and Rhode Island-based charter vessel operators asked charter vessel operators to provide fishing locations within the waters south of Rhode Island and Massachusetts, which includes the Lease Area. Figure 2-2, for example, is a chart from one of the WHOI reports which shows the locations of fishing areas in the ocean area between Block Island and Nantucket that were identified by for-hire fishing boat owner/operators as part of a 2022 WHOI survey.

Because the NOAA Fisheries for-hire fisheries data for the Lease Area are not useful for purposes of estimating economic exposure, some of the data presented in these WHOI reports are extrapolated in the following section to estimate the economic exposure of for-hire recreational fishing vessels to offshore wind energy development in the Lease Area.

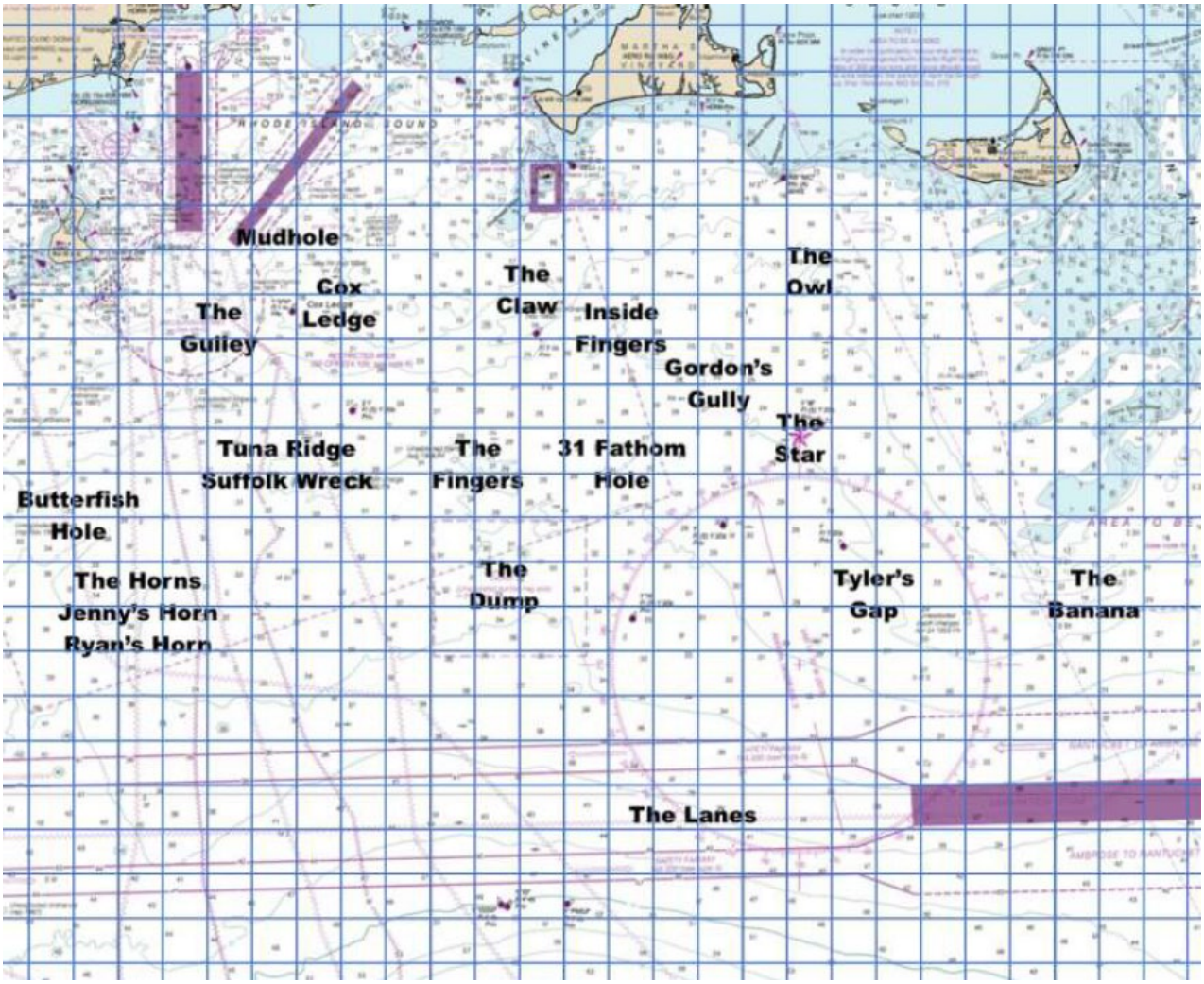

Figure 2-1 2022 WHOI For-Hire Recreational Fisheries Survey Area

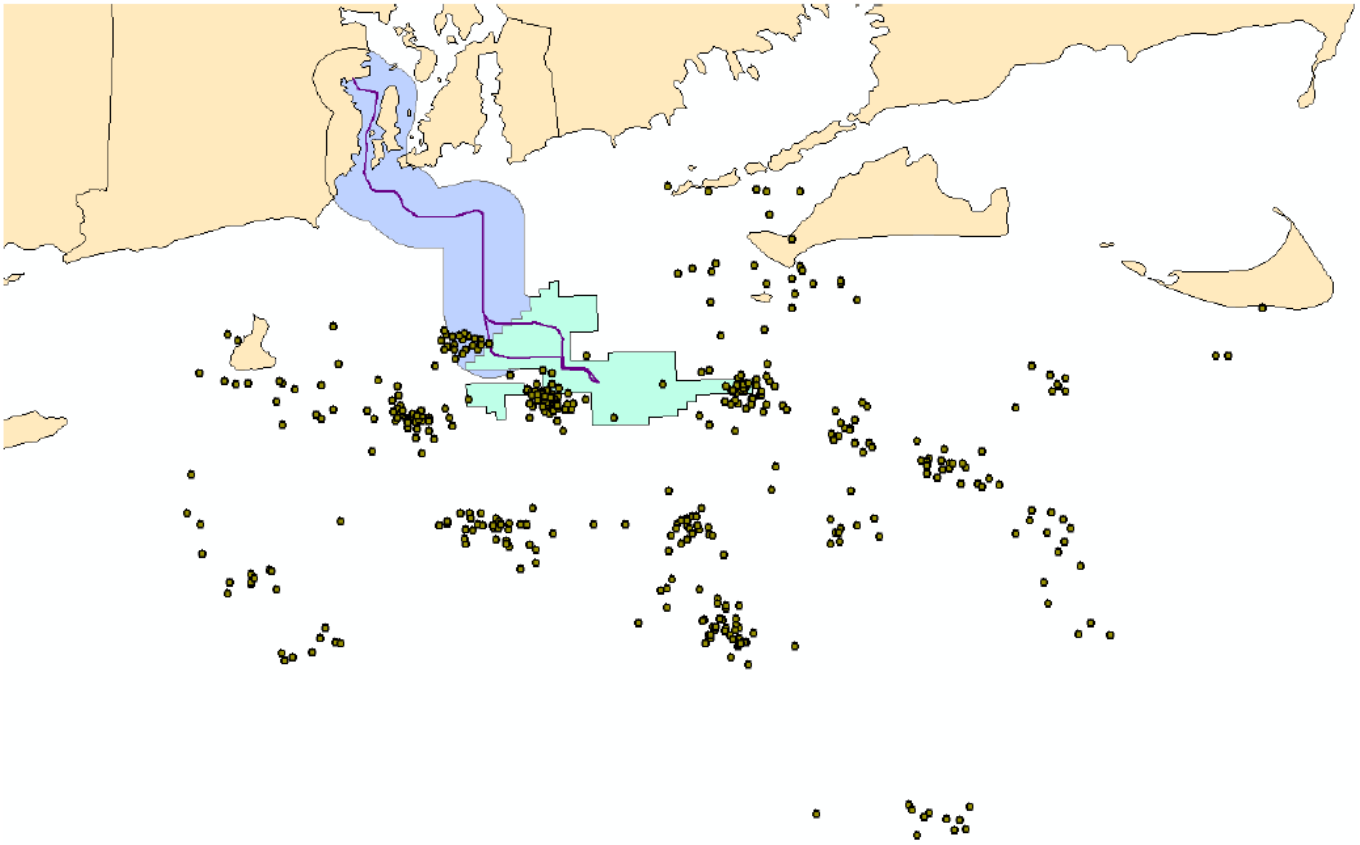

Figure 2-2 Charter Fishing Locations (2017-2022) Identified in the 2022 WHOI Survey Area

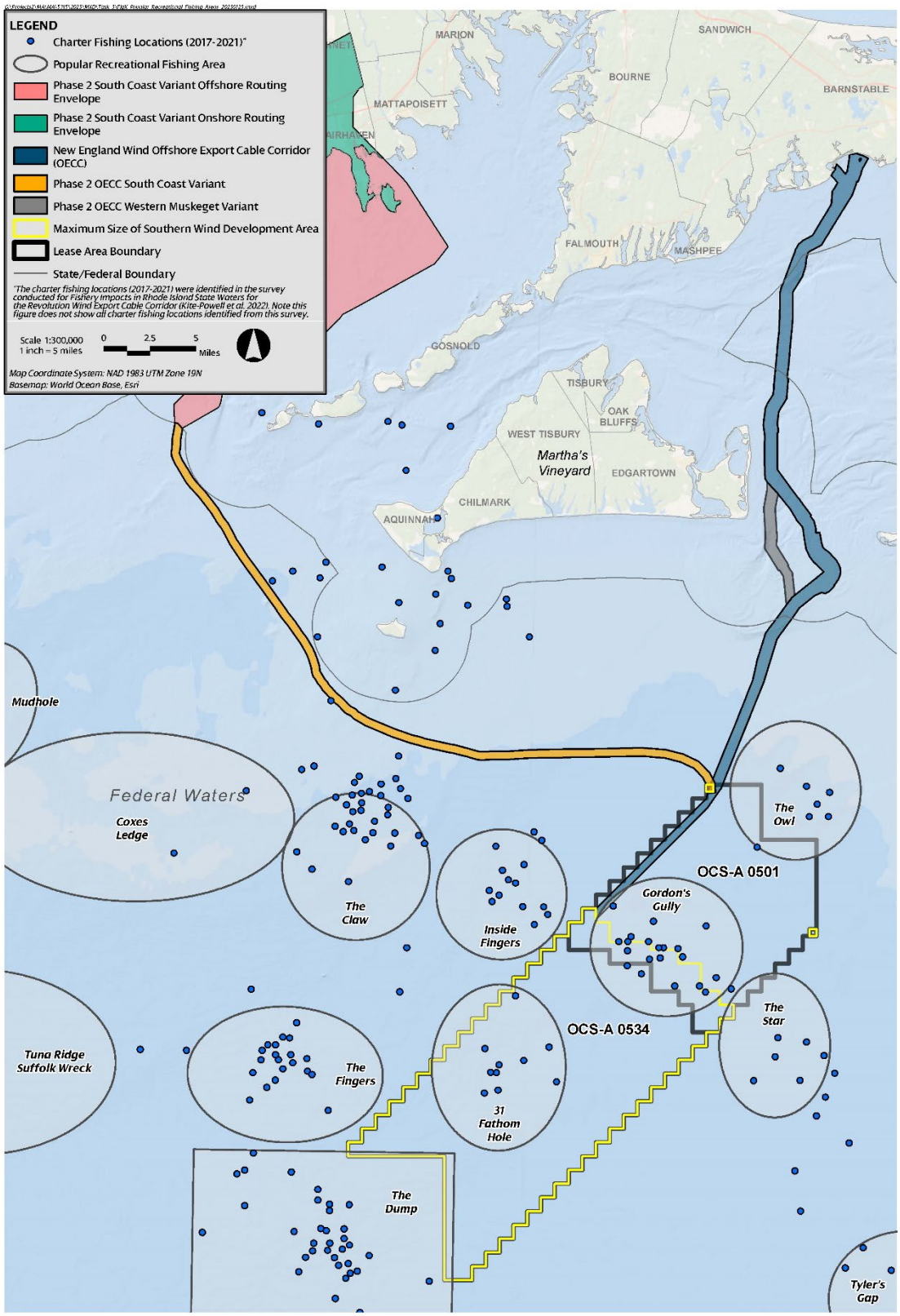

Figure 2-3 Charter Fishing Locations (2017-2022) Identified in the 2022 WHOI Survey Area with the New England Wind Offshore Development Area

3 APPROACH TO ESTIMATING ECONOMIC EXPOSURE IN THE FOR-HIRE FISHERY

The approach used to estimate annual economic exposure of for-hire recreational fishing in the Lease Area can be described as follows:

Let:

EE_{NEW} = Annual Economic Exposure in the New England Wind (NEW) Lease Area

where:
EE_{NEW} = (a) x (b) x (c)
and:
(a) = average annual number of for-hire fishing vessel trips to the Lease Area,
(b)= average number of anglers per for-hire fishing trip, and
(c)= average for-hire vessel revenues per angler.

This simple approach involves developing estimates of (a), (b), and (c) and multiplying them together to arrive at EE_{NEW}. The WHOI reports provide a reasonable basis for estimating (a) and (b) for the Lease Area and a 2013 NOAA Fisheries reference document provides a basis for estimating (c).[1]

Based on interviews with for-hire fishing vessel captains WHOI researchers estimated that approximately 100 for-hire vessels operate in the waters depicted in Figures 2-1. The 2022 WHOI survey of for-hire vessel owner/operators resulted in 66 vessels reporting that they fish in the survey area shown in Figure 2-1. Sixty-two of these vessels or 62% of the 100 vessels estimated to be operating in this area provided vessel names, including 37.5 vessels based in Massachusetts and 24.5 vessels based in Rhode Island. Assuming a fairly uniform survey response rate for the two states, the 100 vessels estimated to be operating in the area depicted in Figure 2-1 include 60.5 vessels based in Massachusetts and 39.5 vessels based in Rhode Island.

As part of the WHOI survey, for-hire fishing vessel operators identified approximately 381 specific fishing areas in the survey area as shown in Figure 2-2 and reported that the average number of annual fishing trips per for-hire vessel is 47.3 and the average number of anglers per trip is 5.41. These figures indicate that 4,730 is a reasonable estimate of the average number of annual vessel trips to the survey area and 25,589 is a reasonable estimate of the average number of annual angler trips to the survey area.

Figure 2-3 shows the New England Wind Offshore Development Area superimposed on Figure 2-2, which shows the fishing areas identified in the WHOI survey. Of the 381 specific fishing areas identified in the WHOI survey area, 14 fishing areas or approximately 3.7% are shown in Figure 2-3 to be located within the Lease Area. If for-hire fishing activity is distributed fairly uniformly across the fishing areas identified in the WHOI survey, this implies that approximately 3.7% of that fishing activity takes place in the Lease

[1] The WHOI reports used average vessel revenues per angler of $106.22 (2019$) based on average VTR data for charter and headboats in the Revolution Wind Lease Area (Kite-Powell et al. 2023a, 2023b). However, based on feedback from Massachusetts Division of Marine Fisheries staff, the average vessel revenues per angler used in this analysis is $184.74 (2021$) which is the per-person share of a typical full day charter trip as estimated by NOAA in Steinback and Brinson (2013).

Area. That results in 175 average annual for-hire fishing vessel trips and 947 annual angler trips to the Lease Area.

4 ESTIMATES OF ECONOMIC EXPOSURE

Table 4-1 develops estimates of the annual economic exposure of for-hire recreational fishing vessels in the Lease Area based on the analysis described in Section 3. Based on that analysis, the average annual number of for-hire recreational fishing vessels operating in the Lease Area is 175 (a= 175), the average number of anglers per vessel is 5.41 (b=5.41), and average vessel revenues per angler is $184.37 (c=$184.37), which results in annual economic exposure in the Lease Area, that is (a x b x c), of $174,552. Assuming uniform Rhode Island and Massachusetts response rates to the WHOI survey, approximately 60.5% of the for-hire vessels that fish in the survey area are based in Massachusetts and 39.5% are based in Rhode Island which means the economic exposure of for hire recreational fishing vessels in the Lease Area is approximately $105,729 for vessels based in Massachusetts and $68,823 for vessels based in Rhode Island.

Table 4-1 Estimates of the Annual Economic Exposure of For-hire Recreational Fishing Vessels in the Lease Area

State	For-hire Vessels Operating Annually in Survey Area[1]	Average Annual Trips per Vessel[2]	Total Annual Trips by For-hire Vessels in Survey Area	Total Annual Trips by For-hire Vessels in Lease Area[3]	Average Number of Anglers Per Trip[2]	Revenue per Angler ($2021)[4]	Total Annual For-hire Fishing Revenue in Lease Area
Massachusetts	60.5	47.3	2,862	106	5.41	$184.37	$105,729
Rhode Island	39.5	47.3	1,868	69	5.41	$184.37	$68,823
Total	100	47.3	4,730	175	5.41	$184.37	$174,552

Notes:

1. The WHOI survey report indicated that approximately 100 vessels actively engage in for-hire fishing in the waters depicted in in the survey area (Figure 2-1; Kite-Powell et al. 2023a, 2023b). The WHOI reports indicate that the for-hire survey covered 62 for-hire vessels that fish in the survey area, which would be 62% of the 100 vessels in the for-hire fleet that fish in the survey area. The 62 vessels surveyed included 37.5 vessels based in Massachusetts and 24.5 vessels based in Rhode Island (Kite-Powell et al. 2023a, 2023b). If the 37.5 Massachusetts-based for-hire vessels surveyed and the 24.5 Rhode Island-based for-hire vessels surveyed account for 62% of the for-hire fleets from those two states that operate in the waters depicted in the survey area (Figure 2-1), 60.5 of those vessels are based in Massachusetts and 39.5 are based in Rhode Island.
2. Values are from Kite-Powell et al. 2023a, 2023b.
3. Approximately 14 fishing locations, or 3.7% of the total 381 fishing locations identified in the WHOI survey, were identified as being located within the Lease Area (See Figure 2-3).
4. Revenue per angler estimate is based on the per angler revenue earned on a typical full day charter trip as reported in Steinback & Brinson 2013.
5. All values have been deflated to 2021 dollars.

4 REFERENCES

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Kite-Powell H, Jin D, Weir M. 2023a. Fisheries exposure in Massachusetts from the Revolution Wind Lease Area and the federal waters section of the Revolution Export Cable Route. Marine Policy Center, Woods Hole Oceanographic Institute.

Kite-Powell H, Jin D, Weir M. 2023b. Fisheries exposure in Rhode Island from the Revolution Wind Lease Area and the federal waters section of the Revolution Export Cable Route. Marine Policy Center, Woods Hole Oceanographic Institute.

Lovell, S., J. Hilger, E. Rollns, N.A. Olsen, and S. Steinback, 2020. The economic contribution of marine angler expenditures on fishing trips in the United States, 2017. NOAA Technical Memo # NMFS-F/SPO-201. https://spo.nmfs.noaa.gov/tm.htm

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Steinback S, Brinson A. 2013. The economics of the recreational for-hire fishing industry in the Northeast United States. Northeast Fisheries Science Center reference document; 13-03. https://repository.library.noaa.gov/view/noaa/4373

NEW BEDFORD
PORT AUTHORITY

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New Bedford, MA 02740
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September 22, 2023

I am writing on behalf of the New Bedford Port Authority to offer some preliminary comments regarding the fisheries mitigation submissions of the New England Wind and Sunrise Wind developments. As the most valuable fishing port in the nation and the hub for countless onshore businesses and families who rely on the industry, we believe that it is vital that the actual impact of the development of offshore wind on the economy and people of Massachusetts be established using the best available data, methods and evidence. This information should therefore be the basis for adequate funds being set aside to address that impact, and that the funds are directed where the impact is actually felt.

As is the case with all mitigation and means proposed by offshore wind developers, the numbers and methodology offered in the proposed funds drastically underestimates the likely significant impact of these developments, especially during the operational phase. There is no allowance for the unknown as to the impact on commercial fishing and shoreside businesses during the operational phase of the project beyond the fifth year.

We would also note that the data sets used to determine the amounts included in the proposed funds are incomplete and insufficient to address the full economic impact of the proposed WEAs on commercial fishing and the associated communities.

Having stated the above, we would like to note the following issues that now appear to be the standard industry practice in connection with exposure analysis and mitigations funds:

Developer Involvement or Lack Thereof

It is concerning that the response from the developers has been that they are merely the "checkbook" and the terms and conditions under which the mitigation plans are managed will be up to the third-party administrators. While we are on record that fund management and final decision-making should be run by a third party, developers must be also be accountable to make sure that the funds are going where they are required to go. Further, while the desire of the developers to simply cut a check and walk away might make sense from a business standpoint, it is contrary to the responsibility under BOEM requirements in a COP or EIS. Given the unknowns as to impact, it is irresponsible to allow any developer to avoid responsibility for the actual damage caused once it is known. Every recent EIS and COP contains ongoing survey requirements. Something must be done with future survey results that show a greater impact on commercial fishing by offshore wind than was assumed in any mitigation plan. Developers are

taking advantage of the unknowns in mitigation plans by locking up numbers now. The burden as to what happens when the surveys show that the assumptions were wrong cannot lie solely with the fishermen.

The 95% Assumption

We have now been presented with different exposure analysis calculations and follow on mitigation funds from multiple developers, all with the common theme of 95% of the WEA in question being "available" to fishermen during the O & M phase. As we have noted in responses to these proposals and in our response to the draft BOEM Mitigation Guidance, any set numbers and assumptions as they relate to what is "available" to commercial fishermen should start and end with a discussion with those fishermen involved in a particular fishery.

It is worth noting here that the developers have relied solely on the numbers in the draft BOEM guidance when they address mitigation amounts over the life of a WEA. However, the 95% number for years 6-25 is solely a creation of the industry. The approach of developers ignores that the BOEM guidance itself states that those numbers should be considered "at a minimum".

There is simply no way for an economist, scientist, or any other "expert" to assess the behavior of commercial fishermen in an array with a 1nm spacing without actually speaking to them regarding their fishing methods. As multiple commentors have noted, there are multiple fisheries involved in any WEA. Each fishery has its own means and methods for its catch. The difference lies in methods used by static gear fisheries versus mobile gear fisheries. While it is plausible, but not likely, that the 95% assumption may come close to the available area for a static fishery, it is equally as implausible that the assumption is valid for a mobile gear fishery. Given wind, wave, tide, and the orientation of the towers, far less than 95% of any WEA is "available" for mobile gear fishermen to fish.

This becomes an issue when assessing exposure dollar values. Taken as a whole, mobile gear fisheries are more lucrative. This becomes especially true when scallops are involved. The scallop fishery is almost five times more lucrative to the Commonwealth of Massachusetts than any other fishery and the most valuable fishery in the United States. Thus, applying the 95% rule across the board to all fisheries in the WEA has the net impact of artificially reducing the exposure value.

Finally, the 95% assumption is fundamentally flawed as it relates to the impact of the WEA on commercial fishing from a purely scientific standpoint. If the last year has taught us anything, it is that developers, scientists, regulators, etc.., have no idea what the true impact of offshore wind will be on commercial fishing. Yet the developers providing the mitigation numbers are using catch numbers that have the potential to be worthless once the WEA, and those around it, are constructed.

Permit Transfer Restriction

Despite their claim of being "hands off" when it comes to the terms of their mitigation plans, one common theme in all the mitigation plans put forward by developers to date has been a restriction that payments to a commercial fishing permit/vessel end upon transfer of the

permit/vessel. In other words, developers are limiting payment from the mitigation funds to fishermen who fished in the WEA prior to its construction only. It is not clear if the intent is to pay out in a lump sum to cover 30 years of lost revenue or not.

While fishermen who can demonstrate a history of fishing in a WEA prior to construction are clearly the most obvious "eligible entity", using BOEM's term, they cannot be the only entity to receive payment from a fund. Including such a provision in mitigation funds improperly conflates individual fishermen with the commercial fishery as a whole.

In any mitigation fund, a developer is supposed to be mitigating the impact on commercial fishing caused by the existence of the WEA. Limiting payment to someone who fished prior to the WEA and ending eligibility at a permit transfer ignores the impact to the fishery by the WEA. The lifespan of the wind areas is 25-30 years, and the mitigation calculations are supposedly based on fishing loss over that span. There are an awful lot of permits that are likely to transfer over a 30-year period. There could be a large portion of the mitigation funds left unspent over the life of the WEA that were not used to mitigate the impact on commercial fishing. It will be too late to mitigate anything at that point.

The flawed assumption here is that the impact on commercial fishing begins and ends with the fishermen fishing now. Following that assumption only serves to do more damage to commercial fishing as a whole and as an industry traditionally built on generational transfers. The loss of the ability to fish in a WEA, combined with no additional payments after transfer, has the effect of reducing the value of the permit (the diminished value of fishing permits caused by offshore wind is not addressed anywhere in mitigation calculations) and lessening any inclination a new generation has in taking over an already incredibly difficult occupation.

Any mitigation fund must have a mechanism to direct revenue to the benefit of the fishery and subsequent generations that might look to commercial fishing as a livelihood. The lack of such provision only serves to add one more straw on the future of Massachusetts' proud tradition of commercial fishing. There is some irony to the fact that an industry designed to benefit future generations, offshore wind, may lead to a decline in any future generation's ability to participate in U.S. commercial fishing, the world's most regulated and sustainable commercial fisheries.

Eligible Entities

BOEM guidance makes it abundantly clear that entities eligible for mitigation payments include many individuals and entities apart from the vessel owners. Eligible entities are "vessel owners, operators, and crew including shoreside businesses, such as seafood processors and bait dealers, that can demonstrate in a claim that their business experienced a loss of income due to unrecovered economic activity resulting from displaced fisheries."

Both primary proposed mitigation funds appear to limit their payment to vessel owners who fished in the WEA prior to construction. Although the numbers for New England contain an upstream and downstream multiplier, there was no discussion as to how crew, shoreside businesses, processors, etc... will have access to the funds or even whether those multipliers bore any reasonable resemblance to the actual cost to the regional economy caused by lost fishing

revenue. New England also contained an additional $500,000.00 for grants, training programs, research initiatives, or a navigational/safety equipment support program. This is $500,000.00 over the 30-year life of the project.

The Sunrise proposal specifically lists eligibility for the primary fund as limited to commercial fishers who have fished in the area. Again, there is no mention of crew, shoreside businesses, processors, etc.... Sunrise appears to place these shoreside eligible entities in the group vying for grants from the $400,000.00 Coastal Community Fund. Again, this is $400,000.00 to the multitude of upstream and downstream shoreside businesses and families who rely on revenue associated with their work in commercial fishing, over the 30-year life of the project.

The same issues with the calculation of lost fishing revenue apply to lost shoreside revenue except that there is not even an effort to quantify the shoreside numbers. The assumptions as to the impact on the regional upstream and downstream businesses are made with little to no study or up-to-date information. It defies logic that a fund that amounts to 4% of the total for the vessel fund is sufficient to cover shoreside losses. A URI report regarding the impact of commercial fisheries and seafood processing in Rhode Island estimated the multipliers for commercial fishing alone as:

Total Effect Multipliers for X-Vessel Values

Effect	Multiplier
Output	3.06
Value Added	1.98
Employment	32.43 (jobs per $million)

Abutting Areas

Multiple commutators have pointed out the issue with multiple funds and differing requirements for fishermen to obtain payment from each fund. BOEM has made it clear that payments must be made in a reasonable time and that the process must no be cumbersome for commercial fishermen to obtain payment. When multiple WEAs abut each other, there is simply no way for a fisherman to allocate a percentage or set value to his catch in a specific area. In the case of Massachusetts, it is possible for one trawl to span four or five separate areas. While a regional administrator to handle all claims is the best solution, there should at least be a requirement or agreement that claims for abutting wind areas will be handled by the same third-party and in the same uniform manner.

Reopener/Regular Evaluation

There are serious concerns within the commercial fishing industry about the potential impacts to their livelihoods from the construction and operations of the offshore wind developments. While the offshore wind industry is brand new to the United States and the northeast waters and has yet to become operational, the concerns and uncertainty of the fishermen are certainly justified. All involved will readily admit that there are many unknowns related to those potential impacts.

However, given the extent of the interventions in the marine environment from the construction of foundations, the undersea cables, offshore substations and their super-heated effluent discharge, and ongoing disruptions from vibrations, acoustics, and other activities, not to mention the challenges of either fishing within or traversing through the wind energy areas, it is more than reasonable to expect there will be significant adverse impacts to commercial fishing.

All of this leads to the need to have the ability to revisit the mitigation funding regularly to make sure it is doing what it was intended to do with sufficient funds. Even BOEM has started to address the unknowns when it comes to mitigation by incorporating the potential for additional funds into the ROD for new projects, "BSEE will evaluate the need for additional compensatory mitigation consistent with the Annual Certification under 30 C.F.R. § 285.633(a)." (Ocean Wind 1 ROD). Any mitigation agreement/plan must have a review time frame and an agreement to re-open if necessary.

Conclusion

Mitigation proposals such as this, that seem to suggest negligible impacts, can only serve to sow doubt within the commercial fishing industry that their concerns are being taken seriously now and will be acknowledged and addressed when they are experienced in the coming years. Statements that the fishermen will "adapt" ignore the very real scientific, regional, and regulatory reasons simply adapting and fishing somewhere apart from where they have been fishing for hundreds of years is not an option. The level of uncertainty around the impacts of offshore wind demands a sober assessment and preparation for what those impacts could be. If such anticipated impacts end up not materializing in the future, that will be demonstrated by continued productive fishing, and additional measures to provide support for the fishermen will prove unnecessary. However, when it turns out the funding and mitigation mechanism put in place relies on an unrealistic exposure analysis based on the narrowest possible metrics and assumptions, it will be too late to help commercial fishing once these negative impacts are experienced. It is also critical to remember that none of these estimated mitigation totals consider the cumulative impact of all of the wind areas together. Any error or assumption must be in favor of the group whose livelihood is at stake.

Thank you for the opportunity to comment.

Regards,

Blair S. Bailey

Blair S. Bailey
General Counsel
New Bedford Port Authority

Boeri, Robert (EEA)

From: Engler, Lisa Berry (EEA)
Sent: Monday, September 25, 2023 11:03 AM
To: ROLL, MARK; mHartnett@epsilonassociates.com; Caitlin Hamer; Dennis King; HARKER, JOHN; HOWARD, CAELA; Geri Edens; KIMMELL LUKE, KENNETH
Cc: McKiernan, Dan (FWE); Boeri, Robert (EEA); Emery, Hollie E (EEA); Callaghan, Todd (EEA); Bopp, Justin J (FWE)
Subject: FW: Reminder: Fishing Industry meeting re: Sunrise Wind and New England Wind fisheries compensatory mitigation
Attachments: 2021 DMF landings.pdf; 2008 DMF landings.pdf; SRW MA CZM Fisheries Compensatory Mitigation 20230824.pdf; Avangrid OCS-A 0534 Mitigation presentation.pdf; New England Wind and Sunrise Wind Mitigation Comment letter FINAL 092223.pdf

Hi Mark –
Attached and below are comments from the MLA and the New Bedford Port Authority. Please respond in writing and we will forward.
Lisa

Lisa Berry Engler
Massachusetts Office of Coastal Zone Management | Director | 100 Cambridge Street, Suite 900 | Boston, MA 02114 | 857-207-2522 | lisa.engler@mass.gov

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From: Beth Casoni <beth.casoni@lobstermen.com>
Sent: Tuesday, September 19, 2023 10:29 AM
To: Engler, Lisa Berry (EEA) <lisa.engler@mass.gov>
Cc: Arthur Sawyer <sooky55@aol.com>; Bill Lister <billylister1956@gmail.com>; Bill souza <jlobsters@comcast.net>; Bob Nihtila Sr. <diseabreeze@aol.com>; Bob Ward <roalward@comcast.net>; Brendan Adams <FibFab25@yahoo.com>; Dave Magee <capecodlobster@comcast.net>; DAVID CASONI <lobsterteacher@hotmail.com>; Eric Lorentzen <ericreedlorentzen@gmail.com>; Jarrett Drake (MLA VP) <jarrett@drakelobster.com>; Mark Ring <mring4482@gmail.com>; Mike Bartlett <mbart217@aol.com>; Steve Holler <necka30@gmail.com>; Tom Tomkiewicz <fvbridgetminc@aol.com>
Subject: RE: Reminder: Fishing Industry meeting re: Sunrise Wind and New England Wind fisheries compensatory mitigation

Good morning Lisa,

After looking over the presentations by both companies on the economic impact to the industry seems to be low in the funding for their mitigation packages.

Avangrid is applying a multiplier of 1.83 upstream and .83 downstream for their estimates which is extremely low.

Orsted doesn't give their multiplier while their overall package seems higher, but this is where most of the fleet is fishing as this is hard bottom and the fishing industry will be greatly impacted for years to come.

When we talk about the economic impact of the lobster fishery, we use a ~3.5 multiplier collectively. The cost of doing business has gone up over 400% and the industry has not seen a cost increase for their goods over the last twenty years. The ex-vessel paid to the lobstermen has ranged from an average of $4.55lb. in 2004 to $4.66lb. in 2020 and $7.36lb. in 2021 which was an anomaly. (*Please see the MADMF Lobster Tables attached for your review. Once I have the 2022 table, I will share these with you so that you can see the price drop from 2021.)*

I would ask that the government and industries collectively develop an acceptable multiplier for all mitigation packages to follow. This is such a critical component of all of these mitigation talks that it should not be left up to one publication or academic institution.

If you have any questions, please feel free to give me a call on cell.

Thank you for your thoughtful consideration on our comments.

Kind regards,

Beth Casoni
Executive Director
Massachusetts Lobstermen's Association
8 Otis Place
Scituate, MA 02066
781.545.6984

From: Engler, Lisa Berry (EEA) <lisa.engler@mass.gov>
Sent: Monday, September 18, 2023 3:48 PM
To: Beth Casoni <beth.casoni@lobstermen.com>
Subject: RE: Reminder: Fishing Industry meeting re: Sunrise Wind and New England Wind fisheries compensatory mitigation

Thanks, Beth. I look forward to reviewing your comments. Hope you are doing well.
Lisa

Lisa Berry Engler
Massachusetts Office of Coastal Zone Management | Director | 100 Cambridge Street, Suite 900 | Boston, MA 02114 | 857-207-2522 | lisa.engler@mass.gov

New England Wind
AVANGRID

September 28, 2023

Lisa Berry Engler, Director
The Commonwealth of Massachusetts
Office of Coastal Zone Management
100 Cambridge Street, Suite 900
Boston, MA 02114

Ms. Engler:

Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, is pleased to provide the enclosed response to the Massachusetts fishing industry comments regarding the fisheries mitigation package proposed by New England Wind. We have excerpted relevant portions of the comments below. We have attached the comment letters for reference.

MA Lobstermen's Association Comments

Comment: *Avangrid is applying a multiplier of 1.83 upstream and 0.83 downstream for their estimates which is extremely low.*

Response:

New England Wind is using the Massachusetts state economic multiplier derived from the NOAA Fisheries Commercial Fishing & Seafood Industry Input/Output Model, which uses an IMPLAN platform to estimate the economic impacts associated with the harvesting of fish by U.S. commercial fishermen and other major components of the U.S. seafood industry.[1] This represents the best available economic multiplier for Massachusetts commercial fisheries. Further, the multiplier is higher than the multiplier used in offshore wind projects that recently completed the federal consistency review process in New England. These multipliers are estimated based on recent year data regarding input-output (purchase-sale) relationships in commercial fisheries and in fishery-related sectors of the Massachusetts economy and reflect economic linkages between commercial fishing industries and other sectors of the Massachusetts economy. Differences in historical changes in fishing input costs and fish prices do not affect current estimates of economic multipliers which are based on the most recent available data related to input-output (purchase-sale) relationships.

[1] https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states

New Bedford Port Authority Comments

Comment: *While we are on record that fund management and final decision-making should be run by a third party, developers must be also be accountable to make sure that the funds are going where they are required to go…Given the unknowns as to impact, it is irresponsible to allow any developer to avoid responsibility for the actual damage caused once it is known. Every recent EIS and COP contains ongoing survey requirements. Something must be done with future survey results that show a greater impact on commercial fishing by offshore wind than was assumed in any mitigation plan. Developers are taking advantage of the unknowns in mitigation plans by locking up numbers now.*

Response:

As we have presented, there are conservative assumptions built into the impact analysis resulting in estimated economic impacts on Massachusetts fisheries that represent a conservative upper bound of likely impacts. These assumptions rely on the best available information and offset future uncertainties. The conservatism built into our analysis includes the following:

- Direct economic impacts are based on 100% economic exposure during construction and decommissioning, even though most of the Lease Area and OECC will remain open to fishing during construction and decommissioning and at least some fishing effort in these areas will be diverted to other areas where it will generate offsetting fishing revenues.
- Estimated durations for construction and decommissioning in the Lease Area and OECC are rounded up from partial years to whole years.
- An adaption period is accounted for during the first 5 years of operations. In addition, New England Wind has exceeded the minimum recommendations in the draft BOEM guidelines in assuming that fishing revenues will be reduced 5% for years 6-30 of O&M.
- Most for-hire recreational fishing within the waters south of Rhode Island and Massachusetts takes place outside of the Lease Area (Appendix A: *Economic Exposure of For-Hire Recreational Fisheries to the New England Wind Lease Area* of Appendix III-N of COP Volume III states that based on the Woods Hole Oceanographic Institute survey data, approximately 3.7% of for-hire recreational fishing activity takes place in the Lease Area). In addition, the 1 NM x 1 NM layout will allow for-hire recreational fishing vessels to operate during O&M with minor adjustments. Therefore, we do not anticipate economic exposure of for-hire recreational fisheries revenues during O&M. Nevertheless, we have conservatively estimated for-hire recreational fishing revenues could be reduced by up to 1% for 30 years of O&M based on feedback from fishermen and Massachusetts state agencies.

- Adjustments for lobster and Jonah crab revenues are based on conservative assumptions about the numbers of permitted pots that are active, numbers of active pots deployed in the Lease Area, and annual fishing revenues generated per active pot.
- Economic multipliers that reflect both indirect and induced shore-side economic impacts are applied to both potential upstream impacts (related to reduced purchases of fishing inputs to support fishing activities) and downstream impacts (associated with reduced fish landings available to seafood processors and dealers). Use of these multipliers is conservative because, while we expect New England Wind will cause fishermen to divert fishing from some areas, they are not expected to fish less. Thus, there should be no reduction in purchases of fishing inputs (no upstream impacts). In addition, unless diverted fishing effort results in fishermen catching no fish in any other areas, applying a downstream multiplier overestimates economic impact.
- Fishing revenue estimates from NOAA Fisheries data[2] are gross revenue, not net revenue, which means they do not take account of fishing costs. As such, we are using baseline fishing revenue estimates that are well above the actual income earned by fishermen. NOAA Fisheries estimates that net revenues from most types of commercial fishing (i.e., income to fishermen and vessel owners) are typically about 50% of gross revenue[3] and BOEM expects that lost fishermen income is a portion of the total fishing revenue exposure.[4]

These conservative assumptions result in estimates of economic impacts that take into account uncertainties expressed by the fishing community. Further, the assumptions used by New England Wind incorporate lessons learned from other offshore wind projects and are as conservative, or more conservative than, those used in similar economic impact analyses of other recently approved offshore wind projects in the New England region.

In summary, the direct compensation amount of $5,859,471 is based on the best available data (adjusted for lobster and Jonah crab), covers potential economic exposure in both the Lease Area and OECC, and includes multipliers to account for upstream and downstream shore-based impacts. On top of that, New England Wind has added $1.5 million in additional funding (a 25% increase on the direct compensation amount) to support commercial and for-hire charter fishing operations more generally. This additional funding could be used to support, but would not be limited to, grants, training programs, research initiative, or a navigational/safety equipment support program.

[2] https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/WIND/ALL_WEA_BY_AREA_DATA.html
[3] https://www.fisheries.noaa.gov/national/funding-and-financial-services/fishermens-contingency-fund-program
[4] https://www.boem.gov/sites/default/files/documents/renewable-energy/DRAFT%20Fisheries%20Mitigation%20Guidance%2006232022_0.pdf

Comment: *It is worth noting here that the developers have relied solely on the numbers in the draft BOEM guidance when they address mitigation amounts over the life of a WEA. However, the 95% number for years 6-25 is solely a creation of the industry. The approach of developers ignores that the BOEM guidance itself states that those numbers should be considered "at a minimum"….While it is plausible, but not likely, that the 95% assumption may come close to the available area for a static fishery, it is equally as implausible that the assumption is valid for a mobile gear fishery. Given wind, wave, tide, and the orientation of the towers, far less than 95% of any WEA is "available" for mobile gear fishermen to fish…Finally, the 95% assumption is fundamentally flawed as it relates to the impact of the WEA on commercial fishing from a purely scientific standpoint.*

Response:

The best available analyses show that commercial fishing vessels, including those employing mobile gear, can safely operate within the Lease Area.[5] Fishing vessels will not be restricted from operating in or transiting through the Lease Area during O&M. The 1 NM x 1 NM layout of the Lease Area is the result of input from numerous stakeholders, including the USCG and fishermen who use or transit the Lease Area. The USCG determined that the 1 NM x 1 NM layout would establish "a standard and uniform grid pattern with at least three lines of orientation and standard spacing to accommodate vessel transits, traditional fishing operations, and search and rescue operations".[5] Further, a trawling vessel turn analysis demonstrated that trawling vessels within the Lease Area are expected to have sufficient room to maneuver, including executing a 180-degree turn, within the proposed 1 NM navigation corridors (Appendix III-I Navigation Safety Risk Assessment of COP Volume III). To aid mariners navigating the Lease Area, each WTG and ESP will be maintained as a Private Aid to Navigation (PATON) in accordance with USCG's PATON marking guidance for offshore wind facilities in First District-area waters.

While fishing activities will not be precluded from the Lease Area during the operational life of New England Wind for the reasons outlined above, we have exceeded the minimum recommendations of the draft BOEM guidelines by assuming an economic impact for the full duration of New England Wind. This is a conservative approach and consistent with other offshore wind projects that have recently completed the federal consistency review process in New England.

Comment: *Taken as a whole, mobile gear fisheries are more lucrative. This becomes especially true when scallops are involved. The scallop fishery is almost five times more lucrative to the Commonwealth of Massachusetts than any other fishery and the most valuable fishery in the*

[5] https://www.regulations.gov/document/USCG-2019-0131-0101

United States. Thus, applying the 95% rule across the board to all fisheries in the WEA has the net impact of artificially reducing the exposure value.

Response:

New England Wind would like to highlight that the scallop fishery is not particularly relevant to the Lease Area. Based on best available data, the value of the average annual sea scallop harvest from the Lease Area is $26,726 or 5% of the overall value of fish harvested (2021 Dollars).[2]

Comment: *Developers are limiting payment from the mitigation funds to fishermen who fished in the WEA prior to its construction only. It is not clear if the intent is to pay out in a lump sum to cover 30 years of lost revenue or not. While fishermen who can demonstrate a history of fishing in a WEA prior to construction are clearly the most obvious "eligible entity", using BOEM's term, they cannot be the only entity to receive payment from a fund… In any mitigation fund, a developer is supposed to be mitigating the impact on commercial fishing caused by the existence of the WEA. Limiting payment to someone who fished prior to the WEA and ending eligibility at a permit transfer ignores the impact to the fishery by the WEA… There are an awful lot of permits that are likely to transfer over a 30-year period. There could be a large portion of the mitigation funds left unspent over the life of the WEA that were not used to mitigate the impact on commercial fishing… Any mitigation fund must have a mechanism to direct revenue to the benefit of the fishery and subsequent generations that might look to commercial fishing as a livelihood.*

Response:

We are structuring the mitigation funds to have two components to provide maximum access to and use of the funds: (1) a direct compensation fund and (2) an additional mitigation fund.

For the direct compensation fund, we are working to develop an approach that will define those that are eligible for mitigation payments, and we intend for both fishermen and other affected entities (such as shoreside businesses) to be considered eligible entities. This approach of including both fishermen and shoreside processors as eligible entities is consistent with our calculation of potential economic impacts. A claims-based program requires a baseline against which to measure an impact. Thus, an understanding of baseline revenue generated from the Lease Area will be necessary to effectively understand the effect of New England Wind on an eligible entity.

All funds provided by New England Wind will be available to fishermen and shoreside businesses through either the direct compensation fund or the additional mitigation fund. We expect that the direct compensation fund will be reevaluated throughout O&M and

unused compensation would get rolled into the additional mitigation fund as needed throughout the lifetime of New England Wind.

The additional mitigation fund is intended to be used to support commercial and for-hire charter fishermen and will be broadly available.

Comment: *A URI report regarding the impact of commercial fisheries and seafood processing in Rhode Island estimated the multipliers for commercial fishing alone as 3.06.*

Response:
Please see our response to the first comment above in regards to the Massachusetts state economic multiplier for commercial fisheries used in our analysis. Also, state-specific multipliers usually differ among states due to the economic structure of the state-specific fishing industry and seafood trade.

Comment: *When multiple WEAs abut each other, there is simply no way for a fisherman to allocate a percentage or set value to his catch in a specific area. In the case of Massachusetts, it is possible for one trawl to span four or five separate areas. While a regional administrator to handle all claims is the best solution, there should at least be a requirement or agreement that claims for abutting wind areas will be handled by the same third-party and in the same uniform manner.*

Response:

We agree that it would be beneficial for a regional administrator to handle all claims, which is why we support contributing to a regional fund if it's established and mutually agreed. We are also working to be consistent with the Vineyard Wind 1 implementation of their compensation program to the extent feasible.

Comment: *All involved will readily admit that there are many unknowns related to those potential impacts….it is more than reasonable to expect there will be significant adverse impacts to commercial fishing.*

All of this leads to the need to have the ability to revisit the mitigation funding regularly to make sure it is doing what it was intended to do with sufficient funds. Even BOEM has started to address the unknowns when it comes to mitigation by incorporating the potential for additional funds into the ROD for new projects, "BSEE will evaluate the need for additional compensatory mitigation consistent with the Annual Certification under 30 C.F.R. § 285.633(a)." (Ocean Wind 1 ROD). Any mitigation agreement/plan must have a review time frame and an agreement to re- open if necessary.

Response:

As mentioned above, the analysis of potential economic impacts is based on the best available data and incorporates conservative assumptions, such that it represents a conservative upper bound of likely impacts. We have taken this conservative approach to address future uncertainties now. Further, the direct compensation fund will be reevaluated throughout O&M and unused compensation could get rolled into the additional funding as needed throughout the lifetime of New England Wind such that unused funds in the direct compensation fund can be accessed for other uses by the fishing industries.

Please let us know if additional information is needed.

Sincerely,

Mark Roll, Federal Permitting Manager

cc: Michael Clayton, Director of Permitting
Kenneth Kimmell, Vice President of Offshore Wind Development
Geri Edens, P.A., Counsel to New England Wind
Dennis King, Ph.D., King and Associates LLC
Maria Hartnett, Epsilon Associates, Inc.
Caitlin Hamer, Epsilon Associates, Inc.

Attachment: Massachusetts Fishing Industry Comments on New England Wind Fisheries Compensatory Mitigation

From:	Engler, Lisa Berry (EEA)
To:	ROLL, MARK; Maria Hartnett; Caitlin Hamer; Dennis King; HARKER, JOHN; HOWARD, CAELA; geri; KIMMELL LUKE, KENNETH
Cc:	McKiernan, Dan (FWE); Boeri, Robert (EEA); Emery, Hollie E (EEA); Callaghan, Todd (EEA); Bopp, Justin J (FWE)
Subject:	FW: Reminder: Fishing Industry meeting re: Sunrise Wind and New England Wind fisheries compensatory mitigation
Date:	Monday, September 25, 2023 11:04:27 AM
Attachments:	2021 DMF landings.pdf 2008 DMF landings.pdf SRW MA CZM Fisheries Compensatory Mitigation 20230824.pdf Avangrid OCS-A 0534 Mitigation presentation.pdf New England Wind and Sunrise Wind Mitigation Comment letter FINAL 092223.pdf

Hi Mark –
Attached and below are comments from the MLA and the New Bedford Port Authority. Please respond in writing and we will forward.
Lisa

Lisa Berry Engler
Massachusetts Office of Coastal Zone Management | Director | 100 Cambridge Street, Suite 900 | Boston, MA 02114 | 857-207-2522 | lisa.engler@mass.gov

From: Beth Casoni <beth.casoni@lobstermen.com>
Sent: Tuesday, September 19, 2023 10:29 AM
To: Engler, Lisa Berry (EEA) <lisa.engler@mass.gov>
Cc: Arthur Sawyer <sooky55@aol.com>; Bill Lister <billylister1956@gmail.com>; Bill souza <jlobsters@comcast.net>; Bob Nihtila Sr. <diseabreeze@aol.com>; Bob Ward <roalward@comcast.net>; Brendan Adams <FibFab25@yahoo.com>; Dave Magee <capecodlobster@comcast.net>; DAVID CASONI <lobsterteacher@hotmail.com>; Eric Lorentzen <ericreedlorentzen@gmail.com>; Jarrett Drake (MLA VP) <jarrett@drakelobster.com>; Mark Ring <mring4482@gmail.com>; Mike Bartlett <mbart217@aol.com>; Steve Holler <necka30@gmail.com>; Tom Tomkiewicz <fvbridgetminc@aol.com>
Subject: RE: Reminder: Fishing Industry meeting re: Sunrise Wind and New England Wind fisheries compensatory mitigation

Good morning Lisa,

After looking over the presentations by both companies on the economic impact to the industry seems to be low in the funding for their mitigation packages.

Avangrid is applying a multiplier of 1.83 upstream and .83 downstream for their estimates which is extremely low.

Orsted doesn't give their multiplier while their overall package seems higher, but this is where most of the fleet is fishing as this is hard bottom and the fishing industry will be greatly

impacted for years to come.

When we talk about the economic impact of the lobster fishery, we use a ~3.5 multiplier collectively. The cost of doing business has gone up over 400% and the industry has not seen a cost increase for their goods over the last twenty years. The ex-vessel paid to the lobstermen has ranged from an average of $4.55lb. in 2004 to $4.66lb. in 2020 and $7.36lb. in 2021 which was an anomaly. (*Please see the MADMF Lobster Tables attached for your review. Once I have the 2022 table, I will share these with you so that you can see the price drop from 2021.)*

I would ask that the government and industries collectively develop an acceptable multiplier for all mitigation packages to follow. This is such a critical component of all of these mitigation talks that it should not be left up to one publication or academic institution.

If you have any questions, please feel free to give me a call on cell.

Thank you for your thoughtful consideration on our comments.

Kind regards,
Beth Casoni
Executive Director
Massachusetts Lobstermen's Association
8 Otis Place
Scituate, MA 02066
781.545.6984

From: Engler, Lisa Berry (EEA) <lisa.engler@mass.gov>
Sent: Monday, September 18, 2023 3:48 PM
To: Beth Casoni <beth.casoni@lobstermen.com>
Subject: RE: Reminder: Fishing Industry meeting re: Sunrise Wind and New England Wind fisheries compensatory mitigation

Thanks, Beth. I look forward to reviewing your comments. Hope you are doing well.
Lisa

Lisa Berry Engler
Massachusetts Office of Coastal Zone Management | Director | 100 Cambridge Street, Suite 900 | Boston, MA 02114 | 857-207-2522 | lisa.engler@mass.gov

NEW BEDFORD
PORT AUTHORITY

123 MacArthur Drive
New Bedford, MA 02740
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September 22, 2023

I am writing on behalf of the New Bedford Port Authority to offer some preliminary comments regarding the fisheries mitigation submissions of the New England Wind and Sunrise Wind developments. As the most valuable fishing port in the nation and the hub for countless onshore businesses and families who rely on the industry, we believe that it is vital that the actual impact of the development of offshore wind on the economy and people of Massachusetts be established using the best available data, methods and evidence. This information should therefore be the basis for adequate funds being set aside to address that impact, and that the funds are directed where the impact is actually felt.

As is the case with all mitigation and means proposed by offshore wind developers, the numbers and methodology offered in the proposed funds drastically underestimates the likely significant impact of these developments, especially during the operational phase. There is no allowance for the unknown as to the impact on commercial fishing and shoreside businesses during the operational phase of the project beyond the fifth year.

We would also note that the data sets used to determine the amounts included in the proposed funds are incomplete and insufficient to address the full economic impact of the proposed WEAs on commercial fishing and the associated communities.

Having stated the above, we would like to note the following issues that now appear to be the standard industry practice in connection with exposure analysis and mitigations funds:

Developer Involvement or Lack Thereof

It is concerning that the response from the developers has been that they are merely the "checkbook" and the terms and conditions under which the mitigation plans are managed will be up to the third-party administrators. While we are on record that fund management and final decision-making should be run by a third party, developers must be also be accountable to make sure that the funds are going where they are required to go. Further, while the desire of the developers to simply cut a check and walk away might make sense from a business standpoint, it is contrary to the responsibility under BOEM requirements in a COP or EIS. Given the unknowns as to impact, it is irresponsible to allow any developer to avoid responsibility for the actual damage caused once it is known. Every recent EIS and COP contains ongoing survey requirements. Something must be done with future survey results that show a greater impact on commercial fishing by offshore wind than was assumed in any mitigation plan. Developers are

taking advantage of the unknowns in mitigation plans by locking up numbers now. The burden as to what happens when the surveys show that the assumptions were wrong cannot lie solely with the fishermen.

The 95% Assumption

We have now been presented with different exposure analysis calculations and follow on mitigation funds from multiple developers, all with the common theme of 95% of the WEA in question being "available" to fishermen during the O & M phase. As we have noted in responses to these proposals and in our response to the draft BOEM Mitigation Guidance, any set numbers and assumptions as they relate to what is "available" to commercial fishermen should start and end with a discussion with those fishermen involved in a particular fishery.

It is worth noting here that the developers have relied solely on the numbers in the draft BOEM guidance when they address mitigation amounts over the life of a WEA. However, the 95% number for years 6-25 is solely a creation of the industry. The approach of developers ignores that the BOEM guidance itself states that those numbers should be considered "at a minimum".

There is simply no way for an economist, scientist, or any other "expert" to assess the behavior of commercial fishermen in an array with a 1nm spacing without actually speaking to them regarding their fishing methods. As multiple commentors have noted, there are multiple fisheries involved in any WEA. Each fishery has its own means and methods for its catch. The difference lies in methods used by static gear fisheries versus mobile gear fisheries. While it is plausible, but not likely, that the 95% assumption may come close to the available area for a static fishery, it is equally as implausible that the assumption is valid for a mobile gear fishery. Given wind, wave, tide, and the orientation of the towers, far less than 95% of any WEA is "available" for mobile gear fishermen to fish.

This becomes an issue when assessing exposure dollar values. Taken as a whole, mobile gear fisheries are more lucrative. This becomes especially true when scallops are involved. The scallop fishery is almost five times more lucrative to the Commonwealth of Massachusetts than any other fishery and the most valuable fishery in the United States. Thus, applying the 95% rule across the board to all fisheries in the WEA has the net impact of artificially reducing the exposure value.

Finally, the 95% assumption is fundamentally flawed as it relates to the impact of the WEA on commercial fishing from a purely scientific standpoint. If the last year has taught us anything, it is that developers, scientists, regulators, etc.., have no idea what the true impact of offshore wind will be on commercial fishing. Yet the developers providing the mitigation numbers are using catch numbers that have the potential to be worthless once the WEA, and those around it, are constructed.

Permit Transfer Restriction

Despite their claim of being "hands off" when it comes to the terms of their mitigation plans, one common theme in all the mitigation plans put forward by developers to date has been a restriction that payments to a commercial fishing permit/vessel end upon transfer of the

permit/vessel. In other words, developers are limiting payment from the mitigation funds to fishermen who fished in the WEA prior to its construction only. It is not clear if the intent is to pay out in a lump sum to cover 30 years of lost revenue or not.

While fishermen who can demonstrate a history of fishing in a WEA prior to construction are clearly the most obvious "eligible entity", using BOEM's term, they cannot be the only entity to receive payment from a fund. Including such a provision in mitigation funds improperly conflates individual fishermen with the commercial fishery as a whole.

In any mitigation fund, a developer is supposed to be mitigating the impact on commercial fishing caused by the existence of the WEA. Limiting payment to someone who fished prior to the WEA and ending eligibility at a permit transfer ignores the impact to the fishery by the WEA. The lifespan of the wind areas is 25-30 years, and the mitigation calculations are supposedly based on fishing loss over that span. There are an awful lot of permits that are likely to transfer over a 30-year period. There could be a large portion of the mitigation funds left unspent over the life of the WEA that were not used to mitigate the impact on commercial fishing. It will be too late to mitigate anything at that point.

The flawed assumption here is that the impact on commercial fishing begins and ends with the fishermen fishing now. Following that assumption only serves to do more damage to commercial fishing as a whole and as an industry traditionally built on generational transfers. The loss of the ability to fish in a WEA, combined with no additional payments after transfer, has the effect of reducing the value of the permit (the diminished value of fishing permits caused by offshore wind is not addressed anywhere in mitigation calculations) and lessening any inclination a new generation has in taking over an already incredibly difficult occupation.

Any mitigation fund must have a mechanism to direct revenue to the benefit of the fishery and subsequent generations that might look to commercial fishing as a livelihood. The lack of such provision only serves to add one more straw on the future of Massachusetts' proud tradition of commercial fishing. There is some irony to the fact that an industry designed to benefit future generations, offshore wind, may lead to a decline in any future generation's ability to participate in U.S. commercial fishing, the world's most regulated and sustainable commercial fisheries.

Eligible Entities

BOEM guidance makes it abundantly clear that entities eligible for mitigation payments include many individuals and entities apart from the vessel owners. Eligible entities are "vessel owners, operators, and crew including shoreside businesses, such as seafood processors and bait dealers, that can demonstrate in a claim that their business experienced a loss of income due to unrecovered economic activity resulting from displaced fisheries."

Both primary proposed mitigation funds appear to limit their payment to vessel owners who fished in the WEA prior to construction. Although the numbers for New England contain an upstream and downstream multiplier, there was no discussion as to how crew, shoreside businesses, processors, etc... will have access to the funds or even whether those multipliers bore any reasonable resemblance to the actual cost to the regional economy caused by lost fishing

revenue. New England also contained an additional $500,000.00 for grants, training programs, research initiatives, or a navigational/safety equipment support program. This is $500,000.00 over the 30-year life of the project.

The Sunrise proposal specifically lists eligibility for the primary fund as limited to commercial fishers who have fished in the area. Again, there is no mention of crew, shoreside businesses, processors, etc.... Sunrise appears to place these shoreside eligible entities in the group vying for grants from the $400,000.00 Coastal Community Fund. Again, this is $400,000.00 to the multitude of upstream and downstream shoreside businesses and families who rely on revenue associated with their work in commercial fishing, over the 30-year life of the project.

The same issues with the calculation of lost fishing revenue apply to lost shoreside revenue except that there is not even an effort to quantify the shoreside numbers. The assumptions as to the impact on the regional upstream and downstream businesses are made with little to no study or up-to-date information. It defies logic that a fund that amounts to 4% of the total for the vessel fund is sufficient to cover shoreside losses. A URI report regarding the impact of commercial fisheries and seafood processing in Rhode Island estimated the multipliers for commercial fishing alone as:

Total Effect Multipliers for X-Vessel Values

Effect	Multiplier
Output	3.06
Value Added	1.98
Employment	32.43 (jobs per $million)

Abutting Areas

Multiple commutators have pointed out the issue with multiple funds and differing requirements for fishermen to obtain payment from each fund. BOEM has made it clear that payments must be made in a reasonable time and that the process must no be cumbersome for commercial fishermen to obtain payment. When multiple WEAs abut each other, there is simply no way for a fisherman to allocate a percentage or set value to his catch in a specific area. In the case of Massachusetts, it is possible for one trawl to span four or five separate areas. While a regional administrator to handle all claims is the best solution, there should at least be a requirement or agreement that claims for abutting wind areas will be handled by the same third-party and in the same uniform manner.

Reopener/Regular Evaluation

There are serious concerns within the commercial fishing industry about the potential impacts to their livelihoods from the construction and operations of the offshore wind developments. While the offshore wind industry is brand new to the United States and the northeast waters and has yet to become operational, the concerns and uncertainty of the fishermen are certainly justified. All involved will readily admit that there are many unknowns related to those potential impacts.

However, given the extent of the interventions in the marine environment from the construction of foundations, the undersea cables, offshore substations and their super-heated effluent discharge, and ongoing disruptions from vibrations, acoustics, and other activities, not to mention the challenges of either fishing within or traversing through the wind energy areas, it is more than reasonable to expect there will be significant adverse impacts to commercial fishing.

All of this leads to the need to have the ability to revisit the mitigation funding regularly to make sure it is doing what it was intended to do with sufficient funds. Even BOEM has started to address the unknowns when it comes to mitigation by incorporating the potential for additional funds into the ROD for new projects, "BSEE will evaluate the need for additional compensatory mitigation consistent with the Annual Certification under 30 C.F.R. § 285.633(a)." (Ocean Wind 1 ROD). Any mitigation agreement/plan must have a review time frame and an agreement to re-open if necessary.

Conclusion

Mitigation proposals such as this, that seem to suggest negligible impacts, can only serve to sow doubt within the commercial fishing industry that their concerns are being taken seriously now and will be acknowledged and addressed when they are experienced in the coming years. Statements that the fishermen will "adapt" ignore the very real scientific, regional, and regulatory reasons simply adapting and fishing somewhere apart from where they have been fishing for hundreds of years is not an option. The level of uncertainty around the impacts of offshore wind demands a sober assessment and preparation for what those impacts could be. If such anticipated impacts end up not materializing in the future, that will be demonstrated by continued productive fishing, and additional measures to provide support for the fishermen will prove unnecessary. However, when it turns out the funding and mitigation mechanism put in place relies on an unrealistic exposure analysis based on the narrowest possible metrics and assumptions, it will be too late to help commercial fishing once these negative impacts are experienced. It is also critical to remember that none of these estimated mitigation totals consider the cumulative impact of all of the wind areas together. Any error or assumption must be in favor of the group whose livelihood is at stake.

Thank you for the opportunity to comment.

Regards,

Blair S. Bailey

Blair S. Bailey
General Counsel
New Bedford Port Authority