

Supporting Attachments

Response to Request for Proposal for Long-Term Contracts for
Offshore Wind Energy Projects



**VINEYARD
OFFSHORE**

RESPONSE TO THE REQUEST FOR PROPOSALS FOR LONG-TERM CONTRACTS FOR OFFSHORE WIND ENERGY PROJECTS

Prepared for

The Distribution Companies (Fitchburg Gas & Electric Light Company d/b/a Unitil, Massachusetts Electric Company and Nantucket Electric Company, each d/b/a/ National Grid, NSTAR Electric Company d/b/a Eversource Energy) and Massachusetts Department of Energy Resources

March 27, 2024

Submitted by



Vineyard Offshore LLC
200 Clarendon Street, 18th Floor
Boston, MA 02116
617-362-3872

Certain information in this document or electronic file is non-public, proprietary, commercial, and/or financial information ("Confidential Information"), which has been redacted from the version of this proposal marked "PUBLIC." Vineyard Offshore intends for all such Confidential Information to remain confidential and for the version of this proposal marked "CONFIDENTIAL" to be treated as a non-public record that is exempt from disclosure under applicable laws and as set forth in the Request for Proposals for Long-Term Contracts for Offshore Wind Energy Projects issued on August 30, 2023.

PUBLIC

Confidentiality Statement

Certain information in this proposal is non-public, proprietary, commercial, and/or financial information ("Confidential Information"), which has been redacted from the version of this proposal marked "PUBLIC." Such Confidential Information is highlighted in gray and/or is clearly marked as confidential in the version of this proposal marked "CONFIDENTIAL." Vineyard Offshore intends for all such Confidential Information to remain confidential. Further, the version of this proposal marked "CONFIDENTIAL" should be treated as a non-public record that is exempt from disclosure under applicable laws and as set forth in the Request for Proposals for Long-Term Contracts for Offshore Wind Energy Projects issued on August 30, 2023.



Attachment 1.1-1:



REDACTED



Attachment 1.1-2:

REDACTED



Attachment 4.1-1: Wind Resource Assessment

REDACTED



Attachment 4.1-2:

REDACTED



Attachment 4.1-3: Energy Yield Assessment

REDACTED



Attachment 4.2-1:



REDACTED



Attachment 4.4-1:

REDACTED



Attachment 5.1-1: [REDACTED]

REDACTED



Attachment 5.1-2:

REDACTED



Attachment 5.2-1:



REDACTED



Attachment 5.4-1: Project Financing Portfolio Overview

REDACTED



Attachment 5.6-1: CIP Construction Performance Overview

REDACTED



Attachment 5.8-1:



REDACTED



Attachment 5.8-2: CI-IV Annual Reports

REDACTED



Attachment 5.19-1: Affiliated Entities and Joint Ventures

REDACTED



Attachment 6.1-1: Project Site Plans

REDACTED



Attachment 6.1-2:



REDACTED



Attachment 6.2-1: BOEM Lease Agreement and Assignment



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

MAR 5 2019

Mr. Lars Thanning Pedersen
Vineyard Wind LLC
700 Pleasant Street
Suite 510
New Bedford, Massachusetts 02740

Dear Mr. Pedersen:

Please find enclosed one fully executed copy of Vineyard Wind LLC's (Company Number: 15010) commercial lease OCS-A 0522. The lease comprises 132,370 acres, more or less, lying within the Massachusetts Wind Energy Area, and will become effective April 1, 2019.

Please do not hesitate to contact me at our main office number, (703) 787-1300, if you have any further questions.

Sincerely,

James F. Bennett
Program Manager
Office of Renewable Energy Programs

Enclosure

PUBLIC

FEB 21 2019

Office of Renewable
Energy Programs

<p style="text-align: center;">UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF OCEAN ENERGY MANAGEMENT</p> <p style="text-align: center;">COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF</p> <p><i>Paperwork Reduction Act of 1995 statement: This form does not constitute an information collection as defined by 44 U.S.C. § 3501 et seq. and therefore does not require approval by the Office of Management and Budget.</i></p>	Office	Renewable Energy Lease Number
	Sterling, VA	OCS-A 0522
	Cash Bonus and/or Acquisition Fee	Resource Type
	\$135,100,000.00	Wind
	Effective Date	Block Number(s)
	April 1, 2019	See Addendum A

This lease, which includes any addenda hereto, is hereby entered into by and between the United States of America, ("Lessor"), acting through the Bureau of Ocean Energy Management ("BOEM"), its authorized officer, and

Lessee	Interest Held
Vineyard Wind LLC	100%

("Lessee"). This lease is effective on the date written above ("Effective Date") and will continue in effect until the lease terminates as set forth in Addendum "B." In consideration of any cash payment heretofore made by the Lessee to the Lessor and in consideration of the promises, terms, conditions, covenants, and stipulations contained herein and attached hereto, the Lessee and the Lessor agree as follows:

Section 1: Statutes and Regulations.

This lease is issued pursuant to subsection 8(p) of the Outer Continental Shelf Lands Act ("the Act"), 43 U.S.C. §§ 1331 *et seq.* This lease is subject to the Act and regulations promulgated pursuant to the Act, including but not limited to, offshore renewable energy and alternate use regulations at 30 CFR Part 585 as well as other applicable statutes and regulations in existence on the Effective Date of this lease. This lease is also subject to those statutes enacted (including amendments to the Act or other statutes) and regulations promulgated thereafter, except to the extent that they explicitly conflict with an express provision of this lease. It is expressly understood that amendments to existing statutes, including but not limited to the Act, and regulations may be made, and/or new statutes may be enacted or new regulations promulgated, which do not explicitly conflict with an express provision of this lease, and that the Lessee bears the risk that such amendments, regulations, and statutes may increase or decrease the Lessee's obligations under the lease.

Section 2: Rights of the Lessee.

- (a) The Lessor hereby grants and leases to the Lessee the exclusive right and privilege, subject to the terms and conditions of this lease and applicable regulations, to: (1) submit to the Lessor for approval a Site Assessment Plan (SAP) and Construction and Operations Plan (COP) for the project identified in Addendum "A" of this lease; and (2) conduct activities in the area identified in Addendum "A" of this lease ("leased area") and/or Addendum "D" of this lease ("project easement(s)"), that are described in a SAP or COP that has been approved by the Lessor. This lease does not, by itself, authorize any activity within the leased area.
- (b) The rights granted to the Lessee herein are limited to those activities described in any SAP or COP approved by the Lessor. The rights granted to the Lessee are limited by the lease-specific terms, conditions, and stipulations required by the Lessor per Addendum "C."
- (c) This lease does not authorize the Lessee to conduct activities on the Outer Continental Shelf (OCS) relating to or associated with the exploration for, or development or production of, oil, gas, other seabed minerals, or renewable energy resources other than those renewable energy resources identified in Addendum "A."

Section 3: Reservations to the Lessor.

- (a) All rights in the leased area and project easement(s) not expressly granted to the Lessee by the Act, applicable regulations, this lease, or any approved SAP or COP, are hereby reserved to the Lessor.
- (b) The Lessor will decide whether to approve a SAP or COP in accordance with the applicable regulations in 30 CFR Part 585. The Lessor retains the right to disapprove a SAP or COP based on the Lessor's determination that the proposed activities would have unacceptable environmental consequences, would conflict with one or more of the requirements set forth in subsection 8(p)(4) of the Act (43 U.S.C. § 1337(p)(4)), or for other reasons provided by the Lessor pursuant to 30 CFR 585.613(e)(2) or 30 CFR 585.628(f)(2). Disapproval of plans will not subject the Lessor to liability under the lease. The Lessor also retains the right to approve with modifications a SAP or COP, as provided in applicable regulations.
- (c) The Lessor reserves the right to suspend the Lessee's operations in accordance with the national security and defense provisions of Section 12 of the Act and applicable regulations.
- (d) The Lessor reserves the right to authorize other uses within the leased area and project easements(s) that will not unreasonably interfere with activities described in an approved SAP and/or COP, pursuant to this lease.

Section 4: Payments.

- (a) The Lessee must make all rent payments to the Lessor in accordance with applicable regulations in 30 CFR Part 585, unless otherwise specified in Addendum "B."
- (b) The Lessee must make all operating fee payments to the Lessor in accordance with applicable regulations in 30 CFR Part 585, as specified in Addendum "B."

Section 5: Plans.

The Lessee may conduct those activities described in Addendum "A" only in accordance with a SAP or COP approved by the Lessor. The Lessee may not deviate from an approved SAP or COP except as provided in applicable regulations in 30 CFR Part 585.

Section 6: Associated Project Easement(s).

Pursuant to 30 CFR 585.200(b), the Lessee has the right to one or more project easement(s), without further competition, for the purpose of installing gathering, transmission, and distribution cables, pipelines, and appurtenances on the OCS, as necessary for the full enjoyment of the lease, and under applicable regulations in 30 CFR Part 585. As part of submitting a COP for approval, the Lessee may request that one or more easement(s) be granted by the Lessor. If the Lessee requests that one or more easement(s) be granted when submitting a COP for approval, such project easements will be granted by the Lessor in accordance with the Act and applicable regulations in 30 CFR Part 585 upon approval of the COP in which the Lessee has demonstrated a need for such easements. Such easements must be in a location acceptable to the Lessor, and will be subject to such conditions as the Lessor may require. The project easement(s) that would be issued in conjunction with an approved COP under this lease will be described in Addendum "D" to this lease, which will be updated as necessary.

Section 7: Conduct of Activities.

The Lessee must conduct, and agrees to conduct, all activities in the leased area and project easement(s) in accordance with an approved SAP or COP, and with all applicable laws and regulations.

The Lessee further agrees that no activities authorized by this lease will be carried out in a manner that:

- (a) could unreasonably interfere with or endanger activities or operations carried out under any lease or grant issued or maintained pursuant to the Act, or under any other license or approval from any Federal agency;
- (b) could cause any undue harm or damage to the environment;
- (c) could create hazardous or unsafe conditions; or

- (d) could adversely affect sites, structures, or objects of historical, cultural, or archaeological significance, without notice to and direction from the Lessor on how to proceed.

Section 8: Violations, Suspensions, Cancellations, and Remedies.

If the Lessee fails to comply with (1) any of the applicable provisions of the Act or regulations, (2) the approved SAP or COP, or (3) the terms of this lease, including associated Addenda, the Lessor may exercise any of the remedies that are provided under the Act and applicable regulations, including, without limitation, issuance of cessation of operations orders, suspension or cancellation of the lease, and/or the imposition of penalties, in accordance with the Act and applicable regulations.

The Lessor may also cancel this lease for reasons set forth in subsection 5(a)(2) of the Act (43 U.S.C. § 1334(a)(2)), or for other reasons provided by the Lessor pursuant to 30 CFR 585.437.

Non-enforcement by the Lessor of a remedy for any particular violation of the applicable provisions of the Act or regulations, or the terms of this lease, will not prevent the Lessor from exercising any remedy, including cancellation of this lease, for any other violation or for the same violation occurring at any other time.

Section 9: Indemnification.

The Lessee hereby agrees to indemnify the Lessor for, and hold the Lessor harmless from, any claim caused by or resulting from any of the Lessee's operations or activities on the leased area or project easement(s) or arising out of any activities conducted by or on behalf of the Lessee or its employees, contractors (including Operator, if applicable), subcontractors, or their employees, under this lease, including claims for:

- a. loss or damage to natural resources,
- b. the release of any petroleum or any Hazardous Materials,
- c. other environmental injury of any kind,
- d. damage to property,
- e. injury to persons, and/or
- f. costs or expenses incurred by the Lessor.

Except as provided in any addenda to this lease, the Lessee will not be liable for any losses or damages proximately caused by the activities of the Lessor or the Lessor's employees, contractors, subcontractors, or their employees. The Lessee must pay the Lessor for damage, cost, or expense due and pursuant to this Section within 90 days after written demand by the Lessor. Nothing in this lease will be construed to waive any liability or relieve the Lessee from any penalties, sanctions, or claims that would otherwise apply by

statute, regulation, operation of law, or could be imposed by the Lessor or other government agency acting under such laws.

“Hazardous Material” means

1. Any substance or material defined as hazardous, a pollutant, or a contaminant under the *Comprehensive Environmental Response, Compensation, and Liability Act* at 42 U.S.C. §§ 9601(14) and (33);
2. Any regulated substance as defined by the Resource Conservation and Recovery Act (“RCRA”) at 42 U.S.C. § 6991 (7), whether or not contained in or released from underground storage tanks, and any hazardous waste regulated under RCRA pursuant to 42 U.S.C. §§ 6921 *et seq.*;
3. Oil, as defined by the Clean Water Act at 33 U.S.C. § 1321(a)(1) and the Oil Pollution Act at 33 U.S.C. § 2701(23); or
4. Other substances that applicable Federal, state, tribal, or local laws define and regulate as “hazardous.”

Section 10: Financial Assurance.

The Lessee must provide and maintain at all times a surety bond(s) or other form(s) of financial assurance approved by the Lessor in the amount specified in Addendum “B.” As required by the applicable regulations in 30 CFR Part 585, if, at any time during the term of this lease, the Lessor requires additional financial assurance, then the Lessee must furnish the additional financial assurance required by the Lessor in a form acceptable to the Lessor within 90 days after receipt of the Lessor’s notice of such adjustment.

Section 11: Assignment or Transfer of Lease.

This lease may not be assigned or transferred in whole or in part without written approval of the Lessor. The Lessor reserves the right, in its sole discretion, to deny approval of the Lessee’s application to transfer or assign all or part of this lease. Any assignment will be effective on the date the Lessor approves the Lessee’s application. Any assignment made in contravention of this section is void.

Section 12: Relinquishment of Lease.

The Lessee may relinquish this entire lease or any officially designated subdivision thereof by filing with the appropriate office of the Lessor a written relinquishment application, in accordance with applicable regulations in 30 CFR Part 585. No relinquishment of this lease or any portion thereof will relieve the Lessee or its surety of the obligations accrued hereunder, including but not limited to, the responsibility to remove property and restore the leased area and project easement(s) pursuant to section 13 of this lease and applicable regulations.

Section 13: Removal of Property and Restoration of the Leased Area and Project Easement(s) on Termination of Lease.

Unless otherwise authorized by the Lessor, pursuant to the applicable regulations in 30 CFR Part 585, the Lessee must remove or decommission all facilities, projects, cables, pipelines, and obstructions and clear the seafloor of all obstructions created by activities on the leased area and project easement(s) within two years following lease termination, whether by expiration, cancellation, contraction, or relinquishment, in accordance with any approved SAP, COP, or approved Decommissioning Application, and applicable regulations in 30 CFR Part 585.

Section 14: Safety Requirements.

The Lessee must:

- a. maintain all places of employment for activities authorized under this lease in compliance with occupational safety and health standards and, in addition, free from recognized hazards to employees of the Lessee or of any contractor or subcontractor operating under this lease;
- b. maintain all operations within the leased area and project easement(s) in compliance with regulations in 30 CFR Part 585 and orders from the Lessor and other Federal agencies with jurisdiction, intended to protect persons, property and the environment on the OCS; and
- c. provide any requested documents and records, which are pertinent to occupational or public health, safety, or environmental protection, and allow prompt access, at the site of any operation or activity conducted under this lease, to any inspector authorized by the Lessor or other Federal agency with jurisdiction.

Section 15: Debarment Compliance.

The Lessee must comply with the Department of the Interior's non-procurement debarment and suspension regulations set forth in 2 CFR Parts 180 and 1400 and must communicate the requirement to comply with these regulations to persons with whom it does business related to this lease by including this requirement in all relevant contracts and transactions.

Section 16: Equal Opportunity Clause.

During the performance of this lease, the Lessee must fully comply with paragraphs (1) through (7) of Section 202 of Executive Order 11246, as amended (reprinted in 41 CFR 60-1.4(a)), and the implementing regulations, which are for the purpose of preventing employment discrimination against persons on the basis of race, color, religion, sex, or national origin. Paragraphs (1) through (7) of Section 202 of Executive Order 11246, as amended, are incorporated in this lease by reference.

Section 17: Certification of Nonsegregated Facilities.

By entering into this lease, the Lessee certifies, as specified in 41 CFR 60-1.8, that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. As used in this certification, the term "facilities" means, but is not limited to, any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees. Segregated facilities include those that are segregated by explicit directive or those that are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or otherwise; provided, that separate or single-user restrooms and necessary dressing or sleeping areas must be provided to assure privacy as appropriate. The Lessee further agrees that it will obtain identical certifications from proposed contractors and subcontractors prior to awarding contracts or subcontracts unless they are exempt under 41CFR 60-1.5.

Section 18: Notices.

All notices or reports provided from one party to the other under the terms of this lease must be in writing, except as provided herein and in the applicable regulations in 30 CFR Part 585. Written notices and reports must be delivered to the Lessee's or Lessor's Lease Representative, as specifically listed in Addendum "A," either electronically, by hand, by facsimile, or by United States first class mail, adequate postage prepaid. Each party must, as soon as practicable, notify the other of a change to their Lessee's or Lessor's Contact Information listed in Addendum "A" by a written notice signed by a duly authorized signatory and delivered by hand or United States first class mail, adequate postage prepaid. Until such notice is delivered as provided in this section, the last recorded contact information for either party will be deemed current for service of all notices and reports required under this lease. For all operational matters, notices and reports must be provided to the party's Operations Representative, as specifically listed in Addendum "A," as well as the Lease Representative.

Section 19: Severability Clause.


If any provision of this lease is held unenforceable, all remaining provisions of this lease will remain in full force and effect.

Section 20: Modification.

Unless otherwise authorized by the applicable regulations in 30 CFR Part 585, this lease may be modified or amended only by mutual agreement of the Lessor and the Lessee. No such modification or amendment will be binding unless it is in writing and signed by duly authorized signatories of the Lessor and the Lessee.

Vineyard Wind LLC

Lessee



(Signature of Authorized Officer)

Iain Henderson

(Name of Signatory)

CFO

(Title)

February 20, 2019

(Date)

The United States of America

Lessor



(Signature of Authorized Officer)

James F. Bennett

(Name of Signatory)
Program Manager, Office of
Renewable Energy Programs

(Title)

March 5, 2019

(Date)

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "A"

DESCRIPTION OF LEASED AREA AND LEASE ACTIVITIES

Lease Number OCS-A 0522

I. Lessor and Lessee Contact Information

Lessee Company Number: 15010

(a) Lessor's Contact Information

	Lease Representative	Operations Representative
Title	Program Manager	Same as Lease Representative.
Address	U.S. Department of the Interior Bureau of Ocean Energy Management 45600 Woodland Road Sterling, Virginia 20166	
Phone	(703) 787-1300	
Fax	(703) 787-1708	
Email	renewableenergy@boem.gov	

(b) Lessee's Contact Information

	Lease Representative	Operations Representative
Name	ERICH STEPHENS	SAME AS LEASE REPRESENTATIVE
Title	CDO	
Address	700 PLEASANT ST SUITE 510 NEW BEDFORD MA 02740	
Phone	(401) 487-3320	
Fax		
Email	estephens@vineyardwind.com	

II. Description of Leased Area

The total acreage of the leased area is approximately 132,370 acres.

This area is subject to later adjustment, in accordance with applicable regulations (*e.g.*, contraction, relinquishment).

Lease OCS-A 0522

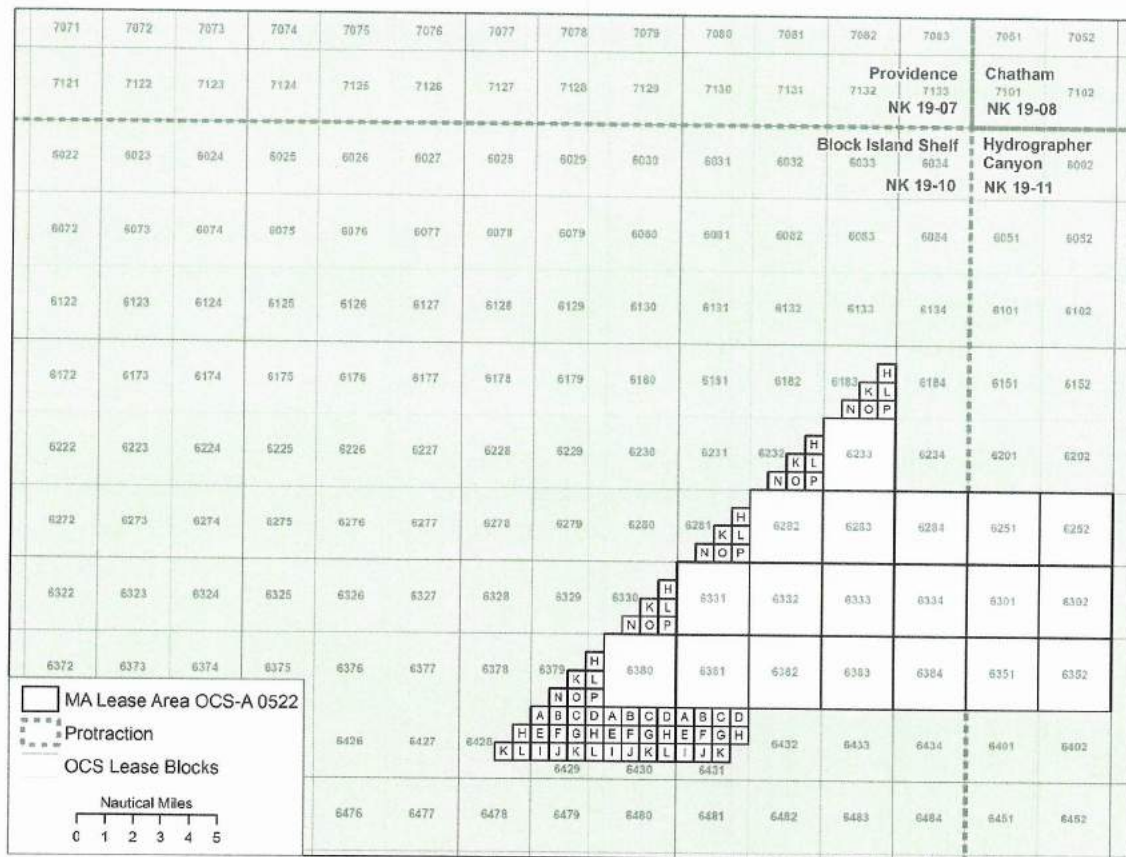
The following Blocks or portions of Blocks lying within Official Protraction Diagram Block Island Shelf NK19-10, are depicted on the map below and comprise 98,210 acres, more or less.

- 1) Block 6183, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
- 2) Block 6232, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
- 3) Block 6233, All of Block
- 4) Block 6281, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
- 5) Block 6282, All of Block
- 6) Block 6283, All of Block
- 7) Block 6284, All of Block
- 8) Block 6330, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
- 9) Block 6331, All of Block
- 10) Block 6332, All of Block
- 11) Block 6333, All of Block
- 12) Block 6334, All of Block
- 13) Block 6379, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
- 14) Block 6380, All of Block
- 15) Block 6381, All of Block
- 16) Block 6382, All of Block
- 17) Block 6383, All of Block
- 18) Block 6384, All of Block
- 19) Block 6428, SE1/4 of NE1/4, N1/2 of SE1/4
- 20) Block 6429, N1/2, N1/2 of S1/2
- 21) Block 6430, N1/2, N1/2 of S1/2
- 22) Block 6431, N1/2, N1/2 of SW1/4, NW1/4 of SE1/4

The following Blocks or portions of Blocks lying within Official Protraction Diagram Hydrographer Canyon NK19-11, are depicted on the map below and comprise 34,160 acres, more or less.

- 23) Block 6251, All of Block
- 24) Block 6252, All of Block
- 25) Block 6301, All of Block
- 26) Block 6302, All of Block
- 27) Block 6351, All of Block
- 28) Block 6352, All of Block

For the purposes of these calculations, a full Block is 2,304 hectares. The acreage of a hectare is 2.471043930.



III. Renewable Energy Resource

Wind

IV. Description of the Project

A project to generate energy using wind turbine generators and any associated resource assessment activities, located on the Outer Continental Shelf in the leased area, as well as associated offshore substation platforms, inner array cables, and subsea export cables.

V. Description of Project Easement(s)

Once approved, the Lessor will incorporate Lessee's project easement(s) in this lease as ADDENDUM "D."

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "B"

LEASE TERM AND FINANCIAL SCHEDULE

Lease Number OCS-A 0522

I. Lease Term

The duration of each term of the lease is described below. The terms may be extended or otherwise modified in accordance with applicable regulations in 30 C.F.R. Part 585.

Lease Term	Duration
Preliminary Term	1 year
Site Assessment Term	5 years
Operations Term	33 years

Schedule: Addendum "C" includes a schedule and reporting requirements for conducting site characterization activities.

Renewal: The Lessee may request renewal of the operations term of this lease, in accordance with applicable regulations in 30 CFR Part 585. The Lessor, at its discretion, may approve a renewal request to conduct substantially similar activities as were originally authorized under this lease or in an approved plan. The Lessor will not approve a renewal request that involves development of a type of renewable energy not originally authorized in the lease. The Lessor may revise or adjust payment terms of the original lease as a condition of lease renewal.

II. Definitions

"Lease Issuance Date" refers to the date on which this lease has been signed by *both* the Lessee and the Lessor.

"Effective Date" has the same meaning as "effective date" in the Bureau of Ocean Energy Management (BOEM) regulations provided in 30 CFR 585.237.

"Lease Anniversary" refers to the anniversary of the Effective Date of the lease.

"End Date" refers to the earlier of a) the last calendar day of the last month of the Operations Term; or b) the date on which the lease terminates in the event of a lease termination.

“Commercial Operations” means the generation of electricity or other energy product for commercial use, sale, or distribution.

“Commercial Operation Date,” or “COD,” refers to the date on which the Lessee first begins Commercial Operations on the lease.

“Delivery Point” is the meter identified in the COP where the Lessee’s facility interconnects with the electric grid to deliver electricity for sale.

An individual wind generation turbine is said to be “available for Commercial Operations” on or after the first day that it engages in Commercial Operations on the lease; and to be no longer available for Commercial Operations on or after the day when it is permanently decommissioned. These dates are determined by the Construction and Operations Plan (COP).

III. Payments

Unless otherwise authorized by the Lessor in accordance with the applicable regulations in 30 CFR Part 585, the Lessee must make payments as described below.

(a) **Rent.** The Lessee must pay rent as described below:

Rent payments prior to the COD, or prior to the lease End Date in the event that the lease terminates prior to the COD, are calculated by multiplying the acres in the leased area times the rental rate per acre as follows:

Lease OCS-A 0522

- Acres in Leased Area: 132,370
- Annual Rental Rate: \$3.00 per acre or fraction thereof
- Rental Fee for Entire Leased Area: \$3.00 x 132,370 = \$397,110

The first year’s rent payment of \$397,110 is due within 45 days of the date that the lease is received by the Lessee for execution. Rent for the entire leased area for the next year and for each subsequent year is due on or before each Lease Anniversary through the year in which the COD occurs. The rent for each year subsequent to the COD on the imputed portion of the lease not authorized for Commercial Operations is due on or before each Lease Anniversary. The imputed portion of the lease that is not authorized for Commercial Operations at each Lease Anniversary in year t , S_t , and the corresponding Adjusted Annual Rent Payment will be determined as follows:

$$(A) S_t = \left(1 - \frac{M'_t}{\text{MAX}(M'_t: \text{for all } t \geq 2)} \right)$$

(B) *Adjusted Annual Rent Payment* = $S_t * \text{Rental Fee for Entire Leased Area}$

Where:

S_t = Portion of the lease not authorized for Commercial Operations in year t based on the definition of t in Section III (b) (4) below.

M'_t = Actual Nameplate capacity expressed in megawatts (MW) rounded to the nearest second decimal in year t of Commercial Operations on the lease as defined in Section III (b) (4) below, prior to any adjustments as specified in the most recent approved COP for turbine maintenance, replacements, repowering, or decommissioning. For our purposes nameplate capacity is the maximum rated electric output the turbines of the wind farm facility under commercial operations can produce at their rated wind speed designated by the turbine's manufacturer.

$MAX(M'_t)$ = Highest value of M'_t projected in the most recent approved version of the COP to be achieved in any year of Commercial Operations on the lease.

The Adjusted Annual Rent Payment calculated in Equation (A) herein, will be rounded up to the nearest dollar. The annual rent payments will be set forth in Addendum "E" when the COP is initially approved or subsequently revised.

Consider an example of a 1,000 MW project on a lease with an Effective Date of January 1, 2014 and a COD of January 1, 2022 on a lease area consisting of 100,000 acres as follows:

Payment (Jan. 1 st)	M'_t (MW)	$MAX(M'_t)$ (MW)	$\left(1 - \frac{M'_t}{MAX(M'_t)}\right)$	Rental Fee for Entire Area	Payment Amount
2014	0	1,000	1.0	\$300,000	\$300,000
...
2021	0		1.0		\$300,000
2022	500		0.5		\$150,000
2023	500		0.5		\$150,000
2024	500		0.5		\$150,000
2025	800		0.2		\$60,000
2026	800		0.2		\$60,000
2027	800		0.2		\$60,000
2028	1,000		0.0		\$0

In the event a revised COP is approved by BOEM that identifies an alternative installation schedule that differs from the previously-approved COP, the Lessee must make subsequent payments based on the revised installation schedule. In addition, the Lessee must make a payment equal to the sum of any incremental annual rent payments that would have been due at the Lease Anniversary of prior years based on the differences between the Initial Installation Schedules specified in the previously-approved COP and the revised COP, plus interest on the annual balances, in accordance with 30 CFR 1218.54.

Consider an example whereby the initial COP specified an installation schedule with all 1,000 MW online at the COD, i.e., M'_t is 1,000 MW at COD. The following table demonstrates how the back rent payments would be calculated if the project was initially scheduled as a

single phase, but then later determined to be the three-phase project as shown in the previous example in a revised COP approved prior to the payment due on January 1, 2023.

Payment (Jan. 1 st)	Initial M'_t (MW)	Revised M'_t (MW)	Single-Phase Payment Amount	Three-Phase Payment Amount	Back Rent Payment Amount	Subsequent Rent Payment Amount
2014	0	0	\$300,000	\$300,000	\$0	\$0
...
2021	0	0	\$300,000	\$300,000	\$0	\$0
2022	1,000	500	\$0	\$150,000	\$150,000	\$0
2023	1,000	500	\$0	\$150,000	\$0	\$150,000
2024	1,000	500	\$0	\$150,000	\$0	\$150,000
2025	1,000	800	\$0	\$60,000	\$0	\$60,000
2026	1,000	800	\$0	\$60,000	\$0	\$60,000
2027	1,000	800	\$0	\$60,000	\$0	\$60,000
2028	1,000	1,000	\$0	0	\$0	\$0

The last rent payment prior to Commercial Operations being authorized on the entire lease area, i.e., the year in which the value of S_t is equal to zero, or prior to the lease End Date, in the event that the lease terminates prior to Commercial Operations being authorized on the entire lease area, will represent the final rent payment, unless a revised COP identifying an alternative maximum initial capacity is approved by BOEM. All rent payments, including the last rent payment, are payable for the full year and will not be prorated to the COD or other installation milestones. The COD is equivalent to the authorization date for the first phase of development on the lease, to be updated based on the initial or revised approved COP documentation. The schedule of rent payments on the lease is defined in Addendum "E". All rent payments, except for the first 6-month rent payment, must be made as required in 30 CFR 1218.51. Late rent payments will be charged interest in accordance with 30 CFR 1218.54.

(1) Project Easement.

Rent for any project easement(s) is described in ADDENDUM "D".

(2) Relinquishment.

If the Lessee submits an application for relinquishment of a portion of the leased area within the first 45 calendar days following the date that the lease is received by the Lessee for execution, and the Lessor approves that application, no rent payment will be due on that relinquished portion of the leased area. Later relinquishments of any leased area will reduce the Lessee's rent payments due the year following the Lessor's approval of the relinquishment, through a reduction in the Acres in Leased Area and the corresponding Rental Fee for the Entire Leased Area and any related Adjusted Annual Rent Payments.

(b) **Operating Fee.** The Lessee must pay an operating fee as described below:

(1) Initial Operating Fee Payment.

The Lessee must pay an initial prorated operating fee within 45 calendar days after the COD. The initial operating fee payment covers the first year of Commercial Operations on the lease and will be calculated in accordance with subsection (4) below, using an operating fee rate of 0.02 and a capacity factor of 0.4.

(2) Annual Operating Fee Payments.

The Lessee must pay the operating fee for each subsequent year of Commercial Operations on or before each Lease Anniversary following the formula in subsection (4) below. The Lessee must calculate each operating fee annually subsequent to the initial operating fee payment using an operating fee rate of 0.02 through the thirty-three year operations term of the lease. The capacity factor of 0.4 will remain in effect until the Lease Anniversary of the year in which the Lessor adjusts the capacity factor.

(3) Final Operating Fee Payment.

The final operating fee payment is due on the Lease Anniversary prior to the End Date. The final operating fee payment covers the last year of Commercial Operations on the lease and will be calculated in accordance with the formula in subsection (4) below.

(4) The formula for calculating the operating fee in year t .

F_t	=	M_t	*	H	*	C_p	*	P_t	*	r_t
(annual operating fee)		(nameplate capacity)		(hours per year)		(capacity factor)		(power price)		(operating fee rate)

Where:

t =	the year of Commercial Operations on the lease starting from each Lease Anniversary, where t equals 1 represents the year beginning on the Lease Anniversary prior to, or on, the COD.
F_t =	the dollar amount of the annual operating fee in year t .
M_t =	<p>the nameplate capacity expressed in megawatts (MW) rounded to the nearest second decimal place in year t of Commercial Operations on the lease.</p> <p>The value of M_t, reflecting the availability of turbines, will be determined based on the COP. This value will be adjusted to reflect any modifications to the COP approved by BOEM as of the date each operating fee payment is due, in accordance with the calculation in Equation 1, for each year of Commercial Operations on the lease.</p>

$$(1) M_t = \sum_{w=1}^{W_t} \left(N_w * \left[\frac{\left(\sum_{d=1}^D E_{w,t,d} \right)}{D} \right] \right)$$

Where:

W_t = Number of individual wind generation turbines, w , that will be available for Commercial Operations during any day of the year, t , per the COP.

N_w = Nameplate capacity of individual wind generation turbine, w , per the COP expressed in MW.

$E_{w,t,d}$ = Indicates whether individual wind generation turbine, w , will be available for Commercial Operations on day d of year t . The value is set to 1 for any day in year t for which the condition is true, i.e., the wind turbine will be available for Commercial Operations, and zero for any day in year t for which the condition is false, i.e., the wind turbine will not be available for Commercial Operations. The month of February is always assumed to have 28 days for purposes of this calculation, where March 1st will be counted as the first day of Commercial Operations if Commercial Operations commence on February 29th of a leap year.

D = Days in the year set equal to 365 in all years for purposes of this calculation.

M_t may be reduced only in the event that installed capacity is permanently decommissioned per the COP. M_t will not be changed in response to routine or unplanned maintenance of units, including the temporary removal of a nacelle for off-site repair or replacement with a similar unit.

EXAMPLE: Assume that the Lease Anniversary is January 1st, the COD is July 1, 2018, that the facility will ultimately have 100 individual wind generation turbines with a nameplate capacity of 5.0 MW each, and that the COP specifies the following, cumulative installation schedule for wind turbines to become available for Commercial Operations:

- July 1, 2018 (COD): 20 turbines (20 new units);
- October 1, 2018: 45 turbines (25 new units);
- January 1, 2019: 50 turbines (5 new units);
- July 1, 2019: 65 turbines (15 new units);
- January 1, 2020: 95 turbines (30 new units);
- February 29, 2020: 100 turbines (5 new units).

Further assume that the COP calls for 50 of the turbines to be decommissioned after September 30, 2039 ($t = 22$), and that the remaining turbines are decommissioned at

the End Date of March 15, 2040 ($t = 23$).

The value of M_t would be estimated as demonstrated in Table 1a for each year of Commercial Operations on the lease in this example.

Table 1a: Example of M_t Calculations for Installation and Decommissioning

t	Turbines	MW	Commercial Operations Period	Comm. Ops. Days	Days in Year	Share of Days	MW	M_t
1	20	100	Jul. 1 st to Dec. 31 st	184	365	50.41%	50.41	81.92
	25	125	Oct. 1 st to Dec. 31 st	92		25.21%	31.51	
2	50	250	Jan. 1 st to Dec. 31 st	365		100.00%	250.00	287.81
	15	75	Jul. 1 st to Dec. 31 st	184		50.41%	37.81	
3	95	475	Jan. 1 st to Dec. 31 st	365		100.00%	475.00	495.96
	5	25	Mar. 1 st to Dec. 31 st	306		83.84%	20.96	
4	100	500	Jan. 1 st to Dec. 31 st	365		100.00%	500.00	500.00
...
21	100	500	Jan. 1 st to Dec. 31 st	365		100.00%	500.00	500.00
22	50	250	Jan. 1 st to Dec. 31 st	365		100.00%	250.00	436.98
	50	250	Jan. 1 st to Sep. 30 th	273		74.79%	186.98	
23	50	250	Jan. 1 st to Mar. 15 th	74		20.27%	50.68	50.68

To illustrate the impact of decommissioning a portion of the individual wind generation turbines and replacing them with units of greater capacity on the calculation of M_t , assume that at the end of March 31, 2022, 10 units are to be made unavailable due to decommissioning, and that the incremental units have a capacity of 7.0 MW and are expected to be made available for Commercial Operations on September 15, 2022. The impact on M_t in 2022 and in subsequent years starting in 2023 and continuing until decommissioning is illustrated in Table 1b.

Table 1b: Example of M_t Calculations for Repowering

t	Turbines	MW	Commercial Operations Period	Comm. Ops. Days	Days in Year	Share of Days	MW	M_t
5	90 (5.0)	450	Jan. 1 st to Dec. 31 st	365	365	100.00%	450.00	483.04
	10 (5.0)	50	Jan. 1 st to Mar. 31 st	90		24.66%	12.33	
	10 (7.0)	70	Sep. 15 th to Dec. 31 st	108		29.59%	20.71	
6	90 (5.0)	450	Jan. 1 st to Dec. 31 st	365		100.00%	450.00	520.00
	10 (7.0)	70	Jan. 1 st to Dec. 31 st	365		100.00%	70.00	

$H =$ the number of hours in the year for billing purposes which is equal to 8,760 for all years of Commercial Operations on the lease.

$C_p =$ the "Capacity Factor" in Performance Period p , which represents the share of anticipated generation of the facility that is delivered to where the Lessee's facility interconnects with the electric grid (i.e. the Delivery Point) relative to its generation at continuous full power operation at the nameplate capacity, expressed as a decimal between zero and one.

The initial Capacity Factor (C_0) will be set to 0.4.

The Capacity Factor will be subject to adjustment at the end of each Performance Period. After the sixth year of Commercial Operations on the lease has concluded, the Lessee will utilize data gathered from years two through six of Commercial Operations on the lease and propose a revised Capacity Factor to be used to calculate subsequent annual payments, as provided for in Table 2 below. A similar process will be conducted at the conclusion of each five-year Performance Period, thereafter.

Table 2: Definition of Performance Periods

Performance Period (p)	Commercial Operation Years (t)	Payments Affected by Adjustment	Capacity Factor (c)	Date End Year (n)
0 (COD)	Not Applicable	Payments 1 to 7	$C_0=0.4$	--
1	$t = 2$ to 6	Payments 8 to 12	C_1	$n_1=6$
2	$t = 7$ to 11	Payments 13 to 17	C_2	$n_2=11$
3	$t = 12$ to 16	Payments 18 to 22	C_3	$n_3=16$
4	$t = 17$ to 21	Payments 23 to 27	C_4	$n_4=21$
5	$t = 22$ to 26	Payments 28 to 32	C_5	$n_5=26$
6	$t = 27$ to 31	Payment 33	C_6	$n_6=31$

Adjustments to the Capacity Factor

The Actual 5-year Average Capacity Factor (X_p) is calculated for each Performance Period after COD ($p > 0$) per Equation 2 below. X_p represents the sum of actual, metered electricity generation in megawatt-hours (MWh) at the Delivery Point to the electric grid (A_t) divided by the amount of electricity generation in MWh that would have been produced if the facility operated continuously at its full, stated capacity (M_t) in all of the hours (h_t) in each year, t , of the corresponding five-year period.

$$(2) X_p = \left(\frac{\sum_{t=n-4}^n A_t}{\sum_{t=n-4}^n M_t * h_t} \right)$$

Where:

M_t = Nameplate Capacity as defined above.

n = "Date End Year" value for the Performance Period, p , as defined in Table 2.

p = Performance Period as defined in Table 2.

A_t = Actual generation in MWh associated with each year of Commercial Operations, t , on the lease that is transferred at the Delivery Point; Delivery Point meter data supporting the values submitted for annual actual generation must be recorded, preserved, and timely provided to the Lessor upon request. In the event the Lessor requires the assistance of the Lessee in obtaining information useful in verifying

	<p>such information, for example by waiving confidentiality with respect to data held by a third party, such assistance must be timely provided.</p> <p>h_t = Hours in the year on which the Actual Generation associated with each year of Commercial Operations, t, on the lease is based; this definition of “hours in the year” differs from the definition of H in the operating fee equation above. The hours in the year for purposes of calculating the capacity factor must take into account the actual number of hours, including those in leap years.</p> <p>The value of the Capacity Factor at the outset of Commercial Operations ($p = 0$) is set to 0.4 as stated in equation 3:</p> <p>(3) $C_0 = 0.4$</p> <p>The value of the Capacity Factor corresponding to each Performance Period (C_p) is set according to equations 4A, 4B, and 4C as follows for each value of p greater than zero. The Capacity Factor is set equal to the Actual 5-Year Average Capacity Factor provided that the value falls within a range of plus or minus 10 percent of the previous Performance Period’s capacity factor.</p> <p>(4A) $C_p = X_p$ for $C_{p-1} * 0.90 \leq X_p \leq C_{p-1} * 1.10$</p> <p>(4B) $C_p = C_{p-1} * 0.90$ for $X_p < C_{p-1} * 0.90$</p> <p>(4C) $C_p = C_{p-1} * 1.10$ for $X_p > C_{p-1} * 1.10$</p> <p>All values for C_p must be rounded to the nearest third decimal place.</p>
$P_t =$	<p>a measure of the annual average wholesale electric power price expressed in dollars per MW hour.</p> <p>The Lessee must calculate P_t at the time each operating fee payment is due, subject to approval by the Lessor. The Base Price (P_b) must equal the weighted average of the peak and off-peak spot price indices for the Northeast – Massachusetts Hub power market for the most recent year of data available as reported by the Federal Energy Regulatory Commission (FERC). If FERC stops publishing this data or the specified location of the data changes over time, the Lessor must specify an alternate source of data and methodology that is approximately equivalent.</p> <p>The peak and off-peak price indices must be weighted 52.0% and 48.0%, respectively, for purposes of estimating the weighted index value for the Base Price. For example, in the March 12, 2012 State of the Markets Report the peak price index for 2011 was \$51.99/MWh and the corresponding off-peak price index for 2011 was \$33.94/MWh, resulting in a weighted index value for the Base Price for 2011 (P_{2011}) of \$43.33/MWh ($=52.0\% * \\$51.99 / \text{MWh} + 48.0\% * \\$33.94 / \text{MWh}$). The calculation of P_b must be</p>

rounded up to the nearest, second decimal place.

The Base Price must be adjusted for inflation from the year associated with the published spot prices to the year in which the operating fee is to be paid as shown in equations (5A) and (5B):

$$(5A) \quad P_t = P_b * \left(\frac{GDP_g}{GDP_{g-1}} \right)^{y-g} * \left(\frac{GDP_g}{GDP_b} \right) \text{ for } g \geq b$$

$$(5B) \quad P_t = P_b * \left(\frac{GDP_g}{GDP_{g-1}} \right)^{y-b} \text{ for } g < b$$

Where:

GDP = Annual Implicit Price Deflators for Gross Domestic Product (GDP deflator index) published by the U.S. Bureau of Economic Analysis (BEA) for the specified period.

If BEA stops publishing the data required for this calculation, or the specified location of the data changes over time, the Lessor will specify an alternative source of data and methodology that it considers approximately equivalent.

b = The most recent year for which FERC reports the appropriate electricity spot price data expressed as the year, e.g., 2009, as in the illustrative example below.

g = The most recent year for which GDP deflator indices are available from BEA expressed as the year, e.g., 2011, as in the illustrative example below.

y = The year the annual payment is due expressed as the year corresponding to the value of t described above, e.g., 2013, as in the illustrative example below.

The second term on the right-hand side of equation (5A) represents a projected annual change in the index of inflation employing the last year of data available from BEA, while the third term represents the cumulative change in the index of inflation up to the previous year.

Example:

The following hypothetical example is provided to illustrate the methodology using Equation (5A) and the illustrative values provided for b , g , and y above, applied to historical GDP deflator data. If the actual FERC price indices are based on 2009 data and the GDP deflator indices are available for 2011, the inflation-adjusted price index value would be determined from equation (5A) as follows for a payment occurring in $y = 2013$:

	$P_{t(2013)} = P_{2009} * \left(\frac{GDP_{2011}}{GDP_{2010}} \right)^{2013-2011} * \left(\frac{GDP_{2011}}{GDP_{2009}} \right) = \frac{\$38.40}{\text{MWh}} * \left(\frac{113.361}{110.992} \right)^2 * \left(\frac{113.361}{109.729} \right) = \frac{\$41.38}{\text{MWh}}$ <p>Note: The current GDP deflator index is 113.361 for 2011, 110.992 for 2010, and 109.729 for 2009 (last revised by BEA on April 27, 2012); the FERC index price for the year 2009 is \$38.40/MWh (On-peak: \$44.60/MWh; Off-peak: \$31.68/MWh; last revised March 12, 2012). Although 2011 FERC prices are available, the 2009 prices are used in the example to illustrate the concept.</p> <p>The Lessor and the Lessee will use the latest FERC price indices and revised BEA GDP deflator index values at the time the pricing adjustments are made. The source of data used in the calculations must be noted in the Lessee's documentation supporting their estimate of the value of P_t each year for review and approval by the Lessor.</p>
$r_t =$	the operating fee rate of 0.02 (2%).

(c) ***Reporting, Validation, Audits, and Late Payments.***

The Lessee must submit the values used in the operating fee formula to the Lessor at the time the annual payment based on these values is made. Submission of this and other reporting, validation, audit and late payment information as requested by the Lessor must be sent to the Lessor using the contact information indicated in Addendum "A", unless the Lessor directs otherwise. Failure to submit the estimated values and the associated documentation on time to the Lessor may result in penalties as specified in applicable regulations.

Within 60 days of the submission by the Lessee of the annual payment, the Lessor will review the data submitted and validate that the operating fee formula was applied correctly. If the Lessor validation results in a different operating fee amount, the amount of the annual operating fee payment will be revised to the amount determined by the Lessor.

The Lessor also reserves the right to audit the meter data upon which the Actual 5-year Average Capacity Factor is based at any time during the lease term. If, as a result of such audit, the Lessor determines that any annual operating fee payment was calculated incorrectly, the Lessor has the right to correct any errors and collect the correct annual operating fee payment amount.

If the annual operating fee is revised downward as a result of the Lessee's calculations, as validated by the Lessor, or an audit of meter data conducted by the Lessee or Lessor, the Lessee will be refunded the difference between the amount of the payment received and the amount of the revised annual operating fee, without interest. Similarly, if the payment amount is revised upward, the Lessee is required to pay the difference between the amount

of the payment received and the amount of the revised annual operating fee, plus interest on the balance, in accordance with 30 CFR § 1218.54.

Late operating fee payments will be charged interest in accordance with 30 CFR § 1218.54.

IV. Financial Assurance

The Lessor will base the determination for the amounts of all Site Assessment Plan (SAP), COP, and decommissioning financial assurance requirements on estimates of the cost to meet all accrued lease obligations. The Lessor determines the amount of supplemental and decommissioning financial assurance requirements on a case-by-case basis. The amount of financial assurance required to meet all lease obligations includes:

- (a) **Initial Financial Assurance.** Prior to the Lease Issuance date, the Lessee must provide an initial lease-specific bond, or other approved means of meeting the Lessor's initial financial assurance requirements in an amount equal to \$100,000.
- (b) **Additional Financial Assurance.** In addition to the initial lease-specific financial assurance discussed above, the Lessee is also required to provide additional supplemental bonds associated with the SAP and COP, or other form of financial assurances and a decommissioning bond or other approved means of meeting the Lessee's decommissioning obligations.
 - (1) Prior to the Lessor's approval of a SAP, the Lessor will require an additional supplemental bond or other form of financial assurance in an amount determined by the Lessor based on the complexity, number, and location of all facilities involved in the site assessment activities planned in the SAP, and estimates of the costs to meet all accrued obligations, in accordance with applicable BOEM regulations (30 CFR 585.515-537). The supplemental financial assurance requirement is in addition to the initial lease-specific financial assurance in the amount of \$100,000. The Lessee may meet these obligations by providing a new bond or other acceptable form of financial assurance, or increasing the amount of its existing bond or other form of financial assurance.
 - (2) Prior to the Lessor's approval of a COP, the Lessor may require an additional supplemental bond or other form of financial assurance in an amount determined by the Lessor based on the complexity, number, location of all facilities, activities and Commercial Operations planned in the COP, and estimates of the costs to meet all accrued obligations, in accordance with applicable BOEM regulations (30 CFR 585.515-537). The supplemental financial assurance requirement is in addition to the initial lease-specific financial assurance in the amount of \$100,000 and an additional supplemental bond or other form of financial assurance required with the SAP. The Lessee may meet this obligation by providing a new bond or other acceptable form of financial assurance, or increasing the amount of its existing bond or other form of financial assurance.

- (3) The Lessor will require a decommissioning bond or other form of financial assurance based on the anticipated decommissioning costs in accordance with applicable BOEM regulations (30 CFR 585.515-537). The decommissioning obligation must be guaranteed through an acceptable form of financial assurance and will be due according to the schedule beginning before commencement of the installation of commercial facilities on a date or dates to be determined by the Lessor.
- (c) **Adjustments to Financial Assurance Amounts.** The Lessor reserves the right to adjust the amount of any financial assurance requirement (initial, supplemental, or decommissioning) associated with this lease and/or reassess the Lessee's cumulative lease obligations, including decommissioning obligations, at any time. If the Lessee's cumulative lease obligations and/or liabilities increase or decrease, the Lessor will notify the Lessee of any intended adjustment to the financial assurance requirements and provide the Lessee an opportunity to comment in accordance with applicable BOEM regulations.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "C"

LEASE-SPECIFIC TERMS, CONDITIONS, AND STIPULATIONS

Lease Number OCS-A 0522

The Lessee's rights to conduct activities on the leased area are subject to the following terms, conditions, and stipulations. The Lessor reserves the right to impose additional terms and conditions incident to the future approval or approval with modifications of plans, such as a Site Assessment Plan (SAP) or Construction and Operations Plan (COP).

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1 DEFINITIONS

- 1.1 Definition of "Archaeological Resource": The term "archaeological resource" has the same meaning as "archaeological resource" in the Bureau of Ocean Energy Management (BOEM) regulations provided in 30 CFR 585.112.
- 1.2 Definition of "Dynamic Management Area (DMA)": The term "DMA" refers to a temporary area designated by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and consisting of a circle around a confirmed North Atlantic right whale sighting. The radius of this circle expands incrementally with the number of whales sighted, and a buffer is included beyond the core area to allow for whale movement. Mandatory or voluntary speed restrictions may be applied by NOAA NMFS within DMAs. Information regarding the location and status of applicable DMAs is available from the NMFS Office of Protected Resources.
- 1.3 Definition of "Effective Date": The term "Effective Date" has the same meaning as "effective date" in BOEM regulations provided in 30 CFR 585.237.
- 1.4 Definition of "Geological and Geophysical Survey (G&G Survey)": The term "G&G Survey" serves as a collective term for surveys that collect data on the geology of the seafloor and landforms below the seafloor. High resolution geophysical surveys and geotechnical (sub-bottom) exploration are components of G&G surveys.
- 1.5 Definition of "Geotechnical Exploration": The term "Geotechnical Exploration," also referred to as "Sub-bottom Sampling," or "Geotechnical Testing," is used to collectively refer to site specific sediment and underlying geologic data acquired from the seafloor and the sub-bottom and includes geotechnical surveys utilizing deep borings, vibracores, and cone penetration tests.
- 1.6 Definition of "High Resolution Geophysical Survey (HRG Survey)": The term "HRG Survey" means a marine remote-sensing survey using, but not limited to, such equipment as side-scan sonar, magnetometer, shallow and medium (Seismic) penetration sub-bottom profiler systems, narrow beam or multibeam echo sounder, or other such equipment employed for the purposes of providing data on geological conditions, identifying shallow hazards, identifying archaeological resources, charting bathymetry, and gathering other site characterization information.
- 1.7 Definition of "Protected Species": The term "protected species" includes marine mammals (those protected under the Endangered Species Act and those protected under the Marine Mammal Protection Act), sea turtles, sturgeon, and giant manta ray.
- 1.8 Definition of "Protected-Species Observer": The term "protected-species observer," or "PSO," means an individual who is trained in the shipboard identification and behavior of protected species.

- 1.9 Definition of "Ramp-up": The term "ramp-up" means the process of incrementally increasing the acoustic source level of the survey equipment when conducting HRG surveys until it reaches the operational setting.
- 1.10 Definition of "Site Assessment Activities": The term "site assessment activities" or "site assessment," has the same meaning as "site assessment activities" in 30 CFR 585.112.
- 1.11 Definition of "Qualified Marine Archaeologist": The term "qualified marine archaeologist" means a person retained by the Lessee who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (48 FR 44738-44739), and has experience analyzing marine geophysical data.

2 SCHEDULE

2.1 Site Characterization

- 2.1.1 Survey Plan(s). Prior to conducting survey activities in support of the submission of a plan, the Lessee must submit to the Lessor at least one complete survey plan. Each distinct survey effort (e.g., mobilization) must be addressed by a survey plan, although a single survey plan may cover more than one effort. Each survey plan must include details and timelines of the surveys to be conducted on this lease necessary to support the submission of a plan (i.e., necessary to satisfy the information requirements in the applicable regulations, including but not limited to 30 CFR 585.606, 610, 611, 621, 626, 627). Each survey plan must include a description of historic property identification surveys that will be conducted to gather the information required by BOEM to complete review of a plan under the National Historic Preservation Act (e.g., offshore and onshore archaeological surveys and surveys within the viewshed of proposed renewable energy structures). Each survey plan must be consistent with the Lessee's Fisheries Communication Plan (see 4.1.3) and include a description of the Lessee's intentions to coordinate with the U.S. Coast Guard to prepare a Notice to Mariners for the specific survey activities described in the survey plan.

The Lessee must submit each survey plan to the Lessor at least 30 calendar days prior to the date of the required pre-survey meeting with the Lessor (See 2.1.2). Prior to the commencement of any survey activities described in the survey plan, the Lessee must modify each survey plan to address any comments the Lessor submits to the Lessee on the contents of the survey plan in a manner deemed satisfactory by the Lessor.

- 2.1.2 Pre-Survey Meeting(s) with the Lessor. At least 60 days prior to the initiation of survey activities in support of the submission of a plan (i.e., SAP and/or COP), the Lessee must hold a pre-survey meeting with the Lessor to discuss the applicable proposed survey plan and timelines. The Lessee must ensure the presence at this meeting of a Qualified Marine Archaeologist and any other relevant subject matter experts (e.g., terrestrial archaeologist, architectural historians) related to the proposed historic property identification surveys described in the survey plan unless otherwise authorized by the Lessor. The Lessor may request the presence of other relevant subject matter experts at this meeting.

2.2 Progress Reporting

- 2.2.1 Semi-Annual Progress Report. The Lessee must submit to the Lessor a semi-annual (i.e., every six months) progress report through the duration of the site assessment term that includes a brief narrative of the overall progress since the last progress report, or – in the case of the first report – since the Effective Date. The progress report must include an update regarding progress in executing the activities included in the survey plan(s), and include as an enclosure an updated survey plan(s) accounting for any modifications in schedule.

3 NATIONAL SECURITY AND MILITARY OPERATIONS

The Lessee must comply with the requirements specified in stipulations 3.1, 3.2 and 3.3 when conducting site characterization activities in support of plan (i.e., SAP and/or COP) submittal.

3.1 Hold and Save Harmless

Whether compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the Lessee assumes all risks of damage or injury to persons or property, which occur in, on, or above the Outer Continental Shelf (OCS), to any persons or to any property of any person or persons in connection with any activities being performed by the Lessee in, on, or above the OCS, if such injury or damage to such person or property occurs by reason of the activities of any agency of the United States Government, its contractors, or subcontractors, or any of its officers, agents or employees, being conducted as a part of, or in connection with, the programs or activities of the individual military command headquarters (hereinafter “the appropriate command headquarters”) listed in the contact information provided as an enclosure to this lease.

Notwithstanding any limitation of the Lessee's liability in Section 9 of the lease, the Lessee assumes this risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of its officers, agents, or employees. The Lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury in connection with the programs or activities of the command headquarters, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of its officers, agents, or employees and whether such claims might be sustained under a theory of strict or absolute liability or otherwise.

3.2 Evacuation or Suspension of Activities

- 3.2.1 General. The Lessee hereby recognizes and agrees that the United States reserves and has the right to temporarily suspend operations and/or require evacuation on this lease in the interest of national security pursuant to Section 3(c) of this lease.
- 3.2.2 Notification. Every effort will be made by the appropriate military agency to provide as much advance notice as possible of the need to suspend operations and/or evacuate. Advance notice will normally be given before requiring a suspension or evacuation. Temporary suspension of operations may include, but is not limited to the evacuation of personnel and appropriate sheltering of personnel not evacuated. "Appropriate sheltering" means the protection of all Lessee personnel for the entire duration of any Department of Defense activity from flying or falling objects or substances and will be implemented by an order (oral and/or written) from the BOEM Office of Renewable Energy Programs (OREP) Program Manager, after consultation with the appropriate command headquarters or other appropriate military agency, or higher Federal authority. The appropriate command headquarters, military agency, or higher authority will provide information to allow the Lessee to assess the degree of risk to, and provide sufficient protection for, the Lessee's personnel and property.
- 3.2.3 Duration. Suspensions or evacuations for national security reasons will not generally exceed seventy-two (72) hours; however, any such suspension may be extended by order of the OREP Program Manager. During such periods, equipment may remain in place, but all operations, if any, must cease for the duration of the temporary suspension if so directed by the OREP Program Manager. Upon cessation of any temporary suspension, the OREP Program Manager will immediately notify the Lessee such suspension has terminated and operations on the leased area can resume.
- 3.2.4 Lessee Point-of-Contact for Evacuation/Suspension Notifications. The Lessee must inform the Lessor of the persons/offices to be notified to implement the terms of 3.2.2 and 3.2.3.

- 3.2.5 Coordination with Command Headquarters. The Lessee must establish and maintain early contact and coordination with the appropriate command headquarters, in order to avoid or minimize the potential to conflict with and minimize the potential effects of conflicts with military operations.
- 3.2.6 Reimbursement. The Lessee is not entitled to reimbursement for any costs or expenses associated with the suspension of operations or activities or the evacuation of property or personnel in fulfillment of the military mission in accordance with 3.2.1 through 3.2.5 above.

3.3 **Electromagnetic Emissions**

The Lessee, prior to entry into any designated defense operating area, warning area, or water test area, for the purpose of commencing survey activities undertaken to support SAP or COP submittal must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters.

4 **STANDARD OPERATING CONDITIONS**

4.1 **General**

- 4.1.1 Vessel Strike Avoidance Measures. The Lessee must ensure that all vessels conducting activities in support of plan (i.e., SAP and COP) submittal, including those transiting to and from local ports and the lease area, comply with the vessel-strike avoidance measures specified in stipulations 4.1.1.1 through 4.1.1.8.3, except under extraordinary circumstances when complying with these requirements would put the safety of the vessel or crew at risk.
- 4.1.1.1 The Lessee must ensure that vessel operators and crews maintain a vigilant watch for marine mammals (whales, dolphins, porpoises, seals), sea turtles, and giant manta rays, and slow down or stop their vessel to avoid striking these protected species.
- 4.1.1.2 The Lessee must ensure that vessels 19.8 meters (m) (65 feet [ft]) in length or greater that operate between November 1 through July 31, operate at speeds of 10 knots (11.5 mph) or less.
- 4.1.1.3 The Lessee must ensure that vessel operators monitor NMFS North Atlantic Right Whale reporting systems (e.g., the Early Warning System, Sighting Advisory System, and Mandatory Ship Reporting System) from November 1 through July 31 and whenever a DMA is established within any area vessels operate.
- 4.1.1.4 The Lessee must ensure that all vessel operators comply with 10 knot (18.5 kilometers per hour [km/hr]) speed restrictions in any DMA.

4.1.1.5 The Lessee must ensure that all vessel operators reduce vessel speed to 10 knots or less when mother/calf pairs, pods, or large assemblages of marine mammals are observed near an underway vessel.

4.1.1.6 North Atlantic Right Whales.

4.1.1.6.1 The Lessee must ensure all vessels maintain a separation distance of 500 m (1,640 ft) or greater from any sighted North Atlantic right whale or unidentified large marine mammal.

4.1.1.6.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 500 m (1,640 ft) of any North Atlantic right whale:

4.1.1.6.2.1 If underway, any vessel must steer a course away from any North Atlantic right whale at 10 knots (18.5 km/h) or less until the 500 m (1,640 ft) minimum separation distance has been established (except as provided in 4.1.1.6.2.2).

4.1.1.6.2.2 If a North Atlantic right whale is sighted within 100 m (328 ft) to an underway vessel, the vessel operator must immediately reduce speed and promptly shift the engine to neutral. The vessel operator must not engage the engines until the North Atlantic right whale has moved beyond 100 m (328 ft), at which point the Lessee must comply with 4.1.1.6.2.1.

4.1.1.6.2.3 If a vessel is stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 100 m (328 ft), at which point the Lessee must comply with 4.1.1.6.2.1.

4.1.1.7 Large Whales other than the North Atlantic Right Whale.

4.1.1.7.1 The Lessee must ensure all vessels maintain a separation distance of 100 m (328 ft) or greater from any sighted Endangered Species Act (ESA)-listed whales or humpback whales.

4.1.1.7.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 100 m (328 ft) of whale:

4.1.1.7.2.1 If underway, the vessel must reduce speed and shift the engine to neutral, and must not engage the engines until the whale has moved beyond 100 m (328 ft).

4.1.1.7.2.2 If stationary, the vessel must not engage engines until the whale has moved beyond 100 m (328 ft).

4.1.1.8 Small Cetaceans (Dolphins and Porpoises), Seals, Giant Manta Rays, and Sea Turtles.

4.1.1.8.1 The Lessee must ensure that all vessels underway do not divert to approach any small cetacean, seal, sea turtle, or giant manta ray.

- 4.1.1.8.2 The Lessee must ensure that all vessels maintain a separation distance of 50 meters (164 ft) or greater from any sighted small cetacean, seal, sea turtles, or giant manta ray, except when a small cetacean or seal approaches the vessel, in which case, the Lessee must follow 4.1.1.8.3 below.
- 4.1.1.8.3 If a small cetacean or seal approaches any vessel underway, the vessel underway must avoid excessive speed or abrupt changes in direction to avoid injury to the animal.
- 4.1.1.9 Vessel Operator Briefing. The Lessee must ensure that all vessel operators are briefed to ensure they are familiar with the requirements specified in 4.1.1.
- 4.1.2 Marine Trash and Debris Prevention. The Lessee must ensure that vessel operators, employees, and contractors actively engaged in activity in support of a plan (i.e., SAP and COP) submittal are briefed on marine trash and debris awareness and elimination, as described in the BSEE NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination") or any NTL that supersedes this NTL, except that the Lessor will not require the Lessee to post placards. The Lessee must ensure that these vessel operator employees and contractors receive training on the environmental and socioeconomic impacts associated with marine trash and debris and their responsibilities for ensuring that trash and debris are not intentionally or accidentally discharged into the marine environment. Briefing materials on marine debris awareness, elimination, and protected species are available at <http://oocmain.theooc.us/page41.html>.
- 4.1.3 Fisheries Communications Plan (FCP) and Fisheries Liaison. The Lessee must develop a publicly available FCP that describes the strategies that the Lessee intends to use for communicating with fisheries stakeholders prior to and during activities in support of the submission of a plan. The FCP must include the contact information for an individual retained by the Lessee as its primary point of contact with fisheries stakeholders (i.e., Fisheries Liaison). If the Lessee does not develop a project website, the FCP must be made available to the Lessor and the public upon request.
- 4.1.4 Entanglement Avoidance.
- 4.1.4.1 The Lessee must ensure that any structures or devices attached to the seafloor for continuous periods greater than 24 hours use the best available mooring systems for minimizing the risk of entanglement or entrapment of marine mammals, manta rays and sea turtles, while still ensuring the safety and integrity of the structure or device. The best available mooring system may include, but is not limited to, vertical and float lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs.
- 4.1.4.2 All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves,

weak-links, chains, cables or similar equipment types that prevent lines from looping or wrapping around animals, or entrapping protected species.

- 4.1.4.3 Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.
- 4.1.4.4 If an entangled live or dead marine protected species is reported, the Lessee must provide any assistance to authorized stranding response personnel as requested by BOEM or NMFS.

4.2 Archaeological Survey Requirements

- 4.2.1 Archaeological Survey Required. The Lessee must provide the results of an archaeological survey with its plans.
- 4.2.2 Qualified Marine Archaeologist. The Lessee must ensure that the analysis of archaeological survey data collected in support of plan (e.g., SAP and/or COP) submittal and the preparation of archaeological reports in support of plan submittal are conducted by a Qualified Marine Archaeologist.
- 4.2.3 Tribal Pre-Survey Meeting. The Lessee must invite by certified mail the Narragansett Indian Tribe, the Mashpee Wampanoag Tribe, and the Wampanoag Tribe of Gay Head (Aquinnah) to a tribal pre-survey meeting. The purpose of this meeting will be for the Lessee and the Lessee's Qualified Marine Archaeologist to discuss the Lessee's Survey Plan and consider requests to monitor portions of the archaeological survey and the geotechnical exploration activities, including the visual logging and analysis of geotechnical samples (e.g., cores, etc.). The meeting must be held subsequent to the pre-survey meeting with the Lessor (see 2.1.2). Invitation to the tribal pre-survey meeting must be made at least 15 calendar days prior to the date of the proposed tribal pre-survey meeting. The meeting must be scheduled for a date at least 30 calendar days prior to commencement of survey activities performed in support of plan submittal and at a location and time that affords the participants a reasonable opportunity to participate. The anticipated date for the meeting must be identified in the timeline of activities described in the applicable survey plan (see 2.1.1).
- 4.2.4 Geotechnical Exploration. The Lessee may only conduct geotechnical exploration activities performed in support of plan (i.e., SAP and/or COP) submittal in locations where an analysis of the results of geophysical surveys has been completed. This analysis must include a determination by a Qualified Marine Archaeologist as to whether any potential archaeological resources are present in the area. Except as allowed by the Lessor under 4.2.6, the geotechnical exploration activities must avoid potential archaeological resources by a minimum of 50 m (164 ft), and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. A Qualified Marine Archaeologist must certify, in the

Lessee's archaeological reports, that geotechnical exploration activities did not impact potential historic properties identified as a result of the HRG surveys performed in support of plan submittal, except as follows: in the event that the geotechnical exploration activities did impact potential historic properties identified in the archaeological surveys without the Lessor's prior approval, the Lessee and the Qualified Marine Archaeologist who prepared the report must instead provide a statement documenting the extent of these impacts.

- 4.2.5 Monitoring and Avoidance. The Lessee must inform the Qualified Marine Archaeologist that he or she may be present during HRG surveys and bottom-disturbing activities performed in support of plan (i.e., SAP and/or COP) submittal to ensure avoidance of potential archaeological resources, as determined by the Qualified Marine Archaeologist (including bathymetric, seismic, and magnetic anomalies; side scan sonar contacts; and other seafloor or sub-surface features that exhibit potential to represent or contain potential archaeological sites or other historic properties). In the event that this Qualified Marine Archaeologist indicates that he or she wishes to be present, the Lessee must facilitate the Qualified Marine Archaeologist's presence, as requested by the Qualified Marine Archaeologist, and provide the Qualified Marine Archaeologist the opportunity to inspect data quality.
- 4.2.6 No Impact without Approval. In no case may the Lessee knowingly impact a potential archaeological resource without the Lessor's prior approval.
- 4.2.7 Post-Review Discovery Clauses. If the Lessee, while conducting geotechnical exploration or any other bottom-disturbing site characterization activities in support of plan (i.e., SAP and COP) submittal and after review of the location by a Qualified Marine Archaeologist under 4.2.4, discovers an unanticipated potential archaeological resource, such as the presence of a shipwreck (e.g., a sonar image or visual confirmation of an iron, steel, or wooden hull, wooden timbers, anchors, concentrations of historic objects, piles of ballast rock) or evidence of a pre-contact archaeological site (e.g. stone tools, pottery or other pre-contact artifacts) within the project area, the Lessee must:
- 4.2.7.1 Immediately halt seafloor/bottom-disturbing activities within the area of discovery;
 - 4.2.7.2 Notify the Lessor within 24 hours of discovery;
 - 4.2.7.3 Notify the Lessor in writing via report to the Lessor within 72 hours of its discovery;
 - 4.2.7.4 Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until the Lessor has made an evaluation and instructs the applicant on how to proceed; and
 - 4.2.7.5 Conduct any additional investigations as directed by the Lessor to determine if the resource is eligible for listing in the National Register of Historic Places

(30 CFR 585.802(b)). The Lessor will do this if: (1) the site has been impacted by the Lessee's project activities; or (2) impacts to the site or to the area of potential effect cannot be avoided. If investigations indicate that the resource is potentially eligible for listing in the National Register of Historic Places, the Lessor will tell the Lessee how to protect the resource or how to mitigate adverse effects to the site. If the Lessor incurs costs in protecting the resource, under Section 110(g) of the National Historic Preservation Act, the Lessor may charge the Lessee reasonable costs for carrying out preservation responsibilities under the OCS Lands Act (30 CFR 585.802(c-d)).

4.3 Geological and Geophysical (G&G) Survey Requirements

- 4.3.1 General. The Lessee must ensure that all vessels conducting activity in support of a plan (i.e., SAP and COP) submittal comply with the geological and geophysical survey requirements specified in 4.3 except under extraordinary circumstances when complying with these requirements would put the safety of the vessel or crew at risk.
- 4.3.2 Visibility. The Lessee must not conduct G&G surveys in support of plan (i.e., SAP and COP) submittal at night or if any observation conditions (e.g., darkness, rain, fog, and sea state) prevent visual monitoring of the HRG survey exclusion zone (see 4.3.6.1) or the geotechnical exploration exclusion zone (see 4.3.7.1), except as allowed under 4.3.3.
- 4.3.3 Nighttime Survey Requirements. If the Lessee intends to conduct G&G survey operations in support of plan submittal at night or when visual observation is otherwise impaired, the Lessee must use PSOs supplemented with night vision technology and a passive acoustic monitoring system to monitor the exclusion zone. The Lessee must submit to the Lessor an alternative monitoring plan detailing the monitoring methodology (e.g., active or passive acoustic monitoring technologies). No nighttime surveys may begin until the Lessor determines that the alternative monitoring plan is adequate to monitor for protected species.
- 4.3.4 Protected-Species Observer. The Lessee must ensure that the exclusion zone for all G&G surveys performed in support of plan (i.e., SAP and COP) submittal is monitored by NMFS-approved protected-species observers.
 - 4.3.4.1 The Lessor must ensure all PSOs and Passive Acoustic Monitoring (PAM) Operators have completed a PSO and/or PAM training program, as appropriate. PSOs must be approved by NMFS prior to the start of a survey. Instructions and application requirements to become a NMFS-approved PSO can be found at: <https://www.greateratlantic.fisheries.noaa.gov/protected/esaobserver/index.html>.
 - 4.3.4.2 No later than 7 calendar days prior to the scheduled start of survey activities that require PSOs, the Lessee must provide to the Lessor a list of PSOs that will implement best management practices (BMPs) during survey work. The Lessee must provide the Lessor a current approval from NMFS that indicates the PSOs

are currently qualified to work on survey, and documentation or certificate of individual PSOs' successful completion of a commercial PSO training course and/or PAM operator course with an overall examination score of 80% or greater (Baker et. al 2013 available at <https://www.fisheries.noaa.gov/resource/document/national-standards-protected-species-observer-and-data-management-program>).

- 4.3.4.3 The Lessee must submit a PSO/PAM Operator schedule showing the number of PSOs/PAM Operators used is sufficient to effectively monitor the affected area identified for each project (e.g., surveys or pile driving) according to the following:
 - a) PSOs/PAM must not be on watch for more than 4 consecutive hours, with at least a 2-hour break after a 4-hour watch, unless otherwise accepted by the Lessor; b) PSOs/PAM must not work for more than 12 hours in any 24-hour period (Baker et al. 2013).
- 4.3.4.4 The Lessee must ensure PSO data is collected in accordance with standard reporting forms, software tools, and electronic data forms approved by BOEM for the particular activity.
- 4.3.5 Observation Location and Optical Device Availability. The Lessee must ensure that monitoring occurs from the highest available vantage point on the associated operational platform, allowing for 360-degree scanning. The Lessee must ensure that reticle binoculars and other suitable equipment are available to each observer to adequately perceive and monitor protected marine species within the exclusion zone during surveys conducted in support of plan (i.e., SAP and COP) submittal.
- 4.3.6 High-Resolution Geophysical Surveys. Stipulations specific to HRG surveys conducted in support of plan (i.e., SAP and COP) submittal where one or more acoustic sound sources is operating at frequencies below 200 kHz are provided in 4.3.6.1 through 4.3.6.9.
 - 4.3.6.1 Establishment of Default Exclusion Zone. The Lessee must ensure a 200-meter radius exclusion zone around the sound source for ESA-listed whales and sea turtles. In the case of the North Atlantic right whale, the Lessee must observe a minimum separation distance of 500 m (1,640 ft), as required under 4.1.1.6.1. Exclusion zones for non-listed marine mammals will be determined through project-specific mitigation and monitoring requirements of Incidental Take Authorizations (ITAs) provided by the National Marine Fisheries Service. If an ITA is not required, default exclusion zones of 100 m (328 ft) for harbor porpoises and humpback whales, and 50 m (164 ft) for all other non-listed marine mammals must be established around each vessel conducting HRG survey activities.
 - 4.3.6.2 High Resolution Geophysical Sound Source Verification. No later than 45 calendar days prior to the commencement of survey activities, the Lessee must submit the results of sound source verification for any active acoustic devices that may be used. The Lessee must submit sound source verification results containing the frequencies, source

level (dB re 1 μ Pa), and modeled distances to most current guidance specified by the Lessor for ear injury and behavioral disturbance in the survey area. If existing data is available, the analysis must provide an explanation why the existing data is expected to be representative for the equipment in the area to be surveyed. This explanation must include a discussion of any differences between the equipment tested and the equipment to be used, a discussion of any differences in propagation characteristics conditions (depth, water temperature and bottom conditions), and an explanation for how those differences would affect sound propagation and injury and behavioral disturbance distances. No surveys may begin until the Lessor determines that the sound source verification use of existing information is acceptable.

- 4.3.6.3 If the existing SSV information is not acceptable, the Lessee must submit to the Lessor a sound source verification plan for field measurements of any HRG equipment that will be used, no later than 30 calendar days prior to the commencement of survey activities. Acoustic measurements must be sufficient to establish the following: frequencies, source level (Peak, SEL, and RMS sound pressure levels re 1 μ Pa at 1 m), and the sound exposure distance for ear injury and behavioral harassment thresholds for marine mammal hearing groups, sea turtles, and fish specified by the Lessor. The Lessee must take these sound measurements from at least three reference distances at two depths (i.e., a depth at mid-water and a depth at approximately 1 m above the seafloor). The results of the field measurements must be provided to the Lessor for review at least 24 hours in advance of commencing a survey.
- 4.3.6.3.1 If the Lessor determines that the exclusion zone does not encompass the sound-exposure threshold for ear injury to protected species, the Lessor will consult with NMFS and may impose additional requirements on the Lessee.
- 4.3.6.4 Modification of Exclusion Zone per Lessee Request. The Lessee may use the field verification results to request modification of the exclusion zone for the specific HRG survey equipment under consideration. Any new exclusion zone radius proposed by the Lessee must be based on the most conservative field measurements of the largest exclusion zone and diving behavior of the protected species in the survey area. The Lessee may periodically reevaluate the modified zone using the field verification procedures described in 4.3.6.3. The Lessee must obtain Lessor approval of any new exclusion zone before it is implemented.
- 4.3.6.5 Clearance of Exclusion Zone. The Lessee must ensure that active acoustic sound sources will not be activated until the PSO has reported the exclusion zone clear of all marine mammals and sea turtles for 60 minutes.
- 4.3.6.6 Electromechanical Survey Equipment Ramp-Up. The Lessee must ensure that, when technically feasible, a “ramp-up” of the electromechanical survey

equipment occurs at the start or re-start of HRG survey activities. A ramp-up would begin with the power of the smallest acoustic equipment for the HRG survey at its lowest power output. The power output would be gradually turned up and other acoustic sources added in a way such that the source level would increase in steps not exceeding 6 dB per 5-minute period.

- 4.3.6.7 Shut Down for Protected Species. The Lessee must ensure that anytime a protected species is sighted within the exclusion zone defined in 4.3.6.1, the PSO must notify the Resident Engineer or other authorized individual, and call for an immediate shutdown of the electromechanical survey equipment. HRG survey equipment may be allowed to continue operating if marine mammals voluntarily approach the vessel (e.g., to bow ride) when the sound sources are at full operating power. The vessel operator must comply immediately with such a call by the PSO. Any disagreement or discussion must occur only after shut-down. Subsequent restart of the electromechanical survey equipment may only occur following clearance of the exclusion zone (see 4.3.6.5) and implementation of ramp-up procedures (see 4.3.6.6).
- 4.3.6.8 Pauses in Electromechanical Survey Sound Source. The Lessee must ensure that, if the electromechanical sound source shuts down for reasons other than encroachment into the exclusion zone by a whale or sea turtle, including reasons such as, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, restart of the electromechanical survey equipment commences only after clearance of the exclusion zone (see 4.3.6.5) and implementation of ramp-up procedures (see 4.3.6.6). If the pause is less than 20 minutes the equipment may be restarted as soon as practicable at its operational level as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of marine mammals and sea turtles. If visual surveys were not continued diligently during the pause of 20-minutes or less, the Lessee must clear the exclusion zone, as described in 9.3.6.5, and implement ramp-up procedures, as described in 4.3.6.6, prior to restarting the electromechanical survey equipment.
- 4.3.7 Geotechnical Exploration. Stipulations specific to geotechnical exploration limited to borings and vibracores and conducted in support of plan (i.e., SAP and COP) submittal are provided in 4.3.7.1 through 4.3.7.6.
- 4.3.7.1 Establishment of Default Exclusion Zones. A default exclusion zone distance of 500 m (1,640 ft) for North Atlantic right whales and other listed species must be monitored around each vessel conducting geotechnical survey activities where North Atlantic right whales are expected to occur. If surveys are conducted in an area where North Atlantic right whales are not expected to occur, a default exclusion zone of 200 m (656 ft) for other large whales and sea turtles must be

established around each vessel conducting HRG survey activities. Exclusion zones for non-listed marine mammals will be determined through project-specific mitigation and monitoring requirements of ITAs provided by the NMFS. If an ITA is not required, default exclusion zones of 100 m (328 ft) for harbor porpoises and humpback whales, and 50 m (164 ft) for all other non-listed marine mammals must be established around each vessel conducting HRG survey activities.

- 4.3.7.2 Geotechnical Sound Source Verification. No later than 45 calendar days prior to the commencement of any surveys with any geotechnical survey equipment producing underwater sound levels, the Lessee must submit existing information on the sound levels produced by the equipment. If adequate information on the equipment is not available, the Lessor may require the Lessee to submit a plan to the Lessor for field verification of the sound source levels and of any geotechnical survey equipment operating at frequencies below 200 kHz. The Lessor must approve this verification plan prior to the commencement of the survey. The Lessor may require the Lessee to modify the plan in a manner deemed satisfactory by the Lessor.
- 4.3.7.2.1 If the Lessor determines that the exclusion zone is not effective to minimize impacts to protected species, the Lessor may impose additional requirements on the Lessee, including, but not limited to, required expansion of this exclusion zone.
- 4.3.7.3 Clearance of Exclusion Zone. The Lessee must ensure that the geotechnical sound source is not activated until the PSO has reported the exclusion zone clear of all marine mammals and sea turtles for 60 minutes.
- 4.3.7.4 Modification of Exclusion Zone per Lessee Request. If the Lessee wishes to modify the default exclusion zone for specific geotechnical exploration equipment, the Lessee must submit a plan for verifying the sound source levels of the specific geotechnical exploration equipment to the Lessor. The plan must demonstrate how the field verification activities will comply with the requirements of 4.3.7.2. The Lessor may require that the Lessee modify the plan to address any comments the Lessor submits to the Lessee on the contents of the plan in a manner deemed satisfactory to the Lessor prior to the commencement of field verification activities. Any new exclusion zone radius proposed by the Lessee must be based on the sound exposure distance for ear injury or behavioral harassment thresholds for marine mammal hearing groups, sea turtles, and fish as defined by the Lessor. The Lessee must use this modified zone for all subsequent use of field-verified equipment. The Lessee may periodically reevaluate the modified zone using the field verification procedures described in 4.3.7.2. The Lessee must obtain Lessor approval of any new exclusion zone before it is implemented.

- 4.3.7.5 Shut Down for Whales and Sea Turtles. If any whales or sea turtles are sighted at or within the exclusion zone, an immediate shut-down of the geotechnical survey equipment is required. The vessel operator must comply immediately with such a call by the PSO. Any disagreement or discussion must occur only after shut-down. Subsequent restart of the geotechnical survey equipment may only occur following clearance of the exclusion zone (see 4.3.7.3).
- 4.3.7.6 Pauses in Geotechnical Survey Sound Source. The Lessee must ensure that, if the geotechnical sound source shuts down for reasons other than encroachment into the exclusion zone by a whale or sea turtle, including reasons such as, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, restart of the geotechnical survey equipment commences only following clearance of the exclusion zone (see 4.3.7.3). If the pause is less than 20 minutes, the equipment may be restarted as soon as practicable as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of marine mammals and sea turtles. If visual surveys were not continued diligently during the pause of 20 minutes or less, the Lessee must clear the exclusion zone, as described in 4.3.7.3, prior to restarting the geotechnical survey equipment.

4.4 **Reporting Requirements**

- 4.4.1 The Lessee must ensure compliance with the following reporting requirements for site characterization activities performed in support of plan (i.e., SAP and COP) submittal and must use the contact information provided as an enclosure to this lease, or updated contact information as provided by the Lessor, to fulfill these requirements:
- 4.4.2 Field Verification of Exclusion Zone Preliminary Report. The Lessee must report the results of any required sound source verification of the exclusion zone for G&G survey equipment operating below 200 kHz to the Lessor and NMFS prior to using the equipment during survey activities conducted in support of plan submittal. The Lessee must include in its report a preliminary interpretation of the results for all sound sources, which will include details of the operating frequencies, sound pressure levels (SPLs) (measured in Peak, SEL, and RMS), the distance to the ear injury and behavior thresholds, frequency bands measured, as well as associated latitude/longitude positions, ranges, depths and bearings between sound sources and receivers.
- 4.4.3 Reports of Survey Activities and Observations. The Lessee must provide the Lessor with reports every 90 calendar days following the completion of HRG or geotechnical exploration activities, and a final report at the conclusion of the HRG or geotechnical exploration activities. Each report must include a summary of survey activities, all PSO and incident reports (See Appendices A and B), and an estimate of the number of listed marine mammals, sea turtles, and sturgeon observed and/or taken during these survey activities. The final report must contain a detailed

analysis and interpretation of the sound source verification data, if such data was collected by the Lessee.

- 4.4.4 Reporting Injured or Dead Protected Species. The Lessee must ensure that sightings of any injured or dead protected species (e.g., marine mammals, sea turtles, giant manta ray or sturgeon) are reported to the Lessor, NMFS, and the NMFS Greater Atlantic (Northeast) Region's Stranding Hotline (866-755-6622 or current) within 24 hours of sighting, regardless of whether the injury or death is caused by a vessel. In addition, if the injury or death was caused by a collision with a project-related vessel, the Lessee must ensure that the Lessor is notified of the incident within 24 hours. The Lessee must use the form provided in Appendix A to ADDENDUM "C" to report the sighting or incident. If the Lessee's activity is responsible for the injury or death, the Lessee must ensure that the vessel assist in any salvage effort as requested by NMFS.
- 4.4.5 Reporting Observed Impacts to Protected Species.
 - 4.4.5.1 The Lessee must report any observed takes of listed marine mammals, sea turtles, sturgeon, or giant manta ray resulting in injury or mortality within 24 hours to the Lessor and NMFS.
 - 4.4.5.2 The Lessee must record any observed injuries or mortalities using the form provided in Appendix A to ADDENDUM "C".
- 4.4.6 Protected Species Observer Reports. The Lessee must ensure that the PSOs record all observations of protected species using standard marine mammal observer data collection protocols. The list of required data elements for these reports is provided in Appendix B to ADDENDUM "C".
- 4.4.7 Marine Mammal Protection Act Authorization(s). If the Lessee is required to obtain an authorization pursuant to section 101(a)(5) of the Marine Mammal Protection Act prior to conducting survey activities in support of plan submittal, the Lessee must provide to the Lessor a copy of the authorization prior to commencing these activities.

5 SITING CONDITIONS

- 5.1 **Vessel Transit Corridors.** In its COP project design, Lessee must extend any BOEM-approved vessel transit corridors in adjacent lease areas, unless BOEM determines that such corridors are not necessary or can be modified. Lessee may not construct any surface structures in such vessel transit corridors.
- 5.2 **Surface Structure Setback.** In its COP project design, the Lessee must incorporate a 750 m setback from any shared lease boundary within which the Lessee may not construct any surface structures, unless the Lessee and the adjacent lessee agree to a smaller setback, the Lessee submits such agreement to BOEM, and BOEM approves it.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

APPENDIX A TO ADDENDUM "C"

Lease Number OCS-A 0522

Incident Report: Protected Species Injury or Mortality

Photographs/Video should be taken of all injured or dead animals.

Observer's full name: _____

Reporter's full name: _____

Species Identification: _____

Name and type of platform: _____

Date animal observed: _____ Time animal observed: _____

Date animal collected: _____ Time animal collected: _____

Environmental conditions at time of observation (i.e. tidal stage, Beaufort Sea State, weather):

Water temperature (°C) and depth (m/ft) at site: _____

Describe location of animal and events 24 hours leading up to, including and after, the incident (incl. vessel speeds, vessel activity and status of all sound source use):

Photograph/Video taken: YES / NO If Yes, was the data provided to NMFS? YES / NO
(Please label *species*, *date*, *geographic site* and *vessel name* when transmitting photo and/or video)

Date and Time reported to NMFS Stranding Hotline: _____

Sturgeon Information: *(please designate cm/m or inches and kg or lbs)*

Species: _____

Fork length (or total length): _____ Weight: _____

Condition of specimen/description of animal: _____

Fish Decomposed: NO SLIGHTLY MODERATELY SEVERELY

Fish tagged: YES / NO If Yes, please record all tag numbers.

Tag #(s): _____

Genetic samples collected: YES / NO

Genetics samples transmitted to: _____ on ____/____/20__

Sea Turtle Species Information: *(please designate cm/m or inches)*

Species: _____ Weight (kg or lbs): _____

Sex: Male Female Unknown

How was sex determined?: _____

Straight carapace length: _____ Straight carapace width: _____

Curved carapace length: _____ Curved carapace width: _____

Plastron length: _____ Plastron width: _____

Tail length: _____ Head width: _____

Condition of specimen/description of animal: _____

Existing Flipper Tag Information

Left: _____ Right: _____

PIT Tag#: _____

Miscellaneous:

Genetic biopsy collected: YES NO

Photographs taken: YES NO

Turtle Release Information:

Date: _____ Time: _____

Latitude: _____ Longitude: _____

State: _____ County: _____

Remarks: (note if turtle was involved with tar or oil, gear or debris entanglement, wounds, or mutilations, propeller damage, papillomas, old tag locations, etc.) _____

Marine Mammal information: (please designate cm/m or ft/inches)

Length of marine mammal (note direct or estimated): _____

Weight (if possible, kg or lbs): _____

Sex of marine mammal (if possible): _____

How was sex determined?: _____

Confidence of Species Identification: SURE UNSURE BEST GUESS

Description of Identification characteristics of marine mammal: _____

Genetic samples collected: YES / NO

Genetic samples transmitted to: _____ on ____/____/20__

Fate of marine mammal: _____

Description of Injuries Observed: _____

Other Remarks/Drawings: _____

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

APPENDIX B TO ADDENDUM "C"

Lease Number OCS-A 0522

REQUIRED DATA ELEMENTS FOR PROTECTED SPECIES OBSERVER REPORTS

The Lessee must ensure that the PSO record all observations of protected species using standard marine mammal observer data collection protocols. The list of required data elements for these reports is provided below:

1. Vessel name;
2. PSOs' names and affiliations;
3. Date;
4. Time and latitude/longitude when daily visual survey began;
5. Time and latitude/longitude when daily visual survey ended; and
6. Average environmental conditions during visual surveys including:
 - a. Wind speed and direction;
 - b. Sea state (glassy, slight, choppy, rough, or Beaufort scale);
 - c. Swell (low, medium, high, or swell height in meters); and
 - d. Overall visibility (poor, moderate, good).
7. Species (or identification to lowest possible taxonomic level);
8. Certainty of identification (sure, most likely, best guess);
9. Total number of animals;
10. Number of juveniles;
11. Description (as many distinguishing features as possible of each individual seen, including length, shape, color and pattern, scars or marks, shape and size of dorsal fin, shape of head, and blow characteristics);
12. Direction of animal's travel relative to the vessel (preferably accompanied by a drawing);
13. Behavior (as explicit and detailed as possible, noting any observed changes in behavior);
14. Activity of vessel when sighting occurred.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "D"

PROJECT EASEMENT

Lease Number OCS-A 0522

This section includes a description of the Project Easement(s), if any, associated with this lease, and the financial terms associated with it. This section will be updated as necessary.

I. Rent

The Lessee must begin submitting rent payments for any project easement associated with this lease commencing on the date that BOEM approves the Construction and Operations Plan (COP) or modification of the COP describing the project easement. Annual rent for a project easement 200 feet wide, centered on the transmission cable, is \$70.00 per statute mile. For any additional acreage required, the Lessee must also pay the greater of \$5.00 per acre per year or \$450.00 per year.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "E"

RENT SCHEDULE

Lease Number OCS-A 0522

This section includes a description of the schedule for rent payments that will be determined after the Construction and Operations Plan has been approved or approved with modifications. This section will be updated as necessary.

Unless otherwise authorized by the Lessor in accordance with the applicable regulations in 30 CFR Part 585, the Lessee must make rent payments as described below.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

Lease Number OCS-A 0522

CONTACT INFORMATION FOR REPORTING REQUIREMENTS

The following contact information must be used for the reporting and coordination requirements specified in ADDENDUM "C", Stipulation 3:

United States Fleet Forces (USFF) N46
1562 Mitscher Ave, Suite 250
Norfolk, VA 23551
(757) 836-6206

The following contact information must be used for the reporting requirements in ADDENDUM C, Stipulation 4.4:

Reporting Injured or Dead Protected Species

National Oceanic and Atmospheric Administration
Fisheries Northeast Region's Stranding Hotline
800-900-3622

All other reporting requirements in Stipulation 4.4

Bureau of Ocean Energy Management
Environment Branch for Renewable Energy
Phone: 703-787-1340
Email: renewable_reporting@boem.gov

National Marine Fisheries Service
Northeast Regional Office, Protected Resources Division
Section 7 Coordinator
Phone: 978-281-9328
Email: incidental.take@noaa.gov

Vessel operators may send a blank email to ne.rw.sightings@noaa.gov for an automatic response listing all current dynamic management areas.

ENCLOSURE

PUBLIC



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT

WASHINGTON, DC 20240-0001

MAR 5 2019

Mr. Iain Henderson
Chief Financial Officer
Vineyard Wind LLC
700 Pleasant Street, Suite 510
New Bedford, Massachusetts 02740

Dear Mr. Henderson:

The Bureau of Ocean Energy Management (BOEM) acknowledges receipt of Vineyard Wind LLC's (Company Number: 15010) Outer Continental Shelf (OCS) Renewable Energy Lessee's, Grantee's, and Operator's Bond No. K15371729 in the amount of \$100,000.00, conditioned to cover lease OCS-A 0522. The bond was executed by Westchester Fire Insurance Company, as the surety, on February 15, 2019, and Vineyard Wind LLC, as principal, on February 20, 2019.

The bond conforms to the requirements of the leasing and operating regulations for submerged lands on the OCS. It is effective as of the date filed, February 21, 2019, and has been placed in lease file OCS-A 0522 maintained in BOEM's Office of Renewable Energy Programs.

Please do not hesitate to contact me at our main office number, (703) 787-1300, if you have any questions.

Sincerely,

James F. Bennett
Program Manager
Office of Renewable Energy Programs

cc: Ms. Francesca Kazmierczak, Attorney-in-Fact
Westchester Fire Insurance Company
436 Walnut Street
Philadelphia, Pennsylvania 19106

PUBLIC

Bond No.: K15371729 Bond Amount: \$100,000.00 Regional BOEM office: Sterling
Bond Type: ☒ Lease or Grant-Specific ☐ Supplemental ☐ Decommissioning

**OUTER CONTINENTAL SHELF (OCS) RENEWABLE ENERGY
LESSEE'S, GRANTEE'S, AND OPERATOR'S BOND**

RECEIVED

The Surety is the Company Guaranteeing Performance.

Name of Surety: Westchester Fire Insurance Company
Mailing Address: 436 Walnut Street
Philadelphia, PA 19106

FEB 21 2019

Office of Renewable
Energy Programs

If a Corporation, Incorporated in the State of: Pennsylvania; County or Parish of: Suffolk

☒ Check here if Surety is certified by U.S. Treasury as an acceptable surety on Federal Bonds and listed in the current U.S. Treasury Circular No. 570.

The Principal is the Lessee, Grantee, or Designated Operator for Whom the Bond is Issued.

Name of Principal: Vineyard Wind LLC
Mailing Address: 700 Pleasant Street, Suite 510, New Bedford, MA 02740

Schedule A: the lease or grant covered by this bond is the following: (Check one and enter Lease or Grant No.)

- ☒ Commercial Lease No. : OCS-A 0522
☐ Limited Lease No: _____
☐ Right-of-Way (ROW) Grant No. : _____
☐ Right-of-Use and Easement (RUE) Grant No. : _____
☐ Other (Specify): _____

In addition to the Obligations of the Principal during the period of liability of this bond, the Surety also accepts the following Obligations: (Check one)

- ☒ No Obligations other than the Obligations of the Principal during the period of liability of this bond.
☐ All Obligations of all previous Sureties or guarantors even if the Obligations are not Obligations of the Principal during the period of liability of this bond.
☐ All Obligations of all previous Sureties or guarantors even if the Obligations are not Obligations of the Principal during the period of liability of this bond with the exceptions or limitations identified in the attached rider.

Definitions

For the
purposes of this
document:

An **Obligation** includes any obligation arising from any regulations of the Department of the Interior or any Instrument issued, maintained, or approved under the OCS Lands Act (43 U.S.C. 1331 *et seq.* as amended).

An **Instrument** includes individually or collectively any lease, operating agreement, designation of operator or agent, permit, license, right-of-way, right-of-use and easement or project easement, whereunder the Principal has the right, privilege, or license to conduct operations on the OCS.

A **Person** includes an individual, a public or private corporation, a State, a political subdivision of a State, any association of individuals, corporations, States, or subdivisions of States, or an Agency of the United States.

By signing below, the Principal verifies that the information above is correct and agrees to the following:

The Principal, as agent on behalf of all lessees, grantees, and operators will fulfill all Obligations for the entire lease or grant to the same extent as though the Principal were the sole lessee, grantee, or operator for the lease or grant described in Schedule A.

By signing below, the Surety verifies that the information above is correct and agrees to the following:

1. The Surety does hereby absolutely and unconditionally bind itself to the United States of America acting through and by the Bureau of Ocean Energy Management (BOEM), or such other official designated by the Secretary of the Interior for this purpose, for the performance of all present and future Obligations.
2. The Surety agrees to meet all existing and future Obligations of the Principal on the lease or grant described in Schedule A at a cost not to exceed \$100,000.00.
3. The Surety will be responsible for all Obligations of the Principal in existence at the time this document becomes effective and all Obligations that accrue after that date and until all Obligations are met or until the Regional Director terminates the period of liability of this bond.
4. If the Regional Director terminates the period of liability of this bond, the Surety will remain responsible for Obligations that accrued during the period of liability until the Regional Director issues a written cancellation of the bond in favor of the Surety.
5. If this bond is cancelled, the Regional Director may reinstate this bond as if no cancellation had occurred if any payment of any obligations of the Principal(s) is rescinded or must be restored pursuant to any insolvency, bankruptcy, reorganization, or receivership, or should the representation of the Principal that it has paid its financial Obligations or performed the other Obligations of the lease or grant in accordance with BOEM specifications be materially false and the BOEM relied upon such representation in canceling the bond.
6. The Surety waives any right of notice of this bond taking effect and agrees that this bond will take effect upon delivery to BOEM.
7. The Surety's Obligations will remain in full force and effect, even if:
 - (a) Any person assigns all or part of any interest in an Instrument covered by this document.
 - (b) Any person modifies an Instrument or Obligation under an Instrument in any manner including modifications that result from a suspension; suspension or changes in rent or operating fee; modification of regulations or interpretations of regulations; or creation of any mortgage, pledge, or other grant of security interest in the Instrument.
 - (c) Any person, event, or condition terminates any Instrument covered by this bond, whether the termination is by operation of law or otherwise.
 - (d) The BOEM takes or fails to take any action in enforcing, as against any party to the Instrument, the payment of rent or operating fees or the performance of any other covenant, condition or agreement of the lease or grant, or giving notice of or making demand with respect to such nonperformance.
 - (e) The Surety suffers any loss by reason of any law limiting, qualifying, or discharging the Principal's Obligation.
8. The Surety agrees to be bound under this bond as to the interests in any Instrument retained by the Principal when the BOEM approves the transfer of any or all of the Instrument or interest in the Instrument.
9. In the event of any default under a lease or grant, the Surety must perform the Obligations of the Principal upon demand by the BOEM.
10. If the BOEM decides to commence suit to enforce its rights, it may commence and prosecute any claim, suit, action, or other proceeding against the Principal and Surety, or either of them, whether or not the BOEM joins the lessees, grantees or any other party.
11. In the event there is more than one Surety for the Principal's performance of the Obligations, as to any Instrument, the Surety's Obligation and liability under this bond is on a "solidary" or "joint and several" basis along with other guarantors or sureties.
12. The Surety agrees to notify the BOEM and the Principal within 5 business days of any action filed alleging the insolvency or bankruptcy of the Surety or the Principal, or alleging any violation that would result in suspension or revocation of the Surety's charter or license to do business, or if the U.S. Treasury decertifies the Surety.
13. The Surety's Obligation and liabilities under this Bond are binding upon the Surety's successors and assigns. Nothing in this document permits assignment of the Surety's Obligation without the written consent of the BOEM.
14. The Surety hereby waives any defenses to liability on this bond based on an unauthorized Principal signature.

Westchester Fire Insurance Company

Name of Surety

Signature of Person Executing for Surety

Francesca Kazmierczak, Attorney-In-Fact

Name and Title Typed or Printed

436 Walnut Street, Philadelphia, PA 19106

Business Address

Vineyard Wind LLC

Name of Principal

Signature of Person Executing for Principal

IAIN HENDERSON, CFO

Name and Title Typed or Printed

700 Pleasant Street, Suite 510, New Bedford, MA 02740

Business Address

NO SEAL

Signed on this 15th day of February, 2019, in
the State of New York, in the presence of:

Mary L. Padilla

Signature of Witness for Surety

Mary L. Padilla

Name Typed or Printed

One Liberty Plaza, 165 Broadway

Street Address

New York, New York 10006

City, State and ZIP

Signed on this 20th day of February, 2019, in
the State of MA, in the presence of:

Sarah D. Collins

Signature of Witness for Principal

Sarah D. Collins

Name Typed or Printed

177 Huntington Avenue

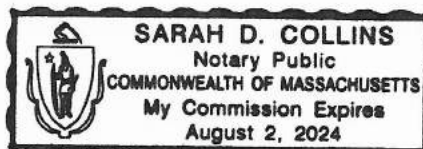
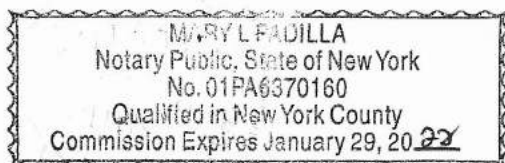
Street Address

Boston, MA 02115

City, State and ZIP

Note: The party signing for the Surety must attach a corporate resolution and power of attorney stating his or her authority to undertake this Obligation, pursuant to the acts of the corporate board of directors and the laws of the State of incorporation. When the Surety is a corporation, an authorized corporate officer must sign the bond and attest to it over the corporate seal.

Paperwork Reduction Act of 1995 (PRA) Statement: The PRA (44 U.S.C. 3501 et seq.) requires us to inform you that BOEM collects this information to hold the surety liable for the obligations and liability of the Principal (lessee, grantee or operator). Responses are mandatory. No proprietary information is collected. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB Control Number. Public reporting burden for this form is estimated to average 1 hour per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Bureau of Ocean Energy Management, 45600 Woodland Road, Sterling, Virginia 20166.



CHUBB

Power of Attorney

Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Debra A. Deming, Sandra Diaz, Cynthia Farrell, Peter Healy, Francesca Kazmierczak, Kristine Mendez, Aklima Noorhassan, Edward Reilly, Frances Rodriguez and Nancy Schnee of New York, New York-----

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY have each executed and attested these presents and affixed their corporate seals on this 14th day of August, 2018.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney

Stephen M. Haney, Vice President



STATE OF NEW JERSEY

County of Hunterdon

SS.

On this 14th day of August, 2018, before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2318985
Commission Expires July 16, 2019

Katherine J. Adelaar

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006 ; ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

- (i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
- (ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this

15th day of February, 2019

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary



IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

WESTCHESTER FIRE INSURANCE COMPANY

FINANCIAL STATEMENT

DECEMBER 31, 2017

ADMITTED ASSETS

BONDS	\$1,414,055,830
SHORT - TERM INVESTMENTS	-
STOCKS	43,460
REAL ESTATE	0
CASH ON HAND AND IN BANK	(10,076,502)
PREMIUM IN COURSE OF COLLECTION*	61,431,233
INTEREST ACCRUED	14,694,454
OTHER ASSETS	175,574,508
TOTAL ASSETS	<u>\$1,655,722,983</u>

LIABILITIES

RESERVE FOR UNEARNED PREMIUMS	\$192,425,216
RESERVE FOR LOSSES	770,552,343
RESERVE FOR TAXES	13,754,897
FUNDS HELD UNDER REINSURANCE TREATIES	5,757,334
OTHER LIABILITIES	(8,973,613)
TOTAL LIABILITIES	<u>973,516,177</u>

CAPITAL: 70,000 SHARES, \$71.43 PAR VALUE	5,000,100
CAPITAL: PAID IN	187,192,131
AGGREGATE WRITE-INS FOR SPECIAL SURPLUS FUNDS	117,350,928
SURPLUS (UNASSIGNED)	<u>372,663,647</u>
SURPLUS TO POLICYHOLDERS	<u>682,206,806</u>
TOTAL	<u>\$1,655,722,983</u>

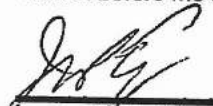
(*EXCLUDES PREMIUM MORE THAN 90 DAYS DUE.)

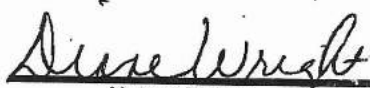
STATE OF PENNSYLVANIA

COUNTY OF PHILADELPHIA

John Taylor, being duly sworn, says that he is Senior Vice President of Westchester Fire Insurance Company and that to the best of his knowledge and belief the foregoing is a true and correct statement of the said Company's financial condition as of the 31 st day of December, 2017.

Sworn before me this 14th March 2018


Senior Vice President


Notary Public

August 8, 2019
My commission expires
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Diane Wright, Notary Public
City of Philadelphia, Philadelphia County
My Commission Expires Aug. 8, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

PUBLIC



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

NOTICE

<u>Assignor:</u>	:	Lease Number: OCS-A 0522
Vineyard Wind LLC	:	Assignment Filed: June 7, 2021
700 Pleasant Street, Suite 510	:	Assignment Approved: August 9, 2021
New Bedford, Massachusetts 02740	:	Assignment Effective: August 9, 2021
	:	
<u>Assignee:</u>	:	
OCS-A 0522 LLC	:	
700 Pleasant Street, Suite 510	:	
New Bedford, Massachusetts 02740	:	

Assignment of Lease Approved

Please find enclosed a copy of the above-referenced Outer Continental Shelf (OCS) Assignment of Record Title Interest in Federal OCS Renewable Energy Lease affecting lease OCS-A 0522. The Assignee must comply with all terms and conditions of the lease and the regulations in 30 C.F.R. Part 585 and is jointly and severally liable for the performance of all obligations under the lease with each prior and subsequent lessee who held an interest from the time the obligation accrued until it is satisfied (30 C.F.R. 585.411).

Bureau of Ocean Energy Management records reflect the following ownership, including all right, title, and interest, of the subject lease:

OCS-A 0522 LLC – 100%

OCS-A 0522 LLC has designated the representatives identified below to update the Lessee Contact Information included in Addendum “A” of lease OCS-A 0522.

	Lease Representative	Operations Representative
Name	Rachel Pachter	Same as Lease Representative
Title	Chief Development Officer	
Address	75 Arlington Street, Suite 700 Boston, MA 02116	
Phone	(508) 608-6455	
Fax		
Email	rpachter@vineyardwind.com	

For further information regarding this notice, please contact the Ms. Gina Best at (703) 787-1341 or gina.best@boem.gov.

**ANNETTE
MOORE**

Digitally signed by
ANNETTE MOORE
Date: 2021.08.09
17:44:05 -04'00'

Annette J. Moore
Acting Program Manager
Office of Renewable Energy Programs

Enclosure

U.S. Department of the Interior
Bureau of Ocean Energy Management

RECEIVED

OMB Control No.: 1010-0176
Expiration Date: 03/31/2023

JUN - 7 2021

OCS-A 0522

Lease No.

ASSIGNMENT OF RECORD TITLE INTEREST IN
FEDERAL OCS RENEWABLE ENERGY LEASE

Office of Renewable
Energy Programs

April 1, 2019

Lease Effective Date

Part A: Assignment

This assignment is made with respect to the block(s) and/or aliquot part(s) described in Exhibit "A" attached hereto and made a part hereof.

Assignor(s) does hereby sell, assign, transfer and convey unto Assignee(s) the following undivided right, title and interest (insert name and qualification number of each Assignor and Assignee below):

Assignor(s):	Percentage Interest Conveyed
Vineyard Wind LLC	100%

Assignee(s):	Percentage Interest Received
OCS-A 0522 LLC	100%

☐ Exhibit "B," which sets forth other provisions between Assignor(s) and Assignee(s), is attached to and made a part of this assignment.

For BOEM Use only – Do Not Type Below This Line

This Assignment of Record Title Interest has been filed as of the date stamped on this document and hereby approved by the Bureau of Ocean Energy Management on the date below.

By ANNETTE MOORE
Digitally signed by ANNETTE MOORE
Date: 2021.08.09 16:49:30 -04'00'

Acting Program Manager,
Office of Renewable Energy Programs

See Digital Signature

Authorized Official for BOEM

Title

Approval Date

Paperwork Reduction Act of 1995 (PRA) Statement: The PRA (44 U.S.C. 3501 et seq.) requires us to inform you that we collect this information to use in the adjudication process involved in leasing and lease operations. The BOEM uses the information to track ownership of leases in the OCS. Responses are required to obtain or retain a benefit. Release of such data and information is covered under 30 CFR 585.113. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB Control Number. Public reporting burden of this form is estimated to average 30 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Bureau of Ocean Energy Management, 45600 Woodland Road, Sterling, Virginia 20166.

Part B – Certification and Acceptance

1. Each Assignor certifies it is the owner of the interest in the above-described lease that is hereby assigned to the Assignee(s) specified above.
2. **DEBARMENT COMPLIANCE:** Assignee shall comply with the Department of the Interior's nonprocurement debarment and suspension regulations as required by Subpart B of 2 CFR Part 1400 and shall communicate the requirement to comply with these regulations to persons with whom it does business related to this interest assignment by including this term in its contracts and transactions.
3. **EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION COMPLIANCE CERTIFICATION:** Assignor(s) and Assignee(s) certify that they are in full compliance with Equal Opportunity Executive Order 11246, as amended, and the implementing regulations at 41 CFR 60-01 – Obligations of Contractors and Subcontractors; and 41 CFR 60-2 – Affirmative Action Programs. These requirements are for the purpose of preventing discrimination against persons on the basis of race, color, religion, sex, or national origin. These regulations have specific performance requirements.
4. Assignee's execution of this assignment constitutes acceptance of all applicable terms, conditions, stipulations and restrictions pertaining to the lease described herein. Applicable terms and conditions include, but are not limited to, an obligation to conduct all operations on the leasehold in accordance with the terms and conditions of the lease, to restore the leased lands upon completion of any operations as described in the lease, and to furnish and maintain bond(s) pursuant to regulations at 30 CFR Part 585. This assignment is subject to the Outer Continental Shelf Lands Act of August 7, 1953, 43 U.S.C. 1331 et seq., as amended (the "Act"), and Assignee(s) is subject to, and shall fully comply with, all applicable regulations now or to be issued under the Act. Notwithstanding any agreement between the Assignor(s) and Assignee(s), the parties' liability to the Bureau of Ocean Energy Management is governed by 30 CFR Part 585.

This Assignment of Interest will be made effective between the parties hereto as of _____, upon approval by the Bureau of Ocean Energy Management, United States Department of the Interior.

This instrument may be executed in any number of counterparts, each of which will be deemed an original instrument, but all of which together shall constitute but one and the same instrument provided, however, this instrument and any other counterpart hereof, will not be binding unless and until executed by all of the parties, and will not be accepted by the Bureau of Ocean Energy Management unless all counterparts are filed simultaneously.

I certify that the statements made herein by the undersigned are true, complete and correct to the best of my knowledge and belief and are made in good faith.

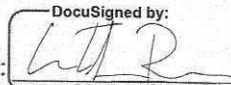
Title 18 U.S.C. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Assignor Name: Vineyard Wind LLC

Assignor Qualification No. 15010

DocuSigned by:

By:

Signature:  Lars Thaaning Pedersen CEO

Signatory Title: Chief Executive Officer

6/7/2021

Execution Date

Assignor Name:

Assignor Qualification No.

By:

Signature:

Signatory Title:

Execution Date

Assignee Name: OCS-A 0522 LLC

Assignee Qualification No. 15099

DocuSigned by:

By:

Signature:  Lars Thaaning Pedersen CEO

Signatory Title: Chief Executive Officer

6/7/2021

Execution Date

Assignee Name:

Assignee Qualification No.

By:

Signature:

Signatory Title:

Execution Date

~~Attach Notar Acknowledgement (not mandatory)~~

Form BOEM-0003 (March 2020) Previous Editions are Obsolete.

PAGE 2 OF 3

PUBLIC

EXHIBIT "A"**ASSIGNMENT OF RECORD TITLE INTEREST IN
FEDERAL OCS RENEWABLE ENERGY LEASE**

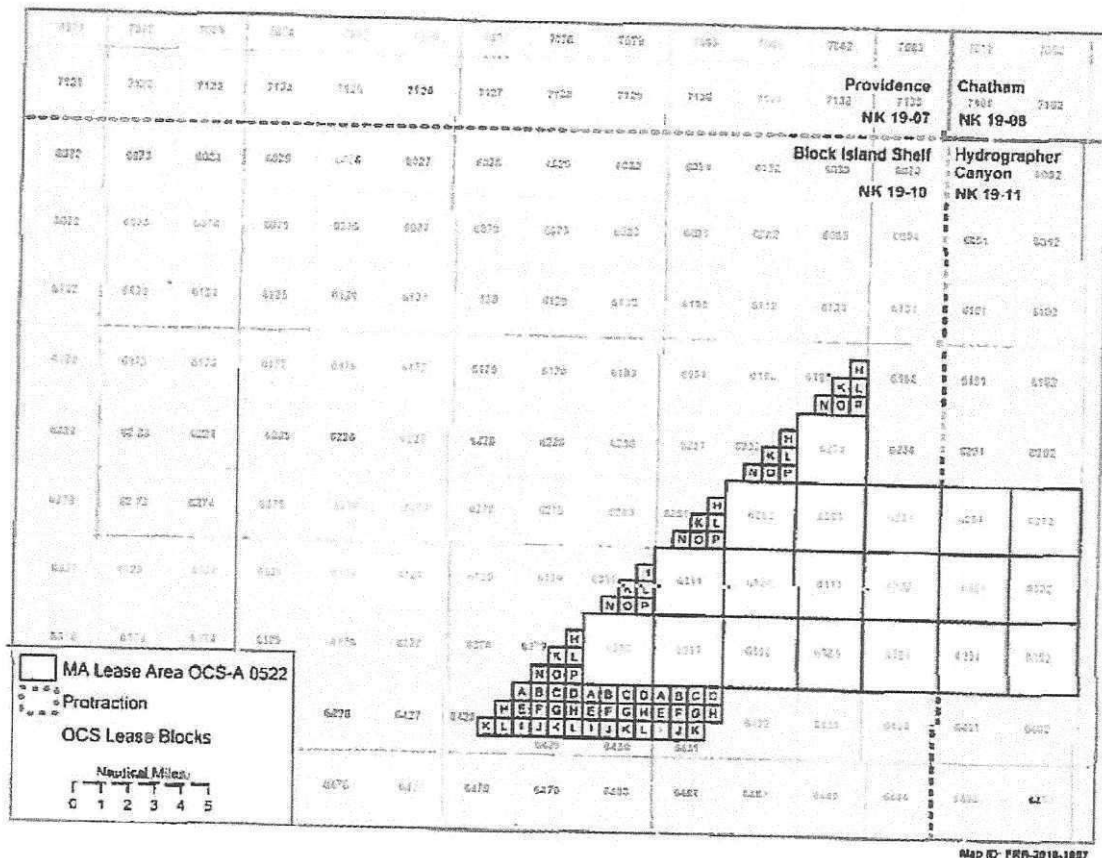
The Assignment is made with respect to the following described block(s) and/or aliquot part(s) of the lease:

Area Name or Protraction Diagram	Block	Subdivision or Aliquot Part (If entire block, enter "All")
Block Island Shelf NK19-10	6183	SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
Block Island Shelf NK19-10	6232	SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
Block Island Shelf NK19-10	6233	All
Block Island Shelf NK19-10	6281	SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
Block Island Shelf NK19-10	6282	All
Block Island Shelf NK19-10	6283	All
Block Island Shelf NK19-10	6284	All
Block Island Shelf NK19-10	6330	SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
Block Island Shelf NK19-10	6331	All
Block Island Shelf NK19-10	6332	All
Block Island Shelf NK19-10	6333	All
Block Island Shelf NK19-10	6334	All
Block Island Shelf NK19-10	6379	SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
Block Island Shelf NK19-10	6380	All
Block Island Shelf NK19-10	6381	All

EXHIBIT "A" (con't)**ASSIGNMENT OF RECORD TITLE INTEREST IN
FEDERAL OCS RENEWABLE ENERGY LEASE**

The Assignment is made with respect to the following described block(s) and/or aliquot part(s) of the lease:

Area Name or Protraction Diagram	Block	Subdivision or Aliquot Part (If entire block, enter "All")
Block Island Shelf NK 19-10	6382	All
Block Island Shelf NK 19-10	6383	All
Block Island Shelf NK 19-10	6384	All
Block Island Shelf NK 19-10	6428	SE1/4 of NE1/4, N1/2 of SE1/4
Block Island Shelf NK 19-10	6429	N1/2, N1/2 of S1/2
Block Island Shelf NK 19-10	6430	N1/2, N1/2 of S1/2
Block Island Shelf NK 19-10	6431	N1/2, N1/2 of SW1/4, NW1/4 of SE1/4
Hydrographer Canyon NK19-11	6251	All
Hydrographer Canyon NK19-11	6252	All
Hydrographer Canyon NK19-11	6301	All
Hydrographer Canyon NK19-11	6302	All
Hydrographer Canyon NK19-11	6351	All
Hydrographer Canyon NK19-11	6352	All





Attachment 6.2-2:



REDACTED



Attachment 6.2-3:



REDACTED



Attachment 6.6-1:

REDACTED



Attachment 6.6-2:



REDACTED



Attachment 6.8-1:

REDACTED



Attachment 6.8-2:

REDACTED



Attachment 6.8-3:

REDACTED



**Attachment 6.8-4: CCIS-based Capacity Deliverability Study and
Summary Report**

REDACTED



**Attachment 6.9-1: Deliverability Constraint Analysis and Summary
Report**

REDACTED



Attachment 6.10-1:



REDACTED



Attachment 6.11-1: [REDACTED]

REDACTED



Attachment 6.11-2: 

REDACTED



Attachment 6.14-1: [REDACTED]

REDACTED



Attachment 6.17-1: [REDACTED]

REDACTED



Attachment 7.1-1: Vineyard Northeast SAP Approval

REDACTED



Attachment 7.1-2: Vineyard Northeast COP Excerpts

REDACTED



Attachment 7.3-1: Vineyard Wind 1 Achievements

REDACTED



Attachment 7.3-2: Vineyard Wind 1 Case Studies

REDACTED



Attachment 7.4-1: Fisheries Mitigation Plan

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ATTACHMENT 7.4-1

FISHERIES MITIGATION PLAN

I. OVERVIEW

Vineyard Wind 2 (the “Project”) is comprised of a 1,200 megawatt (MW) Offshore Wind Energy Generation facility (OWF) that will be installed in Lease Area OCS-A 0522 (the “Lease Area”).

[REDACTED] The Project also includes a [REDACTED] transmission system and delivery point in Montville, Connecticut.

The Vineyard Offshore team has over a decade of experience working with commercial and recreational fishermen, vessel owners, fishing advocacy organizations, shore support services, and fisheries research institutions—first as Vineyard Wind and now as Vineyard Offshore. We have a demonstrated ability to forge productive working relationships with fishermen and are committed to developing, constructing, operating, and decommissioning well-sited offshore wind projects with minimal fisheries impacts. To do so, we employ project siting and design measures that are aimed at avoiding potential impacts from the outset. Where impacts are unavoidable, we work collaboratively with agencies, fishermen, and other stakeholders to identify appropriate and practicable solutions to minimize and mitigate potential impacts.

Vineyard Offshore strongly believes that the offshore wind and fishing industries can successfully work alongside each other in the marine environment, and we will continue the approach we started with Vineyard Wind 1 to build bridges between the two sectors. We will also continue to fund research, share data, participate in regional science initiatives, and expand our prior efforts to hire fishermen and/or fishing vessels to support offshore site assessment and data-gathering activities.

II. FISHERIES STAKEHOLDER ENGAGEMENT

Commitments to fishing industry stakeholder outreach related to potential project impacts, including but not limited to:

- Communications and engagement plan detailing how the developer will identify, communicate with, and address concerns from fisheries stakeholders in a timely manner.
- Description of how developer will engage with fishing industry stakeholder groups to determine project layouts that address stakeholder concerns.
- Description of any participation in and engagement with the Responsible Offshore Science Alliance, Massachusetts Fisheries Working Group on Offshore Wind Energy, and/or the Fishery Management Councils regarding fishing impacts from the project.
- Plans to engage with the development of, and commit to finalized versions of, fisheries mitigation and compensation best practices agreed upon in federal working groups led by BOEM.

Communications and Engagement

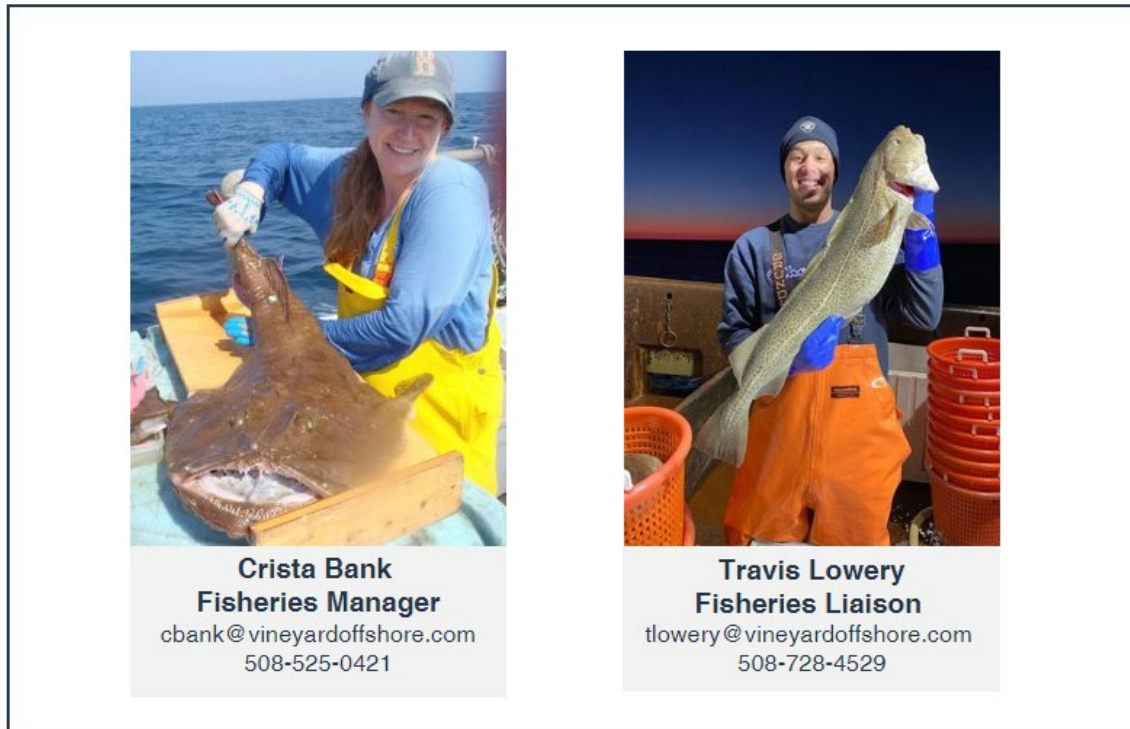
The Vineyard Offshore team has many years of experience working with fishermen and fisheries stakeholders. Given our prior, ongoing, and planned efforts, we are confident in our ability to identify, communicate with, and address the concerns of fishermen and fisheries stakeholders in an appropriate and timely manner.

Fisheries Team

Vineyard Offshore has a dedicated team focused on identifying, engaging, and collaborating with fishermen and fisheries stakeholders relevant to our projects. Our fisheries communication efforts are led by Fisheries Manager (FM) Crista Bank, a fisheries biologist with deep knowledge of fishing practices, as well as an extensive network of personal relationships with fishermen and fishery organizations in the region. Crista oversees Vineyard Offshore's efforts to build and maintain relations with the commercial and recreational fishing industries and surrounding communities. This includes directing outreach, developing fisheries research programs, and identifying potential workforce opportunities for fishing industry involvement. She has spent the last five years laying the groundwork for these strategies as a Fisheries Liaison (FL) on the Vineyard Wind 1 project.

Crista's fisheries communication efforts are supported by Travis Lowery who serves as an FL for Vineyard Offshore (see Figure 1). He is primarily responsible for developing and delivering our New England fisheries program. This program includes a range of components, such as outreach, communication strategy engagement, project planning, workforce development, and fisheries science. Travis is a fisheries biologist who worked for six years for the Marine Fisheries Field Research Group at the University of Massachusetts Dartmouth School for Marine Science & Technology (SMAST). In this role, he spent over 300 days at sea as chief scientist working on cooperative research projects. He also led the ventless trap and larval surveys in the Vineyard Wind 1 lease area.

Figure 1 Vineyard Offshore's Fisheries Manager and Fisheries Liaison



Vineyard Offshore's fisheries team also includes Fisheries Representatives (FRs), Onboard Fisheries Liaisons (OFLs), and scout vessels.

FRs are individuals or organizations that represent a particular fishing community, organization, gear type, port, region, state, or sector(s). Although Vineyard Offshore compensates FRs for their time and expenses, their duty is to the fishing region, industry, organization, gear type, or sector they represent. Notably, as Vineyard Wind, we were the first United States (US) offshore wind developer to engage an FR. Today, Vineyard Offshore engages with nine FRs for the Lease Area who represent a variety of gear types and homeports in Connecticut, Massachusetts, New York, and Rhode Island (see Figure 2). Our FM and FL have bi-weekly meetings with our FRs and proactively seek their input when updating our Fisheries Communication Plans (FCPs) and designing fisheries programs, protocols, and outreach materials.

Figure 2 Vineyard Offshore's Fisheries Representatives for Lease Area OCS-A 0522



OFLs are experienced fishermen employed by Vineyard Offshore to assist geophysical and geotechnical (G&G) survey vessel captains with on-the-water communication and to document fishing gear in the area to help avoid interactions. Vineyard Offshore also employs local fishing vessels to serve as scout vessels. The scout vessels work ahead of the G&G survey vessels and report the fixed gear locations back to the OFL on the survey vessel to avoid any gear interaction. The scout vessel identifies fishermen actively working in the area so the FL can reach out to them with detailed survey vessel information throughout the remainder of the survey activity.

Lastly, Vineyard Offshore also employs a Marine Liaison Officer who is responsible for safe marine operations and ensuring that Vineyard Offshore is a good neighbor while on the water. As such, there is frequent interaction, information exchange, and coordination between the fisheries team and the Marine Liaison Officer.

Fisheries Communication Plans

Our fisheries engagement prioritizes information sharing, soliciting feedback on the design and execution of our projects and programs, supporting an efficient and timely permitting process, and promoting safety on the water. These engagement efforts are guided by our FCPs, which facilitate effective and regular communication with fishermen and fisheries stakeholders throughout the life of our projects. The communication protocols outlined in our FCPs are designed to help avoid interactions with fishing vessels and fishing gear.

The FCP for Lease Area OCS-A 0522 is provided as Attachment 7.4-2 to the proposal. This FCP aligns with the Vineyard Wind 1 FCP, which we first drafted in 2011 to improve communication with fishermen during that offshore wind project and subsequently refined with over 10 years of input from fishermen and fisheries stakeholders. The FCP is periodically updated, in response to stakeholder feedback and to incorporate lessons learned, to ensure that the communication protocols and tools remain relevant and effective.

Vineyard Offshore maintains project and lease area-specific webpages¹ with information specifically for fishermen, including the FCP for each lease area, fisheries science information, charts, Offshore Wind Mariner Updates (OWMUs), and periodic information requests. To proactively notify fishermen about our activities offshore, the OWMUs include a description of the planned activity, pictures of the vessel(s) and equipment to be deployed, a chart showing the location of the activity, vessel contact information, OFL contact information (if applicable), and scout vessel picture(s) and contact information (if applicable). OWMUs support deconfliction of the marine space such that local mariners, including fishing vessels, can choose to avoid survey locations and active work sites. OWMUs are also published on our social media channels and sent via email and SMS text alert to those who have opted to receive notifications from Vineyard Offshore. At the request of fishermen, we distribute a weekly email to consolidate and recirculate active OWMUs to help mariners and fishermen keep track of the various notifications that they receive. We will also continue to coordinate with the US Coast Guard to issue Notices to Mariners (NTMs) to notify recreational and commercial vessels of our planned offshore activities.

Fisheries communication is conducted through numerous methods including email, SMS text alerts, letter mailings, webinars, phone calls, meetings, and social media channels. When appropriate and weather permitting, our FM and FL hold “port hours” at ports in New Bedford, Massachusetts; Narragansett, Rhode Island; Stonington, Connecticut; and Montauk, New York to provide information to fishermen who fish in or transit through our lease areas and offshore export cable corridors (OECCs). These events are typically held jointly with FLs from other offshore wind developers to provide information to fishing vessel crews who fish in or transit through multiple lease areas. We also host information tables and attend regional trade shows and conferences for fishermen and mariners.

Addressing Project Layout Concerns

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] However, as the permitting of Vineyard Wind 1 progressed, other users of the Outer Continental Shelf (OCS) expressed the need for more uniform WTG layouts to accommodate vessel transits, fishing, and other uses of the Massachusetts Wind Energy Area (MA WEA) and Rhode Island/Massachusetts Wind Energy Area (RI/MA WEA).

To address these concerns, we led a collaborative effort among the developers of the MA WEA and RI/MA WEA lease areas to propose a uniform grid layout with 1 x 1 nautical mile (NM) spacing between WTGs.² This 1 x 1 NM layout, which provides 1 NM wide corridors in the east-west and north-south directions as well as ≥ 0.6 NM wide corridors in the northwest-southeast

¹ The fisheries webpage for Lease Area OCS-A 0522 is available at: <https://www.vineyardoffshore.com/fisheries-522>.

² See: [New England Offshore Wind Leaseholders Submit Uniform Layout Proposal to the U.S. Coast Guard](#).

and northeast-southwest directions, was developed in direct response to feedback from the commercial fishing industry, who indicated that 1 x 1 NM spacing would facilitate safe transit through the lease areas and enable traditional fishing practices to continue.³

Shortly thereafter, the US Coast Guard published the final Massachusetts and Rhode Island Port Access Route Study (MARIPARS), which 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.” Consistent with the recommendations of the MARIPARS and the layout voluntarily adopted by other developers throughout the MA WEA and RI/MA WEA, we have proposed a 1 x 1 NM WTG/ESP layout for the Lease Area.

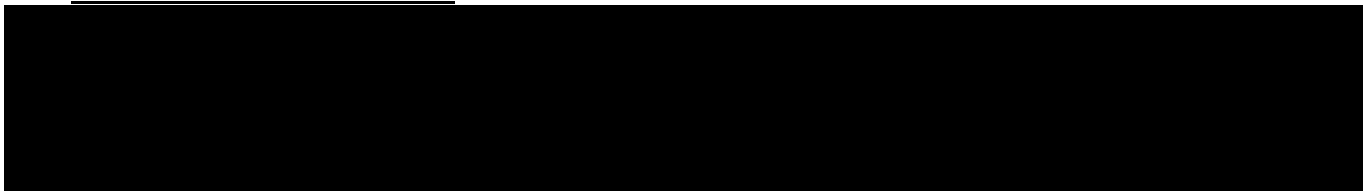
While the Project’s layout is largely fixed considering the 1 x 1 NM spacing across the MA WEA and RI/MA WEA, we will continue engaging with fishermen and fisheries stakeholders to understand and find ways to address concerns related to safe transit through and fishing within the Lease Area.



Participation in Regional Science Organizations, Fishery Management Councils, and Working Groups

Our fisheries team is in near-daily communication with fishermen and fisheries stakeholders across the region. We are also in regular contact with the relevant federal agencies (e.g., the Bureau of Ocean Energy Management [BOEM], US Coast Guard, and National Marine Fisheries Service [NMFS]) and state agencies on environmental and fisheries-related matters. Additionally, we are a member of, actively participate in, and/or attend meetings for the following technical working groups, advisory boards, councils, and commissions:

- Regional Wildlife Science Collaborative for Offshore Wind (RWSC)
- Responsible Offshore Science Alliance (ROSA) (our Chief Development Officer serves on the board of directors and our FM is a member of the Advisory Council)



- Massachusetts Fisheries Working Group on Offshore Wind Energy (MA FWG)
- Massachusetts Habitat Working Group on Offshore Wind Energy
- Connecticut Commission on Environmental Standards
- New England Fishery Management Council (NEFMC)
- Mid-Atlantic Fishery Management Council (MAFMC)
- New York State Energy Research and Development Authority's (NYSERDA's) Fisheries Technical Working Group
- NYSERDA's Environmental Technical Working Group
- International Council for the Exploration of the Sea (member of Working Group on Offshore Wind Development and Fisheries)⁴

[REDACTED]

We also actively participate in the above Fishery Management Councils. Our fisheries team regularly attends Fishery Management Council meetings and provides project updates when included on the agenda. Our FM, Crista Bank, also has monthly meetings with the Habitat Committee staff at NEFMC, and we have hosted joint "port hours" with other developers at NEFMC and MAFMC meetings.

Fisheries Mitigation and Compensation Best Practices

Through over a decade of experience working with fishermen and the immense experience that we have gained through Vineyard Wind 1, we have developed a comprehensive suite of avoidance, minimization, and mitigation measures that we believe sufficiently address the Project's potential impacts on fish, invertebrates, their habitats, and fisheries (see Section IV). However, to the extent that additional measures are needed, we expect those to be identified and addressed through the permitting process in consultation with agencies and the region's commercial and recreational fishermen.

With respect to BOEM's efforts to develop fisheries mitigation and compensation guidelines, the Vineyard Offshore team has been an active participant in this process, including attending several of the virtual workshops hosted by BOEM. As Vineyard Wind, we also submitted comments on BOEM's draft *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR Part 585* and contributed to a comment letter submitted by the American Clean Power Association (ACP) on behalf of the offshore wind industry. These letters, which note some of our and the industry's concerns with

[REDACTED]

the draft guidelines, are provided as Attachment 7.4-3 to the proposal. We will continue to engage with BOEM, fishermen, and other stakeholders on potential fisheries mitigation and compensation best practices and guidelines and look forward to reviewing BOEM’s final version of the guidelines.

Additional information about our approach to fisheries compensation for the Project is provided in Section VI.

III. POTENTIAL FISHERIES IMPACTS

Description of potential adverse impacts on fishing in the proposed Project area from the wind farm array, transmission cabling, and other infrastructure and design elements, including:

- Research plan to identify and study expected fishing impacts in proposed project area.
- Description of how site layout could be changed to accommodate potential future changes for mitigation purposes and timeline for when design decisions will be finalized.

Research Plan

Vineyard Offshore has prepared and submitted the Vineyard Northeast Construction and Operations Plan (COP) to BOEM, which identifies and analyzes expected fishing impacts from Vineyard Northeast. For the purposes of federal permitting, “Vineyard Northeast” is Vineyard Offshore’s proposal to develop, construct, and operate OWFs in Lease Area OCS-A 0522 along with associated offshore and onshore transmission systems. The permitting envelope for the COP includes 160 total WTG and ESP positions within the Lease Area. Up to three of those positions will be occupied by ESPs and the remaining positions will be occupied by WTGs. [REDACTED]

[REDACTED] Vineyard Wind 2 will be developed as part of Vineyard Northeast [REDACTED]

As part of the Vineyard Northeast COP, Vineyard Offshore has prepared a comprehensive assessment of the presence of finfish and invertebrates (across their multiple life stages) and their habitats within the areas potentially impacted by the Project, drawing upon a wealth of baseline data for the region. The COP also outlines our plans for pre-, during, and post-construction monitoring. The baseline data used to inform the analysis in the COP as well as our monitoring plans are summarized below. Excerpts of COP Volume II are provided in Attachment 7.1-2 to the proposal.

Baseline Data

The MA WEA, which includes the Lease Area, is well studied. Existing regional data sources include, but are not limited to, Northeast Fisheries Science Center’s multispecies bottom trawl surveys, Atlantic surf clam and ocean quahog surveys, and Atlantic sea scallop dredge surveys as well as SMAST’s regional video survey data and drop camera surveys.

To supplement existing data, Vineyard Offshore has conducted several years of surveys to establish baseline data on the spatial and temporal presence of fish, invertebrates, and their habitats in and around the Lease Area. These include:

- **Demersal Trawl Surveys:** [REDACTED]
[REDACTED] The methodology for the trawl surveys closely emulates the Atlantic States Marine Fisheries Commission's Northeast Area Monitoring and Assessment Program (NEAMAP) nearshore trawl survey. This allows our data to be integrated with NEAMAP's annual spring and fall trawl surveys that have occurred regionally since 2006. Tow locations within the Lease Area were selected using a spatially balanced sampling design. During each survey, 10 tows were made to ensure adequate spatial coverage throughout the Lease Area.
- **Drop Camera Surveys:** [REDACTED]
[REDACTED] Samples were taken at 22 stations placed 3.5 miles apart following a grid design.
- **Benthic Habitat Surveys:** As part of our G&G surveys in 2019 and 2022, we collected multibeam echosounder and side scan sonar data along with ground-truthing benthic grab samples, underwater video transects, and vibracores, which have been used to map benthic habitat types within the Lease Area [REDACTED]. See the Environmental Mitigation Plan (provided as Attachment 7.5-1 to the proposal) for additional details.

These surveys provide baseline data on species abundance, distribution, population structure, habitats, and community composition for impact assessments and comparison against post-construction monitoring data. The trawl and drop camera survey programs were developed in collaboration with SMAST and incorporate input from more than 75 commercial and recreational fishermen as well as academic and government resource agencies, including NMFS (also known as National Oceanic and Atmospheric Administration [NOAA] Fisheries). These fisheries surveys in the Lease Area followed the same protocols as the fisheries surveys conducted in Lease Area OCS-A 0501, thus contributing to the standardization of survey methods and data across lease areas. The surveys were performed with involvement from the

fishing community, as SMAST scientists carried out the surveys onboard commercial fishing vessels. All data from the fisheries surveys are publicly available, with several completed reports already posted on our website at: <https://www.vineyardoffshore.com/fisheries-522>.

⁵ A demersal otter 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.

⁶ Drop camera surveys are minimally invasive, image-based surveys that allow for practical data collection of the epibenthic community and substrate characteristics without causing a disturbance to the seafloor.

From these sources, we have a strong understanding of fish and invertebrate assemblages as well as temporal and spatial variations in fish, invertebrates, and their habitats in the vicinity of the Lease Area.

Pre-construction Monitoring

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] as noted above, our SMAST fisheries surveys used survey methods that align with established survey methods to facilitate data integration between our site-specific surveys and existing long-term datasets, what some refer to as a “nested and modular” survey design. [REDACTED]

[REDACTED]

[REDACTED]

During and Post-construction Monitoring

Vineyard Offshore will conduct appropriate monitoring during construction and post-construction to assess and quantify potential changes that may be attributable to Project activities. The monitoring measures will be determined in collaboration with agencies and stakeholders through the Project’s permitting process and will be informed by those put in place for other offshore wind projects. Our during and post-construction surveys will be thoughtfully designed to align with established methods to enhance data compatibility and utility, wherever practicable.

As part of the Vineyard Northeast COP, we have developed a benthic habitat monitoring plan framework to monitor recovery after construction in areas with sensitive habitats where similar post-construction monitoring has not already been conducted for other offshore wind projects. The survey design will include collection of bathymetry, underwater video, and benthic grab sample data. We expect to use a combination Before-After Gradient (BAG)/Before-After Control-Impact (BACI) sampling design to assess potential impacts. The benthic habitat monitoring plan framework is included in Attachment 7.1-2 to the proposal.

We will also develop a fisheries monitoring plan to monitor key indicators before and after construction; such monitoring may be part of regional monitoring efforts. When developing these plans, we [REDACTED] [REDACTED] will rely heavily on our experience and data obtained from developing and implementing monitoring plans for Vineyard Wind 1. For example, scientifically sound, statistically rigorous methods employed for Vineyard Wind 1 include a beyond BACI framework

[REDACTED]

(recommended by BOEM⁸) and/or a BAG framework [REDACTED]. The Vineyard Wind 1 project is using a beyond BACI framework to assess trawl and drop camera data and a combination BAG/BACI approach to assess benthic habitat data, where sample stations are placed at regular distances from the impact source (either the foundation/scour protection or export cable alignment) along impact monitoring transects.

Commercial and Recreational Fishing Impacts

Vineyard Offshore is well-positioned to evaluate the potential impacts of offshore wind development on fishermen and fisheries. Through Vineyard Wind 1, we have gained considerable expertise on how to use the best available data to assess commercial and recreational fishing activities and account for different federal and state reporting requirements for the various fisheries and gear types. Throughout the Project's multi-year permitting phase, Vineyard Offshore will continue working with agencies, commercial and recreational fishermen, academia, and industry economists to quantify commercial and recreational fishing activities, assess the potential economic exposure of the fishing industry to offshore wind development, and evaluate how best to assess changes in commercial and recreational fishing patterns post-construction.

[REDACTED]

Commercial Fisheries Impact Assessment

BOEM undertook considerable effort to avoid and minimize the risk of environmental and fisheries impacts when siting the MA WEA (which contains the Lease Area). For example, BOEM extensively modified the area offshore Massachusetts initially identified for wind energy development (the "Request for Information [RFI] Area") after careful consideration of public comments. This resulted in the exclusion of OCS blocks east of the 70° longitude line to protect valuable fisheries resources. BOEM also excluded areas within 1 NM of traffic separation schemes to address navigational concerns (see 77 FR 5820). Later in the MA WEA development process, BOEM further modified the area to exclude portions that were identified as important habitats that could be adversely affected if ultimately used for offshore wind energy development. Specifically, BOEM excluded an area of high fisheries value to reduce potential conflict with commercial and recreational fishing activities as well as an area of high sea duck concentration (BOEM 2012). These additional revisions resulted in the MA WEA being reduced

⁸ As recommended in BOEM's (2023a) *Guidelines for Providing Information on Fisheries for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585*.

in size, as compared to the original RFI Area, by approximately 60%. Siting choices such as these were the first step to avoid and minimize impacts to fisheries as well as other resources and habitats.

As part of the Vineyard Northeast COP, we prepared a commercial fisheries assessment using the best available data to ascertain how the Lease Area is used by commercial fisheries in the region. We used several data sources to characterize commercial fishing activities, including maps of fishing activity based on vessel monitoring system (VMS) data and vessel trip reports (VTRs) developed for the Northeast Regional Ocean Council and the Mid-Atlantic Council on the Ocean; VTR-based spatial representation of commercial fishing intensity and revenue developed by BOEM; and NOAA Fisheries' estimates of commercial fisheries revenues. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Estimates of economic exposure (i.e., the maximum potential loss of fishing revenues) in the Lease Area were derived from NOAA Fisheries (2023b) *Landing and Revenue Data for Wind Energy Areas, 2008-2021*, which provides annual fishing revenue data for Atlantic offshore wind project areas from 2008 to 2021. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The economic exposure assessment presented in the Vineyard Northeast COP also evaluates potential indirect sources of economic impacts, including: (1) potential costs and lost fishing time associated with increased transit times if fishing vessels choose to take alternative routes around the Lease Area; and (2) potential costs associated with increased fishing congestion if fishing is diverted outside the Lease Area.

[REDACTED]

[REDACTED]

In addition to our strong comprehension of commercial fisheries landings and revenue data, we also understand current and historical fishing traffic patterns in the vicinity of the Lease Area. As part of the Navigation Safety Risk Assessment prepared for the Vineyard Northeast COP, we assessed vessel traffic in and adjacent to the Lease Area using 2016-2021 Automatic Identification System (AIS) data. The analysis indicated that historical vessel traffic levels within the Lease Area are relatively low, with only 4.5 fishing vessels entering the Lease Area per day (on average) during the peak summer months. From 2016-2021, fishing vessels entered the Lease Area an average of 990 times per year but were engaged in fishing in the Lease Area on just 69 (7%) of those trips. Thus, the large majority of fishing vessels transit the Lease Area to reach ports and other fishing areas, such as Georges Bank.

Recreational Fisheries Impact Assessment

[REDACTED]

To help address data gaps in the recreational fishing sector, we previously partnered with the New England Aquarium's Anderson Cabot Center for Ocean Life to study highly migratory species (HMS) presence across the MA WEA and RI/MA WEA. The study determined, based on a desktop review and input from the pelagic recreational fleet, that recreational effort for HMS is widespread, with the highest levels of recreational fishing activity occurring well to the west of the Lease Area in the waters south and east of Montauk Point and Block Island. The results from that study are further described in the Vineyard Northeast COP (see Attachment 7.1-2 to the proposal). In continuance of this study, we are supporting collaborative research on HMS across the MA WEA and RI/MA WEA, as described in Section IV.

Vineyard Offshore anticipates continuing conversations with recreational fishermen throughout every phase of the Project to determine potential changes to recreational fishing patterns and will consider opportunities to further support ongoing research efforts.

[REDACTED]

[REDACTED]

Site Layout Flexibility

As discussed above, we have proposed a 1 x 1 NM WTG/ESP layout for the Lease Area in direct response to input obtained from commercial fishermen and recommendations from the US Coast Guard. As such, Vineyard Offshore has limited site layout flexibility. However, we are continuing to engage with fishermen and fisheries stakeholders to understand and find ways to address concerns related to safe transit through and fishing within our lease areas.

IV. MEASURES TO AVOID, MINIMIZE, AND MITIGATE IMPACTS TO FISHERIES

Description of operational protocol to avoid, minimize, and mitigate impacts to fisheries during project construction and operation phases, which may include but are not limited to:

- Plan outlining anticipated operational phase, long-term required maintenance of offshore export cables, inter-array cables, and foundations, including descriptions of work activity required for such maintenance including duration, anticipated impacts to seafloor habitats, and potential impacts to fishing activity and marine species.
- Plans to minimize the number of transmission cables used, reduce the area of seafloor or shoreline disturbance, and/or reduce the number of onshore cable landfalls.
- Measures to ensure navigational and operational safety of fishing vessels within, through, and around the proposed project area.
- Plans for designation and monitoring of safety zones, gear monitoring and retrieval, and communication with fishing vessels and resource managers.
- Plan to avoid, minimize, or mitigate impacts on the National Marine Fisheries Service (NMFS) surveys and Massachusetts Department of Marine Fisheries (DMF) inshore trawl surveys.
- Description of any cooperation and efforts with other developers or regional entities to avoid and minimize potential cumulative impacts across the MA/RI WEAs.
- Plan for regular monitoring and reporting (annual and after major storm events) of the current depth of offshore export and interarray cables below the sediment, any remedial actions to ensure the cable remains adequately buried, and reporting of any remedial

activities, including monitoring and reporting on cable depth after major storm events such as 25- or 50-year storm events.

- Plan for recording the geolocation (Loran, lat/long) of moved boulders which may cause safety hazards and making those data available to fishermen in a form that is easily uploadable to their navigation systems.
- Plan for recording bathymetric changes between pre- and post- boulder clearance plowing activities and communicating those changes to fishermen.
- Plan for recording the geolocation of areas of cable protection; identifying the length, width, and height from the seafloor of all cable protection structures; and making those data available to fishermen.

Vineyard Offshore does not expect that Vineyard Wind 2 will significantly impact fish, invertebrates, or their habitats in the Lease Area [REDACTED]. Measures to avoid, minimize, and mitigate impacts to fish, invertebrates, and their habitats are discussed further in the Environmental Mitigation Plan included as Attachment 7.5-1 to the proposal. The Project's measures to avoid, minimize, and mitigate impacts to commercial, recreational, and indigenous fisheries are described below. Vineyard Offshore expects that these measures will be refined and expanded through the permitting process, as was the case with Vineyard Wind 1.

Fishing Industry Initiatives

[REDACTED]

[REDACTED]

Long-term Required Maintenance

The WTGs and ESP will be designed to operate autonomously and will not be manned. As further described in Section 3 of the proposal, the OWF will be continuously remotely monitored from an onshore control room.

To minimize equipment downtime, maximize energy production, and verify that the facilities remain in a safe condition, we will conduct regular inspections and preventive maintenance, including:

- **Regular maintenance of the WTGs and ESP:**

[REDACTED]

[REDACTED] Thus, regular maintenance of the WTGs, ESP, and their foundations is not expected to impact seafloor habitats.

- **Foundation and scour protection inspections:**

[REDACTED]

[REDACTED] Based on the surveys, marine growth may need to be removed from the foundations.

- **Offshore cable surveys:**

[REDACTED]

Unscheduled repairs or component replacement may also be necessary.

[REDACTED]

[REDACTED] The vessels and equipment used to perform repair and replacement activities would be similar to those used during construction. The extent and duration of seafloor disturbance (if any) during any repair/component replacement activities would be significantly smaller than during construction. The potential impacts to marine species from operations and maintenance (O&M) activities are further described in the Environmental Mitigation Plan (see Attachment 7.5-1 to the proposal).

During the Project's operational period, the Lease Area [REDACTED] will be open to commercial and recreational fishing vessels, and no permanent vessel restrictions are proposed. [REDACTED]

[REDACTED] As further described below, for certain maintenance activities, Vineyard Offshore may request that mariners give a wide berth to active work sites or maintenance vessel(s) through the issuance of OWMUs and Vineyard Offshore may request that the US Coast Guard establish temporary safety zones that extend 500 meters (m) around the WTGs and ESP. The presence of these safety zones would temporarily preclude fishing activities in the immediate vicinity of the structures and may cause fishermen to slightly alter their navigation routes to avoid the active work sites. However, the safety zones would be limited in size and duration and would not affect the entire Lease Area at any given time.

Construction and support vessels will be present within the Lease Area [REDACTED] during maintenance activities. However, vessel traffic associated with the Project is not anticipated to represent a significant increase over the current levels of vessel traffic within the Lease Area [REDACTED]. To minimize potential impacts to commercial and recreational fishing from increased vessel traffic, we will work to inform fishermen of planned vessel activities during maintenance. As detailed in Section II, we will provide OWMUs and coordinate with the US Coast Guard to issue NTMs advising vessel operators of planned offshore activities. The Project's website will be regularly updated to provide information about activities occurring in and around the Lease Area [REDACTED]

Consolidation of Project Infrastructure

Vineyard Offshore has made every effort to consolidate Project infrastructure based on feedback from agencies and stakeholders, including fishermen. [REDACTED]

[REDACTED] Our measures to consolidate infrastructure are further described in the Environmental Mitigation Plan (see Attachment 7.5-1 to the proposal).

Navigational and Operational Safety Measures

Vineyard Offshore will implement a series of navigational and operational safety measures to limit potential impacts to fishing vessels and other mariners in the Lease Area [REDACTED] during the Project's construction and operations phases. We will also implement any relevant lessons learned from the construction and operation of Vineyard Wind 1. [REDACTED]

Site Layout

As described in Section II, the WTGs and ESP within the Lease Area will be oriented in fixed east-to-west rows and north-to-south columns with 1 NM spacing between WTG/ESP positions. The Project's uniform 1 x 1 NM WTG/ESP layout is consistent with the recommendations contained in the MARIPARS, which evaluated the need for vessel routing measures (including regional transit lanes) within the MA WEA and RI/MA WEA.¹⁰ On May 27, 2020, the US Coast Guard published the final MARIPARS, which found that:

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 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.

The MARIPARS recommends "That the MA/RI WEA's turbine layout be developed along 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, through the MA/RI WEA." The US Coast Guard concluded that "The adoption of a standard and uniform grid pattern through BOEM's approval process will likely eliminate the need for the USCG to pursue formal or informal routing measures within the MA/RI WEA at this time." Based on these findings and recommendations from the US Coast Guard, the Project's layout is expected to facilitate safe navigation and accommodate traditional fishing patterns in the Lease Area.

Cable Burial

[REDACTED]

¹⁰ The "MA/RI WEA" as used in the US Coast Guard's (2020) MARIPARS includes all adjacent lease areas on the OCS south of Martha's Vineyard, Massachusetts, and east of Rhode Island, which are referred to in this Attachment as the "MA WEA and RI/MA WEA."

[REDACTED]

Vineyard Offshore will require the cable installation contractor to prioritize the least environmentally impactful cable installation alternative(s) that are practicable for each segment of cable. Several cable installation techniques are being considered to minimize seabed disturbance, minimize sediment dispersion, and maximize the likelihood of achieving the target burial depth. [REDACTED]

[REDACTED] Cable protection may also be used if the cables need to cross other infrastructure (e.g., existing cables, pipelines, etc.), to secure the cable entry protection system in place, or where a cable splice requires protection.

Cable protection methods include freely laid rock, rock bags, concrete mattresses, and half-shell pipes (or similar). [REDACTED]

[REDACTED] These options are being explored in consultation with fishermen.

Additionally, Vineyard Offshore expects to provide the as-built location of cable protection on the Project's website and will coordinate with the US Coast Guard and NOAA to ensure that the as-built cable alignments, including the location of cable protection and cable crossings, are included on nautical charts. [REDACTED]

[REDACTED]

Lighting, Marking, and Signaling Scheme

To aid marine navigation, the WTGs, ESP, and their foundations will be equipped with marine navigation lighting, marking, and signaling in accordance with US Coast Guard and BOEM guidance. Each WTG and ESP will be maintained as a Private Aid to Navigation (PATON). Based on the US Coast Guard's current *ME, NH, MA, RI, CT, NY, NJ-Atlantic Ocean-Offshore Structure PATON Marking Guidance*, we expect to implement a uniform system of marine navigation lighting and marking for every WTG and the ESP that includes: (1) yellow flashing lights that are visible in all directions at a distance of two to five nautical miles depending on the location of the structure within the Lease Area; and (2) unique alphanumeric identifiers that are visible from all directions to aid in visual confirmation of a vessel's location. We also anticipate that the WTG's air draft restriction will be indicated on the WTG foundation and/or tower and will be

[REDACTED]

[REDACTED]

visible in all directions. Each foundation will be coated with high-visibility yellow paint above sea level. During the construction phase, temporary marine navigation lighting and marking may need to be installed on the foundation structures as they are being constructed, depending on the timing and sequence of foundation installation.

[REDACTED]

All Project vessels and equipment will display the required navigation lighting and day shapes. Additionally, all vessels used during the construction and operation of the Project will be equipped with AIS.

Marine Coordination and Safety Zones

As noted in Section II, Vineyard Offshore employs a Marine Liaison Officer who is responsible for safe marine operations. The Marine Liaison Officer currently serves as our point of contact for all external maritime agencies, partners, and stakeholders, including the US Coast Guard, US Navy, port authorities, state and local law enforcement, and commercial operators (e.g., ferries, tourist vessels, and other offshore wind developers). The Marine Liaison Officer is also responsible for issuing OWMUs and coordinating with the US Coast Guard to issue NTMs to notify recreational and commercial vessels of our planned offshore activities. There is frequent coordination between the Marine Liaison Officer and the fisheries team regarding fisheries outreach (see Section II).

During construction, we expect to employ a dedicated Marine Coordinator to manage construction vessel logistics and implement communication protocols with external vessels at ports and offshore. During construction, the Marine Coordinator will be the primary point of contact with external maritime agencies, partners, and stakeholders for day-to-day offshore operations. The Marine Coordinator will operate from a marine coordination center that is established to control vessel movements throughout the Lease Area [REDACTED]. The Marine Coordinator will use tools such as radio communications and safety vessels to address vessels entering active work sites.

For certain construction and maintenance activities, Vineyard Offshore may request that mariners give a wide berth to active work sites or construction and maintenance vessel(s) through the issuance of OWMUs. [REDACTED]

[REDACTED]

[REDACTED]

Our fisheries communication tools are further described in Section II and the FCP for Lease Area OCS-A 0522 (see Attachment 7.4-2 to the proposal).

Gear Monitoring and Retrieval

We have had great success employing OFLs and/or scout vessels to improve communication with the fishing industry and reduce the risk of gear interactions. As described in Section II, OFLs are local fishermen who are familiar with marine operations and fishing practices in the region. [REDACTED]

[REDACTED] We employ these experienced fishermen on our survey vessels to continue the role of the FL offshore so that there is effective communication onsite and in real time. Among other things, the OFL records observed fisheries activities, ensures survey vessel operations are compliant with the FCP and other fisheries-related policies, and seeks to avoid negative fisheries interactions by looking out for fixed gear and establishing communications (usually by very high frequency [VHF] radio) with fishing vessels, when appropriate. If there is a negative fisheries interaction, the OFL works with the FL and relevant FRs to resolve the matter safely, fairly, and efficiently. At the start of a survey campaign (and whenever there is a new captain or party chief), the captain, crew chief, Vineyard Offshore's client representative, and OFL review and sign off on the communication and gear interaction protocols, which are outlined in the FCP (see Attachment 7.4-2 to the proposal). As described in Section II, we also employ local fishing vessels to serve as scout vessels. The scout vessels work ahead of the survey vessels to report the fixed gear locations back to the OFL on the survey vessel to avoid any gear interaction.

[REDACTED]

[REDACTED]

Measures to Reduce Potential Impacts to US Coast Guard Search and Rescue

Using vessels and helicopters, the US Coast Guard conducts search and rescue (SAR) missions in the vicinity of the Lease Area for incidents such as vessels capsizing, disabled vessels, vessels taking on water, and persons in water. [REDACTED]

[REDACTED]

The Project's 1 x 1 NM WTG/ESP layout is consistent with the US Coast Guard's WTG spacing recommendations to accommodate SAR operations contained in the MARIPARS. The MARIPARS found that, "One NM spacing between WTGs allows aircrews to safely execute turns to the adjacent lane using normal flight procedures in visual conditions" and "may allow sufficient navigational room for aircrews to execute USCG missions in diverse and challenging weather conditions or deal with an aircraft emergency and/or navigational malfunction." According to the MARIPARS, a standard and uniform WTG/ESP layout will assist SAR in favorable weather conditions.

[REDACTED]

[REDACTED]

Measures to Reduce Potential Impacts to Federal and State Surveys

Measures to avoid, minimize, and/or mitigate impacts to NMFS, Massachusetts Division of Marine Fisheries, and Connecticut Department of Energy and Environmental Protection surveys are discussed in the Environmental Mitigation Plan included as Attachment 7.5-1 to the proposal.

Regional Coordination

Vineyard Offshore regularly coordinates with other offshore wind developers, agencies, researchers, regional entities, fishermen, and other stakeholders to ensure effective communication, avoid and minimize potential cumulative impacts across the MA WEA and RI/MA WEA, conduct research, address concerns, and share data. This regional coordination is best exemplified by the collaborative effort that we led among the developers of the MA WEA and RI/MA WEA lease areas to adopt a uniform 1 x 1 NM WTG/ESP layout. This commitment results in a significant portion of the MA WEA and RI/MA WEA being undisturbed and limits cumulative impacts from multiple perspectives, including navigational safety and traditional fishing practices.

As noted in Section II, we coordinate port hours with other developers' FLs to streamline communications and engagement opportunities with the region's fishermen. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Regionally focused research efforts, data standardization, and data sharing are also key to better understanding, avoiding, and limiting potential cumulative impacts. As such, Vineyard Offshore is firmly committed to supporting regional studies and other independent

environmental research, particularly through our participation in regional organizations (see Section II). In connection with Vineyard Wind 1, we provided funding to support a false albacore tagging study by the American Saltwater Guides Association and the New England Aquarium's Anderson Cabot Center for Ocean Life to gather key baseline information on this highly valued but poorly understood species. We also previously partnered with the Anderson Cabot Center for Ocean Life to study HMS presence across the MA WEA and RI/MA WEA. Building on the results of this study, INSPIRE Environmental in partnership with the New England Aquarium initiated a five-year acoustic tagging and tracking study of HMS in the MA WEA and RI/MA WEA. Vineyard Offshore (along with other offshore wind developers) is supporting this study by deploying 12 acoustic receivers in the Lease Area and funding tagging efforts. [REDACTED]

The Environmental Mitigation Plan, included as Attachment 7.5-1 to the proposal, provides additional examples of Vineyard Offshore's efforts to collaborate with other developers and regional entities to advance regional research and avoid and minimize potential cumulative impacts across the MA WEA and RI/MA WEA.

Cable Monitoring and Reporting

We anticipate that the offshore cables will include a monitoring system [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Recording Site Changes for Fishermen

[REDACTED]

As described above, Vineyard Offshore expects to provide the as-built location of cable protection on the Project's website and will coordinate with the US Coast Guard and NOAA to ensure that the locations of the WTGs, ESP, and as-built cable alignments (including the location of cable protection and cable crossings) are included on the nautical charts.

V. VESSEL AND GEAR DAMAGE OR LOSS

Plan for addressing claims for loss or damage to fishing gear or vessels from interactions with offshore wind farm infrastructure.

Vessel Loss or Damage

Based on historical levels of vessel traffic within the Lease Area, the risk of an allision with a WTG or ESP is low due to mitigating factors, such as the distance of the Lease Area from typical vessel routes and the Project's 1 x 1 NM WTG/ESP layout. Vineyard Offshore conducted a quantitative risk assessment for existing conditions and post-construction within the Lease Area

using Baird’s proprietary Navigational and Operational Risk Model (NORM). The model utilizes raw AIS, wind, current, and visibility data as inputs along with the geometric layout and Vineyard Northeast-specific dimensions for the WTG and ESP foundations. The results of the model show that the overall risk for potential marine accidents is relatively low for both pre-construction and post-construction conditions.

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Fishing Gear Loss or Damage

[REDACTED]
[REDACTED] We use a standard gear loss/damage compensation form that is based on the form previously developed through coordination with FRs, FLs, and other developers for the Vineyard Wind 1 project. [REDACTED]
[REDACTED]
[REDACTED]

The form is available for download at: <https://www.vineyardoffshore.com/fisheries-522>.

VI. FISHERIES COMPENSATION PLAN

Plan to develop a fisheries compensatory mitigation plan to with input from the Massachusetts fishing industry to offset impacts on commercial and recreational fishing, how the compensation plan will be designed, and how it will determine financial impacts.

The need for compensatory mitigation to offset potential economic impacts from the construction and operation of the Project will be determined through the permitting process. To the extent such mitigation is deemed necessary, our objectives in designing any program will be to: (1) create a fair, simple, and transparent data-driven program; (2) limit the administrative burden for all parties involved; (3) reduce potential gaming and fraud opportunities; and (4) resolve uncertainties and data limitations in fishermen's favor. As with Vineyard Wind 1, the process to develop such programs will include significant input from potentially impacted commercial and recreational fishermen, agencies, our FRs, and other fisheries stakeholders.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Vineyard Offshore's approach to fisheries compensatory mitigation is grounded in our experience designing and implementing the Vineyard Wind 1 fisheries compensation program. This program [REDACTED]

[REDACTED] was developed over a period of two years and involved consultations with federal and state agencies, Vineyard Wind 1 FRs, individual fishermen, and expert consultants.

Perhaps the most important lesson that we learned while developing the Vineyard Wind 1 fisheries compensation program is that a claims-based process for compensatory mitigation on a project-by-project basis is largely unworkable for both fishermen and offshore wind

developers. We expressed this concern to BOEM in our August 22, 2022, comment letter on BOEM's draft *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR Part 585* (see Attachment 7.4-3 to the proposal). As noted in our letter, data limitations, confidentiality concerns, administrative burdens, and a number of confounding factors render a claims-based model impractical at the project level.

For that reason, we believe that fisheries compensation is best addressed at a regional scale through non-governmental, third-party administered funding mechanisms. In support of this, we have been active in the Fisheries Mitigation Project led by the Special Initiative on Offshore Wind and related efforts, including those coordinated by ACP. We will continue to work closely with agencies, fishermen, other offshore wind developers, and fisheries stakeholders to establish a regional fisheries compensation fund administrator for offshore wind projects and would expect to utilize such a process for the Project in the event it is available and aligns with the objectives noted above.

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Attachment 7.4-2: Fisheries Communication Plan

Vineyard Northeast/Lease Area OCS-A 0522

Fisheries Communication Plan

Vineyard Offshore

Document Title:	Fisheries Communication Plan
Company	Vineyard Offshore
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Fisheries Communication Plan

I. Introduction

Vineyard Offshore is an offshore wind development company established by the same team that developed Vineyard Wind 1 (Lease Area OCS-A 0501), the nation's first commercial-scale offshore wind project. Vineyard Offshore leads the development of two lease areas along the US East Coast - Lease Area OCS-A 0522 (also known as Vineyard Northeast) and Lease Area OCS-A 0544 (also known as Vineyard Mid-Atlantic).

The Fisheries Communication Plan (FCP) is a living document based on best practice guidance and input from fishermen and fisheries stakeholders. It outlines our proactive approach to fisheries communication to ensure effective and regular engagement with a wide range of fishermen and fisheries stakeholders. This FCP aligns with the Vineyard Wind 1 FCP, which was first drafted in 2011 to improve communication with fishermen potentially affected by the development of that offshore wind project. Since then, our communications plan and approach have evolved and grown with over 10 years of input from fisheries stakeholders. This document is regularly updated, in response to stakeholder feedback and to incorporate lessons learned, to ensure communication protocols and tools remain relevant and effective.

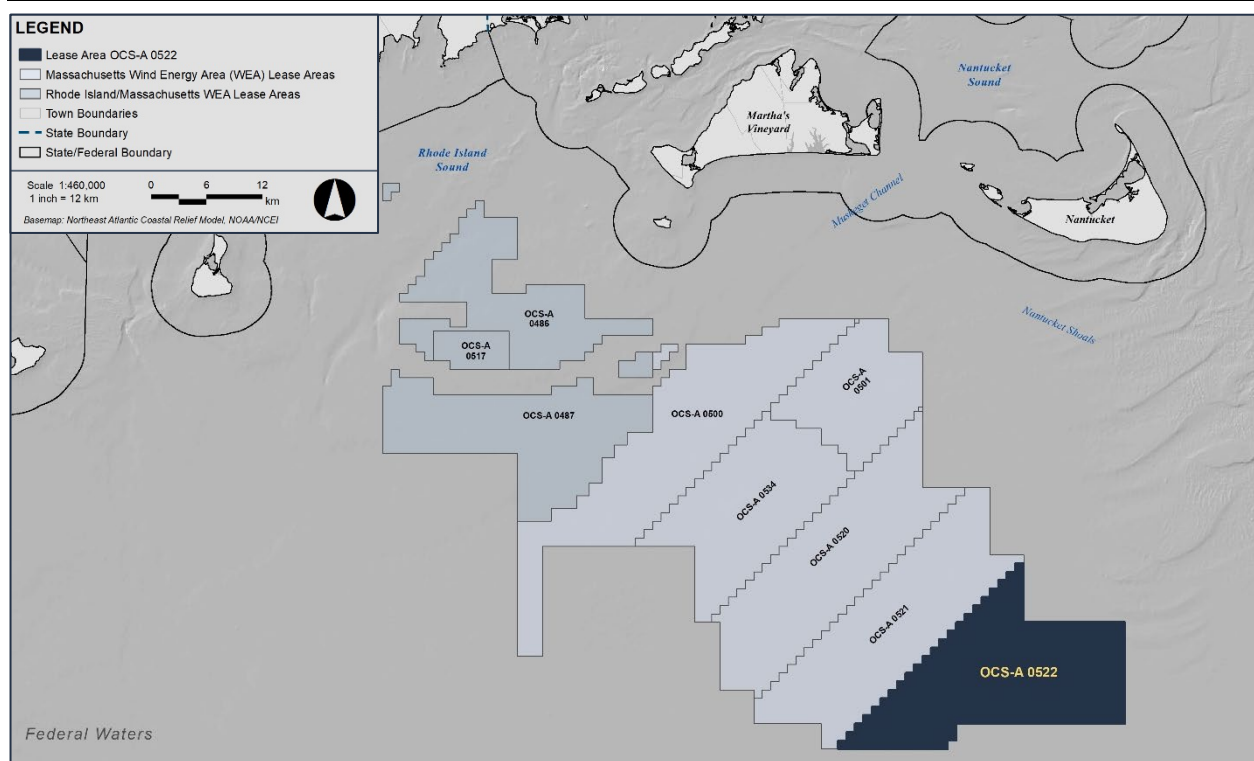
Vineyard Offshore strongly believes that the offshore wind and fishing industries can successfully work alongside each other in the marine environment, and we will continue the approach we started with Vineyard Wind 1 to build bridges between the two sectors. We will also continue to fund research, share data, participate in regional science initiatives, and expand our prior efforts to hire fishermen and/or fishing vessels to support offshore site assessment and data-gathering activities.

Visit <https://www.vineyardoffshore.com/fisheries-522> to sign-up for updates, to view Offshore Wind Mariner Updates (OWMUs), and to fill out an online Vessel Request for Information (RFI) form with vessel specifications and crew certifications if vessel owners are interested in working on Vineyard Northeast. Charts showing the Lease Area, frequently asked questions (FAQs), and our fisheries science reports can also be found on the website.

II. Vineyard Northeast

Vineyard Offshore is developing Lease Area OCS-A 0522, as Vineyard Northeast, for wind energy production on the Outer Continental Shelf (OCS). The Lease Area is approximately 132,370 acres in size and is located approximately 25 nautical miles from Nantucket (see Figure 1). The Lease Area abuts SouthCoast Wind's Lease Area OCS-A 0521 along its northwestern edge and has water depths between 17.5-35 fathoms (105-210 feet).

Figure 1 Vineyard Northeast Lease Area OCS-A 0522



III. Potentially Affected Fisheries

An analysis published by National Oceanic and Atmospheric Administration (NOAA) Fisheries in 2022 indicates that the commercial fisheries likely to be most affected¹ by offshore site assessment, construction, and operational activities for Vineyard Northeast are: (1) Atlantic States Marine Fisheries Commission (ASMFC) Fishery Management Plan (FMP);² (2) Summer Flounder, Scup, Black Sea Bass; (3) Mackerel, Squid, and Butterfish; (4) Sea Scallop; and (5) Tilefish. Other FMPs and fisheries may also be affected. Vineyard Offshore is conducting fisheries outreach and engagement with different fisheries to verify and refine NOAA Fisheries' assessment of potentially impacted commercial and recreational fisheries in Lease Area OCS-A 0522 as well as along any offshore export cable corridors.

IV. Fisheries Team

Our fisheries communication efforts are led by Fisheries Manager (FM) Crista Bank, a fisheries biologist with deep knowledge of fishing practices as well as an extensive network of personal

¹ NOAA Fisheries defines "most impacted" as the FMPs deriving the most revenue from an area over the 14-year analysis period of 2008 to 2021, indicating the highest potential for impact to the industry from a reduction in fishing area.

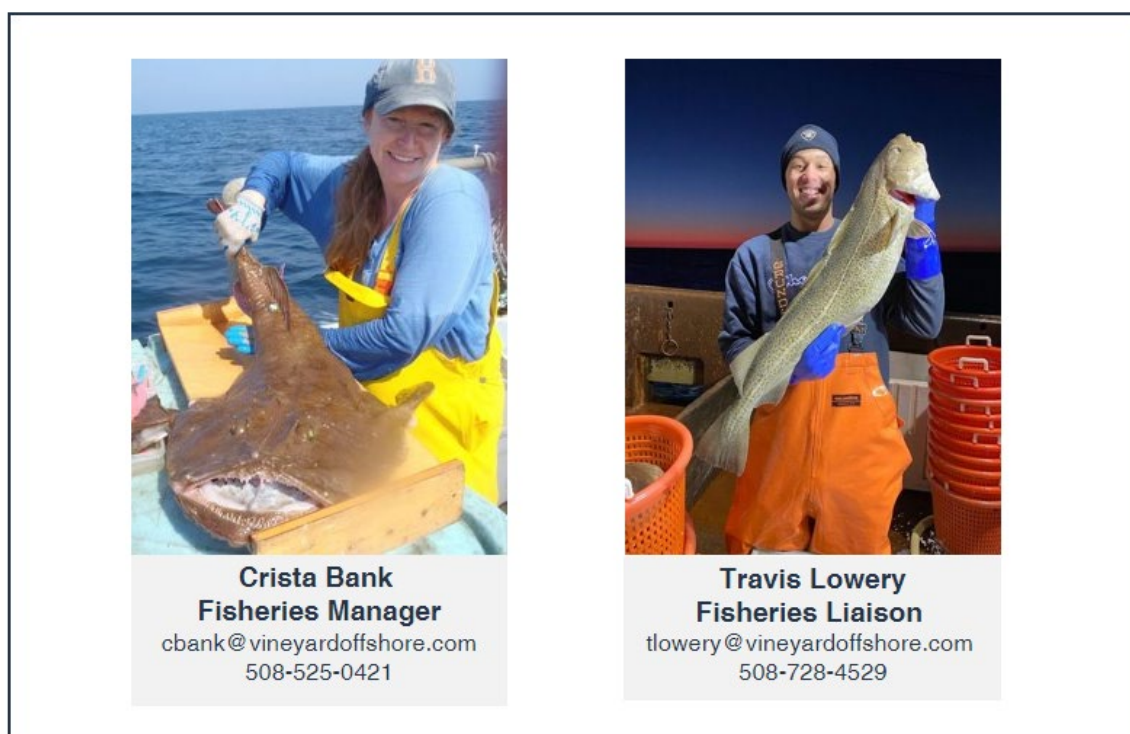
² The ASMFC FMP includes the following species: American lobster, cobia, Atlantic croaker, black drum, red drum, menhaden, NK Sea Bass, NK Seatrout, spot, striped bass, tautog, Jonah crab, and Pandalid shrimp.

relationships with fishermen and fishery organizations in the region (see Figure 2). Crista oversees Vineyard Offshore’s efforts to build and maintain relations with the commercial and recreational fishing industries and surrounding communities. This includes directing outreach, developing fisheries research programs, and identifying potential workforce opportunities for fishing industry involvement. She has spent the last five years laying the groundwork for these strategies as a Fisheries Liaison (FL) on the Vineyard Wind 1 project.

Crista’s fisheries communication efforts are supported by Travis Lowery who serves as the FL for Vineyard Offshore. He is primarily responsible for developing and delivering our New England fisheries program. This program includes a range of components, such as outreach, communication strategy engagement, project planning, workforce development, and fisheries science. Travis is a fisheries biologist who spent six years working for the Marine Fisheries Field Research Group at UMass Dartmouth’s School for Marine Science and Technology. He spent over 300 days at sea as chief scientist working on cooperative research projects. He most recently led the ventless trap and larval surveys in the Vineyard Wind 1 lease area.

Our fisheries team is readily available by phone, email, and text for ongoing communication (see Figure 2 and our website for contact information). Fishermen can also sign up for general updates and news, OWMUs, and information requests by filling out a contact form on our website.

Figure 2 Vineyard Offshore’s Fisheries Manager and Liaison



Vineyard Offshore’s fisheries team also includes Fisheries Representatives (FRs), Onboard Fisheries Liaisons (OFLs), and scout vessels. Information about the role of FLs, FRs, OFLs, and scout vessels on offshore wind projects is provided below.

Lastly, Vineyard Offshore also employs a Marine Liaison Officer who is responsible for safe marine operations and ensuring that Vineyard Offshore is a good neighbor while on the water. As such, there will be frequent interaction, information exchange, and coordination between the fisheries team and the Marine Liaison Officer.

a. Fisheries Liaisons

FLs are employed by offshore wind developers to implement FCPs and serve as a communication conduit between offshore wind developers and the fishing industry. At Vineyard Offshore, the FL serves as a readily accessible and knowledgeable point of contact within the company that fishermen and FRs can efficiently and effectively communicate with. The FL is also tasked with:

- developing relationships and direct lines of communication with individuals that are representative of potentially impacted fishing regions, industries, and communities;
- understanding and conveying current fishing industry concerns and feedback to the Vineyard Offshore team to identify and work towards solutions;
- maintaining existing working relationships with FRs, and identifying and onboarding new FRs;
- identifying potentially affected fisheries and developing communication protocols and tools that create two-way communication channels;
- coordinating with the FLs employed by other offshore wind developers to streamline fisheries communication and outreach events, collaborate on fisheries research and support, and standardize programs, as appropriate;
- working with scientists, federal and state agencies, fishermen, and fisheries stakeholders to develop monitoring plans for fish species and habitats of concern; and
- identifying and expanding training and work opportunities for fishermen and fishing vessels.

b. Fisheries Representatives

FRs do not work on behalf of offshore wind developers but represent a particular fishing community, organization, gear type, port, region, state, or sector(s). FRs are responsible for communicating fisheries concerns, issues, and other input to offshore wind developers. Typically, an FR is an active fisherman or group representing active fishermen within the region, fishery, state, or sector they represent. While FRs are compensated for their time and expenses by offshore wind developers, their duty is to the fishing region, industry, organization, gear type, or sector they represent.

Vineyard Offshore is committed to maintaining an effective network of FRs. Vineyard Offshore engages with nine FRs who represent a variety of gear types and homeports in Connecticut, Massachusetts, New York, and Rhode Island (see Figure 3). Vineyard Offshore is also working

closely with New Jersey-based fishermen. Vineyard Offshore welcomes additional FRs. If you are interested or have suggestions, please contact our FM.

Figure 3 Vineyard Northeast Fisheries Representatives



c. Onboard Fisheries Liaisons and Scout Vessels

OFLs are experienced fishermen employed to assist geophysical and geotechnical site assessment survey vessel captains with on the water communication and to document fishing gear in the area to help avoid interactions. OFLs continue the role of the FLs offshore so that there is effective communication on-site and in real-time. OFLs report to the FLs and serve as the FLs' "eyes, ears, and voice" during offshore operations.

Among other things, the OFL records observed fisheries activities, ensures survey vessel operations are compliant with the FCP and other fisheries-related policies, and seeks to avoid negative fisheries interactions by looking out for fixed gear and establishing communications (usually by very high-frequency [VHF] radio) with fishing vessels when appropriate. In the event of a negative fisheries interaction, the OFL works with the FLs and relevant FRs to resolve the matter safely, fairly, and efficiently.

Vineyard Offshore also employs local fishing vessels to serve as scout vessels. The scout vessels work ahead of the geophysical and geotechnical site assessment survey vessels and report the fixed gear locations back to the OFL on the survey vessel to avoid any gear interaction. The scout vessel identifies fishermen actively working in the area so the FL can reach out to them with detailed survey vessel information throughout the remainder of the survey activity. This approach has proven effective at reducing the risk of fixed gear interactions during offshore activities.

V. Fisheries Engagement

Starting with the Vineyard Wind 1 project, Vineyard Offshore's team has over a decade of experience engaging with commercial and recreational fishermen, vessel owners, fishing advocacy organizations, shore support services, and fisheries research institutions. Our FM and other members of our staff have met with hundreds of fisheries stakeholders in recent years, including fishermen from various gear types and sectors, fishing advocacy organizations, and

local fisheries groups who are most likely to be affected by offshore wind development on the OCS. Aside from building relationships with the region's fishermen and fisheries stakeholders, a key objective of our engagement efforts is to build trust and look for mutually beneficial opportunities to work with the fishing industry.

Vineyard Offshore has and will continue to employ a variety of outreach methods and tools to communicate and maintain relationships with fishermen and fisheries stakeholders. These outreach methods and tools include, but are not limited to, the following:

- organizing bi-weekly meetings with FRs to share project information and discuss concerns and current issues facing the fishing industry;
- working with FRs to distribute flyers, charts, FAQs, and other relevant information through their networks and communication channels;
- creating outreach materials for fishing communities to distribute at different events as well as local bait and tackle shops in the region;
- holding "port hours" with FLs from other offshore wind developers at ports in Montauk, New York, New Bedford, Massachusetts, Narragansett, Rhode Island, and Stonington, Connecticut to provide information to fishing vessel crews who fish in or transit through the Lease Area;
- maintaining a website with information specifically for fishermen, including fisheries science information, charts, mariner updates of offshore vessel activity, and RFI;
- maintaining a database of fishing vessels interested in offshore wind, survey vessel, and guard vessel work as identified through the Vessel RFI;
- reaching out to local recreational fishing organizations and clubs;
- presenting project information and updates on fisheries science at recreational organization meetings;
- hosting tables at commercial marine expos and recreational fishing shows;
- engaging with recreational fishing tournaments and derby organizers, including sponsoring events; and
- relying on word of mouth (i.e., reaching out to a fisherman at the request of another fisherman).

Vineyard Offshore is in regular contact with the relevant federal and state agencies on fisheries-related matters. In addition, we are active participants in the following technical working groups, advisory boards, councils, and commissions:

- International Council for the Exploration of the Sea (member of Working Group on Offshore Wind Development and Fisheries)
- Massachusetts Fisheries Working Group on Offshore Wind Energy
- Massachusetts Habitat Working Group on Offshore Wind Energy
- Mid-Atlantic Fishery Management Council
- New England Fishery Management Council
- New York State Energy Research and Development Authority's (NYSERDA's) Environmental Technical Working Group
- NYSERDA's Fisheries Technical Working Group

- American Clean Power New York Bight Fisheries Working Group
- Regional Wildlife Science Collaborative for Offshore Wind
- Responsible Offshore Science Alliance

Finally, we understand that some fishermen do not feel adequately represented by fishing organizations or FRs, and therefore prefer to share information and concerns individually and through different channels of communication. We recognize that individuals' concerns are just as important as group concerns and will continue to reach out to individual fishermen and respect requests for anonymity.

VI. Offshore Communication Protocols

a. Overview

The offshore communications protocols outlined below will be adjusted and adapted over time to reflect best practices and lessons learned. Similar protocols will be standardized and implemented for construction activities at the appropriate time.

E-mail and text alerts are a critical communication tool to keep fishermen apprised of offshore activities, and we actively encourage all fishermen and fisheries stakeholders to sign up for these alerts on our website.

b. Fishing Industry Communication Protocol Before and During Offshore Survey Work

Our offshore survey work communication protocol, which incorporates recommendations from fishermen and state agency protocols, is as follows:

- coordinate with the US Coast Guard to issue Notices to Mariners.
- create OWMUs that include a description of the planned activity, pictures of the vessel(s) and equipment to be deployed, a chart showing the location of the activity, vessel contact information, OFL contact information (if applicable), and scout vessel picture(s) and contact information (if applicable). OWMUs support deconfliction of the marine space such that local mariners, including fishing vessels, can choose to avoid survey locations.
- publish OWMUs on our website and social media channels and send them via email and SMS text alert to those that have opted to receive notifications.
- work with FRs to share information through their email lists and other media channels.
- announce and publicize survey activities through state agencies, fishing organization websites, fish houses, and newsletters.
- send out regular email and/or text updates detailing progress, both for work completed and upcoming work areas, to various parties during offshore work.

c. Geological Survey Vessel Communication and Fishing Gear Protocols

Vineyard Offshore contracts with local fishermen to serve as OFLs onboard survey vessels to assist vessel captains with communication and document fishing gear in the area to help avoid

interactions, as noted above. OFLs with local fishing experience and knowledge of the area are typically contracted for the duration of a survey vessel's operations.

Before a survey trip begins, the FL and OFL attend pre-trip meetings with the survey vessel captain and crew to review the specifics of the fisheries active in the area. If an FL has known coordinates of fixed gear in the area, the information is shared with the survey vessel captain and OFL. The survey vessel captain and crew are instructed to communicate respectfully with fishermen and work around fishing gear to the greatest extent practicable.

The captain, crew chief, Vineyard Offshore's client representative, and OFL review and sign off on the communication and gear interaction protocols, which are outlined below, at the start of a survey campaign and whenever there is a new captain or party chief.

Communication Protocol for Survey Vessel Captains

Survey vessel captains and crew implement the following communication protocol during offshore surveys:

- Work around fishing gear to the greatest extent practicable.
- The OFL will have their own VHF unit to monitor radio communications.
- The OFL will communicate directly with fishing vessels in the area, if agreed upon with Captain.
- The OFL will be the main point of contact with the scout vessel.
- Alert OFL to all gear interactions at the time it occurs, waking the OFL if necessary.
- If a fishing vessel is not responding to radio calls, let the OFL try to communicate, waking them up if necessary.
- Plot fixed gear locations while OFL is off watch and relay information when OFL is back on watch.
- Report all communication with fishing vessels to the OFL, both positive and negative when OFL is off watch.
- The OFL will need access to the wheelhouse to set up equipment if practicable.
- OFL will need reliable internet connectivity.

Fixed Gear Interaction Protocols for Survey Vessel Crew

If an incident between a survey vessel and static fishing gear does occur, the following outlines the roles and procedures for such an event:

- Immediately alert OFL (wake up if off watch).
- Fishing gear interaction is logged in the daily report, electronic spreadsheet, and the Interaction Log, recording time, location, photos, details of events, etc.
- If the fishing gear is entangled around survey equipment and is brought on board, the OFL will determine if the fishing gear is actively engaged in fishing, or if it is abandoned fishing gear (i.e., ghost gear). If it is determined the fishing gear is actively engaged in fishing, and the line needs to be severed to release survey equipment, keep any severed gear on board.
- Photos should be taken and the time and vessel position when the released fishing gear is returned to the water should be recorded.

- If it is determined by the OFL that the fishing gear is not actively engaged in fishing, keep the abandoned fishing gear on board the vessel and record the position where it was retrieved.
- The gear should be brought back to shore, and if the owner can be identified, they will be notified, and the gear will be returned.
- Vessel location and time when an interaction begins and vessel location and time when the incident is over will be recorded.
- Buoy permit number and color is logged.
- Pictures are taken of the gear.
- FM is notified of all gear interactions as soon as possible.

d. Safety Management System/Emergency Communication Protocols

An important objective of this FCP is to enhance the safety of all ocean users in and around a project area during development, construction, operations, and decommissioning. Our Safety Management System will describe procedures for notifying the US Coast Guard of mariners in distress, of potential/actual search and rescue incidents, and any events or incidents that may impact maritime safety or security. Safety planning will be further elaborated on in future updates of the FCP.

VII. Fishing Gear Loss and Compensation

Vineyard Offshore has developed a fishing gear loss compensation process that allows fishermen to be quickly and fairly compensated so they can continue fishing. We use a standard gear loss/damage compensation form that is based on the form previously developed through coordination with FRs, FLs, and other developers for the Vineyard Wind 1 project. This form provides a standard approach to fishing gear loss compensation across several East Coast lease areas and projects. Fishermen can access the form on Vineyard Offshore's website at <https://www.vineyardoffshore.com/fisheries-522>.



Attachment 7.4-3: Draft Fisheries Guidance Comment Letters



August 22, 2022

Submitted via regulations.gov

Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166

RE: Comments on the Draft Guidance for Mitigating Impact to Commercial and Recreational Fisheries from Offshore Wind Energy Development (BOEM-2022-0033)

Vineyard Wind 1 LLC appreciates the opportunity to comment on the Draft Guidance for Mitigating Impact to Commercial and Recreational Fisheries from Offshore Wind Energy Development (the “Guidance”) published by the Bureau of Ocean Energy Management (BOEM) on June 23, 2022. We welcome BOEM’s efforts to develop a standard set of recommended practices to mitigate impacts to commercial and recreational fisheries. Vineyard Wind is a member of the American Clean Power Association’s Fisheries Working Group (ACP FWG), and we have contributed to and echo comments submitted by the ACP FWG. Our supplemental comments focus on the guidance provided in Part E., Financial Compensation, and reflect the experience we have gained developing the fisheries compensatory mitigation program for Vineyard Wind 1. Vineyard Wind 1 is currently under construction and will be the nation’s first utility-scale offshore wind project.

In accordance with our commitment to provide compensatory mitigation to fishermen, we have spent the better part of a year evaluating approaches to implementing a workable and transparent claims process over the 30-year life of the project. Our objective has been to develop a data-driven compensation approach that utilizes the best available data and consistent criteria, and we have done so in consultation with state agencies, the National Oceanic and Atmospheric Administration (NOAA), commercial fishermen, and others. At the outset, we would like to offer our full support for the General Approach and Management of Funds recommendations in the Guidance, and we believe that the offshore wind industry is aligned with fisheries stakeholders on these points. It is essential for fisheries compensation programs to be fair and equitable across fisheries and fishing communities. We also strongly favor the use of independent third parties to manage programs and disburse funds.

Our primary recommendation is that BOEM refrain from endorsing a particular model or methodology for a claims process. We have found that the claims-based/causation model detailed in the Guidance on page 10 is largely unworkable for both fishermen and offshore wind developers due to current data limitations, confidentiality concerns, and multiple confounding factors that make it challenging to tie individual fishing vessel revenue impacts to individual offshore wind projects.

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A primary disadvantage of a causation-based process is that it requires fishermen to demonstrate revenue impacts from an individual offshore wind project relative to a baseline (e.g., a fishing vessel earned \$X from a project area prior to the construction and operation of the project and once constructed that project reduced the fishing vessel's earnings by \$Y in a given year). Establishing baselines for individual fishing vessels, however, is difficult as most fishermen do not track or record vessel movements, catch data, landings, etc. at a fine enough scale to tie fishing activities or revenues to a specific project area or offshore export cable corridor area. While NOAA Fisheries tracks vessel information through a Permit History Identifier, confidentiality concerns limit access to these data. Fishermen can request access to their data, but it would be a significant lift for fishermen or any other party to process these data to establish a baseline for individual fishing vessels thus increasing the cost and administrative burden associated with these programs. Moreover, NOAA Fisheries data may need to be supplemented with state data (e.g., nearshore fisheries, lobster, Jonah crab) and other data sources or analyses to provide a complete picture.

A claims-based process would also require fishermen to demonstrate economic impacts to qualify for compensation. However, multiple confounding factors and recordkeeping burdens will frustrate efforts to establish causation between an offshore wind project and changes to a fishing vessel's earnings. Confounding factors include other offshore wind projects, climate change, seasonal variability, changes in fishing movements, and fluctuating seafood and commodity prices. Moreover, in assessing a claim for compensation, it is also difficult to determine the extent to which fishermen could recoup lost revenues from other fishing areas.

For these reasons, a claims-based/causation model is unlikely to be a workable model for most project-specific compensation programs in the near- to medium-term. It may be more workable at a regional level. In our view, rather than choosing one model as a minimum standard, we recommend that BOEM focus on outlining a set of principles or objectives that offshore wind developers should adhere to when developing compensatory mitigation programs.

As an example, the key objectives that have guided our efforts for the Vineyard Wind 1 fisheries compensatory mitigation program are as follows:

- create a fair, simple, and transparent program;
- limit the administrative burden for all parties;
- reduce the potential for gaming and fraud; and
- resolve uncertainties and data limitations in the fishermen's favor.

A principle or objective-based approach to compensation programs in the Guidance would set a more effective minimum standard for compensatory mitigation and allow offshore wind developers and other parties the flexibility they need to design and implement programs on a project-specific, regional, or another basis to address the potential economic impacts of offshore wind on fishermen.

Thank you for your consideration.

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August 22, 2022

Brian Hooker
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Re: Comments on the Draft Guidance for Mitigating Impact to Commercial and Recreational Fisheries from Offshore Wind Energy Development

Submitted via regulations.gov, Docket ID BOEM-2022-0033

The American Clean Power Association (“ACP”) welcomes the opportunity to comment in response to the Bureau of Ocean Energy Management’s (“BOEM”) Draft Fisheries Mitigation Guidance Reducing or Avoiding Impacts of Offshore Wind Energy on Fisheries (“Guidance”). ACP is a national renewable energy trade association that unites the power of offshore wind, onshore wind, solar, storage, and transmission companies^[1]. ACP has established a Fisheries Working Group (“FWG”), comprised of developers and leaseholders, to coordinate consensus and share best practices on the offshore wind industry’s interaction with the environment, fishermen, fishing communities, and the fishing industry.

The ACP FWG continues to explore ways for the fishing and offshore wind industries to productively coexist and appreciates BOEM’s efforts to create guidance that recognizes issues of common interest to both groups. ACP and its members in the offshore wind industry support the spirit of and process by which this draft mitigation was developed. It is clear that, in addition to the public meetings and comment periods for this process, BOEM has incorporated experiences and resources from other efforts which included extensive input by stakeholders, including the fishing and offshore wind industries. Similarly, the ACP FWG supports the recent efforts of the Special Initiative for Offshore Wind (SIOW) to coordinate with a group of nine Atlantic states (and growing) to explore a regional compensatory mitigation approach that provides consistency and transparency for the fishing industry, offshore wind developers, federal agencies, and the states themselves.

The ACP FWG appreciates BOEM's efforts to document common mitigation measures across East coast projects that can serve as industry standards for offshore wind development in other regions of the Outer Continental Shelf. The ACP FWG also appreciates BOEM's effort to incorporate evidence-based solutions to mitigating the effects of offshore wind on fisheries and fishing. To both points, while BOEM's efforts do provide transparency and predictability for developers and ocean users, ACP FWG recommends that BOEM consider which mitigation measures and standard continued to be applied on a project-by-project basis. Specific to compensation, the ACP FWG appreciates BOEM considering levels of compensation appropriate to phases of offshore wind development and BOEM's assessment of its legal authority to administer funds.

As BOEM finalizes its guidance, we urge the agency to bear in mind other key principles:

- Every offshore wind project is different, with location- and developer-specific design needs and commercial considerations, as well as a unique set of potentially affected fisheries. Unless dictated by bid conditions or lease stipulations, final decisions on mitigation measures should be made on a project-by-project basis in close consultation with agencies and developers.
- The final guidance must acknowledge the importance of balancing fisheries concerns against project economics and the needs of other ocean users. The ACP FWG urges BOEM to avoid using absolute words like "maximize" or "minimize" in its final guidance, and instead recommend "using commercially and technically feasible measures" to achieve its objectives.

The ACP FWG supports BOEM's recommendation that lessees engage with the commercial and recreational fishing industries, tribal communities, and others most impacted by their offshore wind development activities, prior to the onset of any project work. ACP and its members have echoed these sentiments and recommended this engagement to improve communication between ocean users and developers, to promote transparency, to inform the public, and to increase industry accountability. Developers routinely utilize such early engagement to help inform the public and receive valuable input from the WEA designation process to lease sales to early lease activities to the preparation of Construction and Operation Plans ("COPs") that must include proposed project-specific mitigations and resource monitoring plans. This kind of effective, transparent communication is vital to ensure the success of these projects, and more broadly the offshore wind industry.

The ACP FWG supports BOEM's own continued, direct engagement of the commercial and recreational fishing industries and communities at the earliest stages of the process. BOEM's engagement with these ocean users, as well partner federal and state agencies, to collect information and data to inform the initial designation of WEAs and eventually lease areas assists developers in understanding and mitigating impacts to fishing. We also look forward to continued

engagement with BOEM as the agency considers the input of the Atlantic states, collaborating federal agencies, and the industry as the agency moves toward finalizing this Guidance.

ACP and its members also support BOEM's use of the Council of Environmental Quality's (CEQ) definition of mitigation.¹ This framework is an appropriate and well-understood way to manage offshore wind project effects, particularly with respect to fisheries. The Draft BOEM Fisheries Mitigation Guidance provides robust recommendations on avoidance (1), minimization (2), and Compensation (5), but does not adequately address Rectification (3) and Reducing (4). ACP recommends that BOEM include further guidance to offshore wind developers focused on addressing Bullets 3 and 4 as it believes that this process will be most successful if all five aspects of the CEQ definition of "mitigation" are addressed given appropriate weight. The remainder of our comments are structured to comment on the specific sections of the Guidance.

Environmental Monitoring

The ACP FWG agrees that BOEM and other entities, including the Responsible Offshore Science Alliance (ROSA), have developed guidance documents that provide overarching principles to inform fisheries monitoring designs for the phases of offshore wind development. The proposed Guidance could serve to supplement these existing resources with BOEM's perspective on processes that could better inform developers of information needed in the construction phase. Specifically, it would be helpful if this Guidance could include information on timelines with respect to required studies as they relate to BOEM's definitions of phases of construction.

In addition, developers are required to conduct multiple studies that result in fish mortality.² The ACP FWG recommends BOEM consider adding to this guidance document language that indicates the acceptability of using regional studies for neighboring lease owners operating in similar habitat. This would significantly reduce fish mortality and environmental impact related to the studies themselves. Further, ACP FWG suggests that BOEM consider additional language regarding the use of innovative technologies (e.g., non-extractive techniques) to perform required studies.

Project Siting, Design, Navigation and Access

The ACP FWG proposes BOEM consider the following principles as it finalizes this guidance:

- Leases on the Atlantic OCS are not the same, and leaseholders may have different solutions to project siting, design, navigation, and access based on ocean users in and around specific lease areas.
- Conditions within the lease itself can vary, from ocean conditions to habitats to seafloor geology. Standard approaches may not be equally applicable across all leases. Any guidance by BOEM and consulting agencies should allow flexibility to account for

¹ 40 CFR 1508.1(s).

² The industry foresees potential challenges in receiving necessary federal permits to conduct these types of surveys, which is a barrier to hiring local fishermen to conduct the studies and to completing the required studies.

variability across leases and projects within leases and not unduly restrict adaptive approaches that developers will need to take in mitigating site- or activity-specific actions.

- Unless specifically mandated by a federal lease stipulation or state procurement requirement, BOEM should provide the flexibility for the lessee to work directly with the affected fishing communities to establish reasonable and practicable project siting and design solutions. Standard layouts may not be applicable across all lease areas within an OCS region.
- In several instances, BOEM uses the term maximize or minimize when referring to one industry over another. The ACP FWG recommends this guidance should include more balanced language when discussing coexistence of ocean uses.

We now turn to BOEM's specific project recommendations.

Recommended static cable design elements, pg. 5

All static cables should be buried to a minimum depth of 6 feet below the seabed where technically feasible. Technical feasibility constraints include seabed conditions that preclude burial, such as telecommunication cable crossings.

The ACP FWG recommends that cable burial depths should be determined by the risk profiles of the seafloor and sediment conditions in the project footprint. The spatial extent of profiles can vary within a project footprint, lease area, and between leases across the extent of the Atlantic OCS. Profiles may also shift over time depending on oceanic conditions and other factors or uses in a particular area. For instance, anchoring risk from commercial/merchant shipping will set the required burial depth in/around entrances to ports, which may need to be different from a standard proposed depth. Further, there may be other ocean uses or users that require unique burial depths or techniques to avoid or mitigate interactions and this flexibility should be afforded to the developers to directly manage these instances with the affected stakeholders.

For the designed cable route, a burial assessment study is required. The burial assessment will need to detail the following: risks along the cable route suitable (lay and) burial method(s) and resulting trench profiles based upon the sediment conditions, and additional protection that may be required.³ Rather than encouraging a standard depth, BOEM should encourage lessees to base cable burial depths on the outcomes provide in project-specific cable burial risk assessments, which consider all factors, conditions and other uses of the ocean that could impact the burial depths of offshore wind transmission cables. Specific to fishing activity, BOEM should allow developers flexibility to design cable protections respective of the type of fishing activity that may happen in and around their projects based on consultations with agencies and fishing community.

³ Cable Burial Risk Assessment Methodology Guidance for the Preparation of Cable Burial Depth of Lowering Specification CTC835, February 2015, available at <https://www.carbontrust.com/resources/cable-burial-risk-assessment-cbra-guidance-and-application-guid>

Lessees should avoid installation techniques that raise the profile of the seabed, such as the ejection of large, previously buried rocks or boulders onto the surface. The ejection of this material may damage fishing gear.

Cable route survey activities help to identify areas of potential seabed obstructions that may interfere with the installations of cables. It is the intent of developers to route cables around obstructions, sensitive habitats, archaeological areas of significance etc., to the maximum possible extent. In the event that this is not possible, the Route Clearance/Pre-Lay Grapple Run (an installation technique) (RC/PLGR) may dislodge debris in the seabed as this is the intent of this activity – to initially prepare the seabed for the burial of cables. It is possible that there could be disturbances associated with this activity, specifically the creation of a ‘furrow’ where the seabed is raised on either side. The ACP FWG recommend that BOEM consider which activities may result in disturbances that are unavoidable and not considered to be obstructions and exclude such in the final Guidance.

If needed, cable protection measures should reflect the pre-existing conditions at the site. This mitigation measure chiefly ensures that seafloor cable protection does not introduce new obstructions for mobile fishing gear. Thus, the cable protection measures should be trawl-friendly with tapered or sloped edges. If cable protection is necessary in “non-trawlable” habitat, such as rocky habitat, then the lessee should consider using materials that mirror the benthic environment.

The ACP FWG recommends that BOEM consider instances where there would be no additional need for protection (e.g., if an area is not trawl-friendly and/or no mobile fishing gear is used in the area).

Recommended Dynamic Cable Design Elements, pg. 5

Dynamic cables should be suspended at a depth that minimizes, to the extent practicable, the potential for interactions with fishing operations.

Where feasible, cables should share corridors and minimize the total cable footprint.

The ACP FWG encourages BOEM to recognize that the total cable footprint in a project – whether developed independently or in collaboration with another leaseholder(s) – will be the same where the cables are installed in a shared corridor or independent corridors. Project design and the dynamic cable corridor depth should consider the regional recreational and commercial fisheries activities (e.g., epipelagic and mesopelagic) to best mitigate impacts. The ACP FWG recommends that BOEM not mandate how a developer(s) install cables or how cable corridors should be designed. BOEM should consider the risks to mandating common corridors, such as the susceptibility of a single catastrophic event (i.e., a merchant vessel transitioning with an anchor deployed), impacting all infrastructure in the corridor itself.

Recommended Dynamic Cable Design Elements, pg. 5 - 6

The facility design should maximize access to fisheries, including by consideration of:

As noted above, project design must balance various technical, commercial, and ocean user considerations. The proposed language elevates one ocean user at the expense of other critical factors, including project viability. The ACP FWG recommends BOEM adopt the following wording:

The facility design should enable continued access to fisheries, including by consideration of:

The intent and purpose of several recommendations in this section is unclear. In some instances, it is difficult to determine which components or installation techniques BOEM is recommending (e.g., common cable corridors, regional transmission backbones, etc.). In other instances, BOEM's early siting work has already identified space-use conflicts and it is not clear what additional conflicts might remain. For some items, a clear definition of the objective or agency expectation of the developers would be helpful. The ACP FWG recommends BOEM further elaborate on these items:

Consolidation of infrastructure, where practicable, to reduce space-use conflicts.

It would be helpful if BOEM provided examples of this item. Developers are primarily focused on building necessary and efficient infrastructure. We recommend either eliminating this item or rephrasing it to recommend that developers consider the potential to consolidate infrastructure when creating its project layout.

Consideration of larger turbine sizes to reduce total project footprint and meet energy production commitments.

We are concerned that this recommendation turns the project design and engineering process on its head. While developers analyze and account for the likely benefits and costs of its wind turbine options within the permitting process, selection of wind turbine generators is a complex decision that primarily involves commercial and technical considerations. The phrasing of this item implies that reduction of the project footprint should be a driver of the developer's decision. We are also concerned that this provision could conflict with BOEM's mandate to consider prevention of waste of the wind resource under 43 U.S.C. 1337(p)(4)(C) by elevating project footprint over maximization of renewable energy generation on a lease. We recommend either eliminating this item or rephrasing to recommend that developers consider the effects of project footprint in selecting its turbines.

Coordination of turbine and substation array layouts between and among neighboring lease areas to allow safe fishing operations and transit through multiple projects. In instances where layout design cannot accommodate two common lines of orientation across adjacent leases, the lessee should consider incorporating a 1 nautical mile setback,

within which no surface structures may be constructed. See Navigation and Vessel Inspection Circular 10-194 for more details.

The ACP FWG agrees that the 1-nautical mile spacing for the southern New England lease areas for the purposes of a unified layout was appropriate for that area. This layout was situational and collaboratively designed and agreed to by those leaseholders, with substantial ocean user input and supporting technical analysis, to accommodate mariner uses in the area. However, this specific action, driven in part as response to ocean user concerns and agencies' recommendations, should not signal support for that standard in other lease areas. The 1-nautical mile separation between turbines may not be required for safe fishing operations and/or navigations for independent lease areas or adjoining projects and/or lease areas across an OCS region. If there are adjacent lease areas with different layouts, a suitably sized buffer based on a NSRA could be considered. Other markings should also be considered to inform mariners that they are leaving one lease (orientation) and entering another.

Turbine locations should be sited to avoid known sensitive benthic features, such as natural and artificial reefs.

The ACP FWG recommends that BOEM recognize developers are using the results of site assessment and characterization surveys (geological and geophysical surveys) to achieve this mitigation. We recommend that BOEM take the opportunity to further clarify what defines 'sensitive' benthic habitats and 'artificial reefs. For artificial reefs, BOEM should clarify if this applies to designated reefs for fish or fishing or whether this terminology refers to something broader. BOEM should also recognize that there are designated, i.e., state-based reefing locations - and undesignated artificial reef areas (i.e., mariner-created bottom structure), and which should be avoided.

Facility planning should consider use of nature inclusive designs, where applicable, to maximize, maintain and/or provide additional available habitat for fish.

The ACP FWG recommends that BOEM further elaborate as to which fish species are meant to benefit from nature inclusive designs. The differences in species and their habitat utilizations varies significantly across seafloor types and even in the water column. Maximizing habitat for one species could inadvertently reduce habitat for another species. The ACP FWG suggests that BOEM consider revising this mitigation to allow for site-specific species considerations and whether habitat development is necessary or should be created based on species composition in a project area.

Navigation and Safety

Regarding navigation and safety, ACP agrees with BOEM on many of the recommendations and is currently considering or actively implementing nearly all of them as appropriate per project and other site-specific circumstances. The ACP FWG recommends BOEM consider the following:

Considering installation techniques and time windows that minimize disruption to fishing activities (e.g., simultaneous lay and burial, or conducting activity during the appropriate time of year).

ACP recognizes mitigation as a core principle to successful offshore wind development and members are incentivized to minimize disruptions to fishing activities. However, ACP opposes citing time windows with regard to fishing activities as a determining factor in when installation construction activities can occur.

As worded, the recommendation is aimed at reducing business interruption rather than enhancing safety. If that is indeed the case, then it seems more appropriate to include this as a mitigation recommendation in the Project Siting, Design, Navigation, and Access category.

Employing liaisons from the commercial fishing industry to provide safety and communication services during construction.

Developers are currently contracting commercial and recreational fishermen as fisheries liaisons upon survey and project vessels, and contracting their vessels as scout and safety vessels during survey and construction stages of projects. Representatives from the fishing industry are also contracted to provide further project updates, communications and aid in safety efforts.

Monitoring cable burial in real-time and report all potential hazard events to the USCG as soon as possible.

Developers conduct regular cable surveys, which are included in a project's Construction and Operation Plan (COP). Regular cable surveys are frequently conducted during early stages of the project (i.e., during the construction period), and become needed less frequently over time as the project is established.

There are several foreseeable situations that could be classified as hazardous which may occur over the lifecycle of a project. To set reasonable boundaries on reporting, ACP encourages BOEM to clarify 'potential hazard events' as related to cable burial.

Using digital information technology platforms (e.g., smartphone applications) to bring together survey and construction schedules and locations in addition to standard local notices to mariners via the USCG.

There is not one maritime software platform (app) that has been agreed upon by the entire industry, but efforts can be made to provide standard information across whichever mediums are used. For example, currently multiple developers in the Rhode Island and Massachusetts wind energy areas are supporting a software platform that will provide project locations, survey and construction vessels, and other project news on an app that will house multiple projects and developers. This

same software may or may not be used by other developers, and BOEM should not require the use of a specific software, but instead focus on what information is shared and the frequency.

Providing training opportunities for the commercial fishing industry to simulate safe navigation through a wind facility in various weather conditions and at various speeds.

Currently, multiple developers are providing simulated experiences to commercial and recreational fishing interests. These efforts will continue as the offshore wind industry continues to develop because they have proven to be beneficial to demonstration attendees. These should not be continued if the intended audience and communities do not find them beneficial, likely by the time offshore wind projects are installed and commonly found in U.S. waters. In addition to these on-going activities, ACP encourages BOEM to work with the U.S. Coast Guard to develop a standard certification process verifying a mariner's completion of a navigation safety course.

In response to the guidance that lighting, marking, and AIS utilization should be as standardized as possible:

Developers of the Rhode Island and Massachusetts lease areas have established and have been working via a Joint Developer Marine Affairs Working group to discuss and coordinate efforts which include lighting and marking, uniform labeling, aids to navigation, NAV safety, etc. Prior to adopting these standards across all projects, a review amongst all maritime user groups should take place to reach standards for all WEAs.

Compensatory Mitigation

Climate change driven by carbon emissions is negatively impacting the health of commercial and recreational fisheries around the world. While offshore wind energy developed at scale can help reduce future carbon emissions, and thus lessen future stresses from climate change, we acknowledge that the development of offshore wind will result in small to moderate effects on other ocean users. Where efforts to avoid, minimize, and mitigate impacts to commercial and recreational fishing are not wholly successful, we support efforts to create a coast-wide fisheries compensation process for offshore wind development that provides predictability, certainty, and resolution of fishermen's' compensation claims. While we agree that BOEM does not have authority to establish or manage a federal compensatory mitigation program, we believe BOEM's final guidance can go much further in endorsing and incentivizing the creation of an independently administered third party fund that can effectively manage a compensation fund.

The BOEM Guidance goes a long way towards trying to provide greater predictability through a transparent, data driven process, though we provide several recommendations below based on member experience. While the offshore wind and commercial fishing industries agree on many

foundational concepts, like the use of third-party fund managers, there remains a difference of opinion regarding how to estimate revenue exposure during wind farm operations. We provide suggestions below on how to add greater rigor to those estimates, but the inherent uncertainty of how to calculate losses and how individual commercial fishers will respond and adjust fishing patterns in the future highlights why such mitigation funds should be credited against discounts on auction bids and current operations fee payments.

We also encourage BOEM to support the work the Special Initiative on Offshore Wind (SIOW) has been doing to bring Northeast and Mid-Atlantic states together with the commercial fishing and offshore wind industries to create a regional third-party fisheries compensation fund. As noted above, the ACP FWG has been coordinating with SIOW and believes its efforts are the right process to create a compensation mechanism that works for everyone.

Gear Loss

The ACP FWG believes that gear loss claims after the start of construction should be managed through its proposed regional, third party-managed compensatory mitigation program. ACP supports the recommendation in the draft guidance to follow minimum standards set forth in NOAA's Fisheries Contingency Fund ("FCF"). Though developers cannot model it entirely, as it is a legislatively created entity, the process has proved a workable solution to gear claims.

ACP requests that BOEM remove the following guidance language: "[a] lessee may elect to reimburse damage to fishing gear from marked and charted obstructions in order to limit interactions with lessee property." Reimbursements for interactions with known obstructions encourages unnecessary risks and goes against the first point raised in the "Safety Measures." It does not make sense for developers to reimburse gear loss related to interactions with known obstructions as doing so could invite unwanted risk. This language is also inconsistent with the administration of the FCF, which limits claimant recovery if the claimant is also at fault or was negligent (50 CFR 296.4(c)).

While we are not opposed in principle to recoverability of reasonable fees, a cap for such fees should be defined. We think fees under a gear loss program should not exceed 25%, as this will ensure most funds go to those with the claim. In addition, we suggest BOEM add language to the recommendation that allows for reasonable fees paid to an attorney, certified public accountant, or other consultant contingent to an award. As the draft guidance is currently written, it can be construed that developers should reimburse fees regardless of a claim's merits. The FCF does not consider damages and fees separately, as the FCF regulations state, "An award may also include compensation for reasonable fees paid by the claimant to an attorney, CPA, or other consultant for the preparation or prosecution of a claim." 50 CFR 296.8(d). We believe reimbursement of fees contingent to an award reflects the intent of the FCF and should be mirrored in the final guidance.

For gear loss claims made prior to the start of construction—e.g., during survey activities—ACP believes that it would be easier to maintain the status quo and have developers manage such claims individually. Most developers already have systems in place for these claims and can therefore continue to be responsive to fishermen’s gear loss claims in a timely way.

Compensation for Lost Income

We generally agree that for the purposes of determining voluntary compensation during construction, such compensation, when appropriate, should be derived from the proportion of the project area that is rendered unavailable to fishing during active construction. Based on time of year restrictions for certain activities as well as construction logistics, it is unlikely that an exclusion zone would encompass the entire lease area for the full construction period, but rather would be located in proximity to the vessels conducting work. We agree with BOEM’s draft guidance to the extent it is based on NOAA data. BOEM has also (presumably with input from NMFS) provided thoughtful methodologies to calculate exposure specific to distinct fisheries that may have data gaps.

For determining voluntary compensation reserve funds for commercial fishing during operations, BOEM’s proposed percentage exposure estimates—which BOEM rightfully acknowledges are overestimates—should be grounded in more rigorous methodology. For example, BOEM provides no basis for why 100 percent revenue exposure is a reasonable basis for the first year after construction is completed. Similarly, more detail is needed to justify the recommended values for year 2 and beyond.

Instead of the proposed percentages in operations, ACP urges BOEM to look at economic impact analyses that can be used to inform the process and serve as examples, such as those conducted by the Woods Hole Oceanographic Institution on impacts to commercial landings during construction, operations, and decommissioning. While this analysis was prepared for one project, the methodology is useful for other projects and can serve as a more appropriate starting point. Based on that export report, operational impacts were estimated to be much lower than BOEM proposed. The analysis also provides some lease area specific factors, such as potential stock effects on bivalves may be smaller spatially than finfish but of slightly longer duration.

Categories of exposure	Percentage estimate
Stock effects	Lobster & crab reduced 10% for 1 year* Bivalves/mollusks reduced 10% for 4 years* 25% of finfish stocks leave area* (*annualized per year of construction)
Constrained access during operations	Landings reduced by 0-5% from baseline Calculated as present value of 5% of baseline using a 5% discount rate, which is the average of the rate usually applied in natural

	resource valuation (3%) and the rate usually applied by the US government for public investment and regulatory analyses (7%).
Inflation	<2% (based on historical average)

Source: Rhode Island Coastal Resource Management Council South Fork Wind Consistency Determination (2021, July 1) http://www.crmc.ri.gov/windenergy/dwsouthfork/SFWF_FedConsistencyDecision_20210701.pdf, pg 204

ACP does not recommend the use of commercial growth multipliers beyond inflation. The chance of overestimation under BOEM's approach is heightened because BOEM suggests using all available data and extrapolating into the future, even though landings vary from year to year and have generally trended downward since 2008 across almost all lease areas. ACP does not think that growth factors beyond inflation are justified by the data because of the general (though not universal) downward trend in landings, which may be exacerbated by climate change.

The above critiques of the proposed percentages should not detract from the fact that ACP agrees that a universal formula could serve as a useful alternative to performing a detailed analysis for determining compensation amounts on a project-by-project basis. It would also promote consistency across the region. But because the formula would serve as the expectation for projections throughout the Northeast region, it becomes all the more important for BOEM to provide justification for these revenue exposure estimates. Again, we encourage BOEM to review and consider the WHOI analysis to refine the impact percentages. While a standardized, nationwide approach is preferred, we recognize that supplemental analyses may be warranted for other regions where BOEM is advancing offshore wind leasing, such as the Gulf of Mexico or West Coast, due to differing fishing methods, fisheries data, and technology type.

Strengthening Compensation Fund Through Use of Credits Against Auction Bids and/or Operating Fees

We concur with BOEM's assessment that it may not require lessees to make payments into a third-party compensation fund. However, we encourage BOEM to endorse what ACP believes to be the ideal solution to ensure the fund always has sufficient resources: funding the fund through lessee payments credited against auction bids and/or annual operating fee payments.

BOEM is on The Right Track With California Proposed Sale Notice

ACP believes BOEM is on the right track in seeking solutions to properly support and fund fisheries compensation. We were heartened by BOEM's proposal in the Proposed Sale Notice for California⁴ that it has regulatory authority under OCSLA to implement bidding credits for contributions to mitigation funds benefiting ocean users such as the fishing industry. Whether it takes the form of what BOEM has termed a community benefits agreement, or, preferably, a transparent third-party regional mitigation fund, the proposed bidding credit is a worthwhile policy. If BOEM paired its final fishing mitigation guidance with a commitment to use its existing

⁴ Proposed Sale: Pacific Wind Lease Sale 1 for Commercial Leasing for Wind Power on the Outer Continental Shelf in California, available at <https://www.regulations.gov/document/BOEM-2022-0017-0001>.

regulatory authority to incentivize compensatory fishing investments using bidding and operating fee credits, this would allow commercial and recreational fishermen to benefit from the promise of ocean wind to an extent that might not be possible if funding levels are solely based on projected impacts. Finally, funding through developer payments in exchange for BOEM credits would also make it easier for the third-party fund to beneficially repurpose unused funds, thereby avoiding the administrative and legal challenges involved in refunding developers if economic loss and gear loss claims fall short of BOEM’s baseline estimates of revenue exposure.

Bidding Credits and Operating Fee Credits Work Well Together

As discussed further in ACP’s January 7, 2022 letter and noted above, we believe BOEM has the authority today to implement mechanisms to incentives the funding of a compensatory mitigation program through both lease auction bidding credits and operating fee credits. The two funding mechanisms would work well in tandem to ensure that sufficient money is available to satisfy valid claims and provide forward-looking grants, when that money is most likely to be needed.

We assume that to the extent offshore wind development has adverse effects on fishing, such effects will not commence until the start of offshore construction. We also assume that the effects of construction of the first two commercial-scale offshore wind projects—Vineyard Wind 1 and South Fork Wind Farm—will be addressed through the funds created for those projects and not through ACP’s proposed regional fund. Therefore, it is important that the regional compensatory mitigation program be in place and adequately funded by the time the next offshore wind projects commences offshore construction; this is likely to be 2024 based on current FAST-41 permitting dashboard timelines.

The next East Coast lease sale, in the Central Atlantic, is anticipated between Q2 and Q4 of 2023. A fisheries compensation bidding credit in this lease sale that comes from a portion of the initial lease auction proceeds would provide “seed money” into the regional compensatory mitigation program. Depending on the percentage bidding credit that BOEM decides to use, we believe lessee payments in exchange for such a credit could be more than sufficient to satisfy claims for the effects of early offshore construction.

We estimate that lessees would begin paying operating fees for post-Vineyard/South Fork projects starting in 2025, once the first of those projects is completed and begins commercial operations. At that point, lessees could begin making payments in return for credits against their regulatorily mandated 2% annual operating fees (which could be authorized through mutually agreed-to lease amendments at the time of COP approval) into the regional compensatory mitigation program. As more projects go online, the amount of operating fees owed by lessees to BOEM would increase—and so would operating fee credit payments into the compensation program. By combining both types of credits, the compensation program would be funded early enough to matter for potential

early fisheries effects of offshore wind construction and would also become sustainably funded in the long term.

BOEM Should Work to Develop The Funding Mechanism At The Same Time The Third-Party Fund Is Being Developed

While a funding mechanism would need to be established separately from this guidance, they are not separate exercises. We urge BOEM to work with ACP and other stakeholders to develop the funding mechanism at the same time it coordinates with states, fisheries, and the offshore wind industry to ensure that the fund is appropriately structured and administered. First, a fund requires appropriate reserves to serve the need, funds that can be created through the use of a bidding credit in the Central Atlantic lease sale. Working out the details of how the funding mechanism will operate will take time and thoughtful policy. That process should start now so that the fund can be established with a funding plan already in place. Second, establishing the funding mechanism early will create fairness and predictability during the process of determining how the funds will be managed and distributed. For example, the exposure estimates during operations will be the most contentious part of both BOEM's guidance—and by extension the establishment of a compensation mechanism.

Third, the early establishment of a funding mechanism will have the added benefit of providing comfort to the fishing industry that money will always be available to satisfy valid claims. The success of the fisheries compensatory mitigation program will hinge on buy-in from all parties, and the most important aspect of that buy-in is trust in the efficacy of the process.

Finally, we believe that early attention to the funding mechanism will provide everyone with clear insight into whether the money into the fund will meet the anticipated purposes of the fund—and will allow for policy choices that grant flexibility in the event that predictions for claims and grants do not match actual usage. To that end, and as discussed further in the next section, ACP believes that to the extent the fund ends up with excess money, it should be able to be used beneficially for fishing industries through a grant program.

The Proposed Funding Mechanism Would Facilitate Grants For Adaptive Gear and Coastal Communities

A further reason to have the fisheries compensatory mitigation program funded through payments credited from winning auction bids and operating fees is that it would likely result in surplus funds that could be used in forward-looking ways that benefit fishing industries. The ACP FWG's January 7, 2022 comments recommended that a third-party compensatory mitigation program could include:

- A fund to enhance fishermen's navigational safety through grants for radar and gear upgrades; and

- A coastal community fund that could provide grants to support those not eligible for direct compensation, such as dockside seafood processors.

We believe that such grants could enhance the ability of fishermen to continue to fish within offshore wind projects, thereby creating a virtuous cycle that would decrease the need for compensation for economic loss and freeing up more funds for further grants. The fund could even provide pilot grants for the adoption of innovative gear that would, in turn, mitigate impacts on biological resources such as protected species.

Conclusion

We thank BOEM for their continued effort on this important topic. As the ACP FWG continues to advance efforts that support the coexistence of offshore wind with fisheries, it is helpful to capture best practices already underway and outline future possibilities in an accessible, common platform that is usable and helpful to both the fishing and offshore wind industries. This effort provides this opportunity. The ACP FWG looks forward to continued engagements with BOEM and fishing industries on this important effort.

Sincerely,

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Attachment 7.5-1: Environmental Mitigation Plan

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ATTACHMENT 7.5-1

ENVIRONMENTAL MITIGATION PLAN

I. OVERVIEW

Vineyard Wind 2 (the “Project”) is comprised of a 1,200 megawatt (MW) Offshore Wind Energy Generation facility (OWF) that will be installed in Lease Area OCS-A 0522 (the “Lease Area”).

[REDACTED]

Vineyard Offshore is committed to developing, constructing, operating, and decommissioning well-sited offshore wind projects with minimal environmental impacts. For Vineyard Wind 1, the nation’s first commercial-scale offshore wind project, we pioneered a successful approach to prioritizing avoidance of potential impacts wherever possible, followed by minimizing and then mitigating any unavoidable impacts.

For Vineyard Wind 2, we will continue to invest considerable time and resources to identify and employ practicable and appropriate measures that afford the highest levels of environmental protection while maintaining Project viability. This data-driven process will incorporate the experience gained from Vineyard Wind 1 as well as other offshore wind projects. We will also continue to work in close collaboration with agencies, Tribal Nations, and stakeholders to understand their concerns regarding offshore wind development and to incorporate their feedback into project design and siting measures, methodologies for resource assessments, survey strategies, and environmental protection measures.

In July 2022, Vineyard Offshore submitted the Vineyard Northeast Construction and Operations Plan (COP) to the Bureau of Ocean Energy Management (BOEM). For the purposes of federal permitting, “Vineyard Northeast” is Vineyard Offshore’s proposal to develop, construct, and operate OWFs in Lease Area OCS-A 0522 along with associated offshore and onshore transmission systems. The permitting envelope for the COP includes 160 total WTG and ESP positions within the Lease Area. Up to three of those positions will be occupied by ESPs and the remaining positions will be occupied by WTGs. [REDACTED]

[REDACTED] Vineyard Wind 2 will be developed as part of Vineyard Northeast [REDACTED]

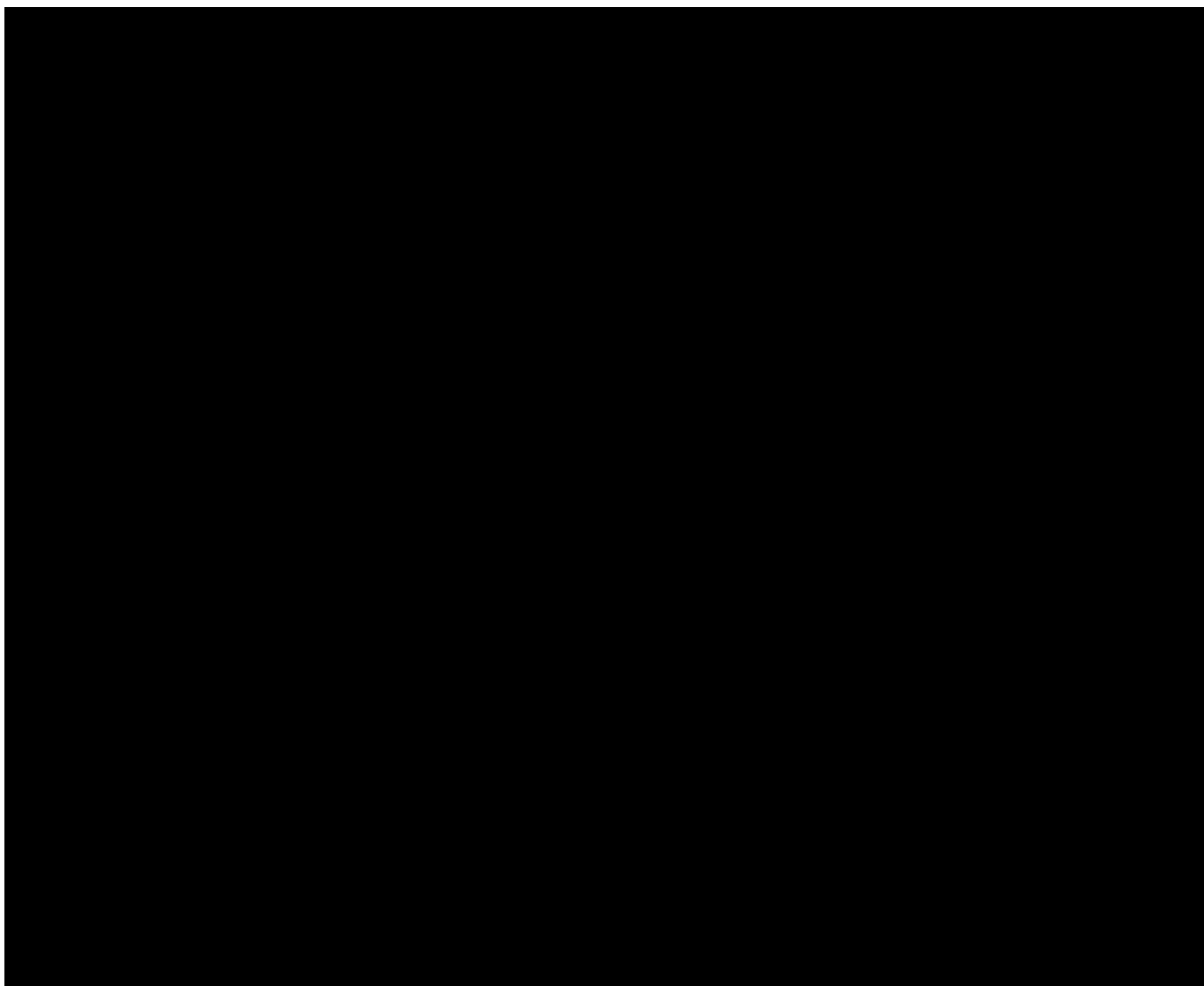
As part of the Vineyard Northeast COP, Vineyard Offshore has characterized the species and habitats within the areas potentially impacted by the Project. Our assessment draws upon a considerable body of existing data for the Massachusetts Wind Energy Area (MA WEA) as well as the site-specific surveys that we have performed, including offshore avian, fisheries, and benthic habitat surveys. We have also analyzed the potential effects of Vineyard Northeast to physical, atmospheric, biological, economic, cultural, and historic resources and identified measures to avoid, minimize, and mitigate potential impacts in consultation with regulators and

stakeholders. This comprehensive environmental assessment, which is summarized in the following sections, is provided in Volume II of the Vineyard Northeast COP. Excerpts of COP Volume II are provided in Attachment 7.1-2 to the proposal.

II. COMMITMENTS TO ROBUST WILDLIFE MONITORING

Extent to which the project mitigates impacts on the marine environment by providing financial and technical assistance to support robust monitoring of wildlife and habitat through contributions to regional and tribal research efforts.

- Bidder should describe plans to engage with the Massachusetts Habitat and Fisheries Working Groups on Offshore Wind Energy to determine the best use of allocated funds.



1 [REDACTED]

2 [REDACTED]

[REDACTED]

[REDACTED]

Project-specific monitoring is further described in Section III and additional financial and technical commitments to regional regulatory, research, and science organizations are described in Section VIII. Additional information about our plans to engage with the MA HWG and MA FWG is provided in Sections VIII and IX.

III. PRELIMINARY CHARACTERIZATION OF ENVIRONMENTAL IMPACTS

Preliminary characterization of the potential environmental impacts (onshore and offshore) from the wind farm array, transmission cabling, substations and other infrastructure from pre-construction through the duration of the project, including but not limited to:

- Impacts on species protected under the Endangered Species Act, including but not limited to the North Atlantic Right Whale and Roseate Tern.
- Description of how sensitive habitat areas (e.g. areas with long-lived and easily damaged epifauna, spawning areas, and areas where demersal eggs are deposited) have been or will be identified.
- Description of environmental baseline and monitoring data that will be collected beginning from pre-construction through the duration of the project and plans for the use of that data in project development.

[REDACTED]

- Expected environmental impacts to onshore coastal beaches and ecosystems from project construction and operation.

This section summarizes the potential environmental impacts (onshore and offshore) from the construction and operation of Vineyard Wind 2 to key species and resources. A more detailed discussion of the Project's potential effects to biological and physical resources, including potential benefits and impacts to water quality and air quality, can be found in Volume II of the Vineyard Northeast COP (see Attachment 7.1-2 to the proposal).

Potential Impacts to Endangered Species Act Species

The following characterization of potential environmental impacts to species protected under the Endangered Species Act (ESA) is Project-specific. The species discussed in the following sections are subject to a host of existing anthropogenic impacts (e.g., climate change, existing vessel traffic, etc.), many of which are greater in magnitude than the anticipated level of potential impacts from the Project.

Marine Mammals

There are 38 marine mammal species (whales, dolphins, porpoises, and seals) in the Western North Atlantic Outer Continental Shelf (OCS) region, which encompasses the Lease Area [REDACTED] (BOEM 2013, 2014). All 38 marine mammal species are protected by the Marine Mammal Protection Act. Five of these species are also federally listed as endangered under the ESA: the North Atlantic right whale (NARW), fin whale, sei whale, blue whale, and sperm whale. The distinct population segment of humpback whale that occurs in the vicinity of the Project has been delisted as an endangered species federally.

[REDACTED]

[REDACTED] With respect to vessel activity, the greatest potential for vessels to interact with marine mammals will be during transits to and from the Lease Area. However, construction vessels travel at relatively low speeds, and the risk of vessel strike is expected to be reduced with the implementation of monitoring and mitigation measures (see Section IV). Habitat modification, marine debris, entanglement and entrapment, electromagnetic fields (EMFs) generated by the offshore cables, reduction in prey availability, sediment mobilization and deposition, and artificial light resulting from the Project are

expected to pose little to no risk to populations of marine mammals. Section 4.7 of COP Volume II provides additional discussion of potential impacts to marine mammals, including NARW (see Attachment 7.1-2 to the proposal).

Sea Turtles

There are four species of sea turtles that routinely occur in the Western North Atlantic OCS region: loggerhead sea turtles, green sea turtles, Kemp's ridley sea turtles, and leatherback sea turtles. The populations of loggerhead and green sea turtles that occur in the vicinity of the Project are listed as threatened under the ESA and Kemp's ridley and leatherback sea turtles are listed as endangered. None of these species are year-round residents of the northern Mid-Atlantic Bight, but they seasonally forage and migrate through these waters during the summer and autumn months.

[REDACTED]

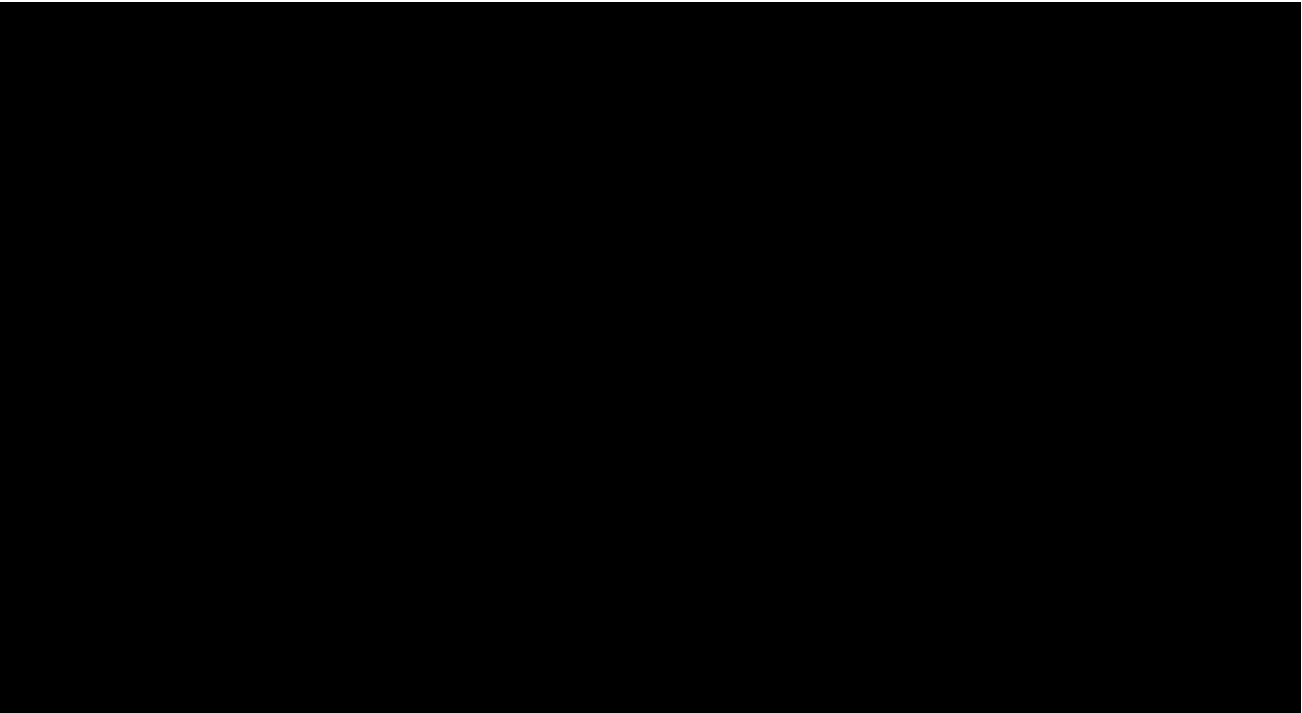
Although sea turtles are susceptible to injury or death if struck by a vessel, they are at low risk for vessel strikes because they spend most of their time below the water's surface. Other potential Project impacts, such as habitat modification, marine debris, entanglement and entrapment, EMFs, reduction in prey availability, sediment mobilization and deposition, and artificial light, are expected to pose little to no risk to sea turtle populations. Section 4.8 of COP Volume II provides further discussion of potential impacts to sea turtles (see Attachment 7.1-2 to the proposal).

Fish and Invertebrates

Four ESA-listed threatened or endangered fish species may occur off the Northeast coast: shortnose sturgeon, Atlantic sturgeon, Atlantic salmon, and giant manta ray. However, all four federally listed species are unlikely to be present in the Lease Area [REDACTED]

During construction and operation of the Project, finfish and invertebrates may be impacted by the following:

- **Seafloor disturbance and habitat modification:** Foundations, scour protection, and cable protection (if needed) will create hard, complex structure in the water column and along the seafloor (similar to artificial reefs), which is expected to have localized benefits for structure-oriented species and potential localized adverse impacts to species that prefer fine substrates. Long-term habitat modification resulting from the introduction of these structures is only anticipated to affect a small percentage of the available habitat in the Lease Area [REDACTED]



These potential impacts are expected to be reduced by the avoidance, minimization, and mitigation measures described in Section IV. Potential impacts to fish and invertebrate species are further discussed in Section 4.6 of COP Volume II (see Attachment 7.1-2 to the proposal).

Birds

There are four ESA-listed migratory bird species that may occur in the vicinity of the Project: piping plover, red knot, roseate tern, and black-capped petrel.⁴ Several other bird species that are listed under the Massachusetts ESA and/or on Connecticut's List of Endangered, Threatened, and Special Concern Species may also be present in the vicinity of the Project (see Sections 4.1 and 4.2 of COP Volume II included in Attachment 7.1-2 to the proposal).

The Project's WTGs may create a displacement and/or collision hazard for birds. The Vineyard Northeast COP includes an avian assessment to determine the likelihood of exposure (i.e., the likelihood of occurrence in the Lease Area) and vulnerability to displacement or collision with the WTGs. All four federally listed bird species have a low potential to fly through the Lease Area and are unlikely to collide with WTGs due to their typical behaviors and/or flight heights offshore. Other potential risks to birds offshore include collision with lighted structures (e.g., vessels and construction equipment), particularly during periods of poor visibility, disturbance and displacement because of increased vessel traffic and noise, and reduced ability to detect prey as a result of a temporary and localized increase in suspended sediments generated by offshore cable installation. Section 4.2 of COP Volume II provides further discussion of potential impacts to marine and coastal birds (see Attachment 7.1-2 to the proposal).

⁴ The Vineyard Northeast COP was prepared before the black-capped petrel was federally listed.

Onshore, birds may be impacted by localized ground disturbance, limited habitat modification, temporary noise, and artificial lighting [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Section 4.1 of COP Volume II further describes potential impacts to inland birds (see Attachment 7.1-2 to the proposal).

Bats

There are five bat species that are listed as endangered under the Massachusetts ESA and on Connecticut's List of Endangered, Threatened and Special Concern Species: northern long-eared bat, Indiana bat, eastern small-footed bat, little brown bat, and tricolored bat. The Indiana bat and northern long-eared bat are also listed as federally endangered under the ESA. The tricolored bat is proposed for listing under the federal ESA.

As with birds, injury or mortality from collision with the WTGs is a potential risk to bats. Cave-hibernating bats, which have exhibited low use of the offshore environment, would only be exposed to the WTGs on rare occasions during migration. Migratory tree bats have a higher potential to pass through the Lease Area, but overall, a small number of bats are expected in the Lease Area given its distance from shore (BOEM 2014). Therefore, population level risks to cave-hibernating and migratory tree bats are unlikely. Bats may be attracted to construction vessels, particularly if insects are drawn to the lights of the vessels, as well as WTGs and the ESP under construction (BOEM 2014). However, stationary objects (e.g., partially constructed WTGs, jacked-up vessels) are not generally considered a collision risk for bats because they can detect objects with echolocation (Johnson et al. 2004; Horn et al. 2008; BOEM 2012). Noise generated from offshore construction is unlikely to present a risk to bat populations due to its limited duration.

Like birds, potential risks to bats during onshore construction and operations include localized ground disturbance, limited habitat modification, temporary noise, and artificial lighting.

[REDACTED]

[REDACTED]

[REDACTED] However, no known northern long-eared bat maternity roost trees or hibernaculum are located in the vicinity of the onshore facilities (Connecticut DEEP 2019), and, given the small area affected in relation to locally available habitat, habitat loss is unlikely to affect bat populations. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Section 4.3 of COP Volume II provides additional discussion of potential impacts to bats (see Attachment 7.1-2 to the proposal).

Terrestrial Wildlife

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] As further described in Section 4.1 of COP Volume II (see Attachment 7.1-2 to the proposal), terrestrial habitat and wildlife may be impacted by localized ground disturbance, limited habitat modification, temporary noise, and artificial lighting associated with the construction and operation of the onshore facilities. However, these potential impacts are expected to be reduced by the avoidance, minimization, and mitigation measures described in Section IV.

Identification of Sensitive Habitat Areas

The Lease Area is located within the MA WEA, which was sited by BOEM to avoid areas of biologically-important habitat and to protect valuable fisheries resources. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Additional measures to avoid, minimize, and mitigate potential impacts to sensitive habitats are described in Section IV.

Vineyard Offshore has collected extensive survey data within the Lease Area [REDACTED] [REDACTED] to identify and characterize potentially sensitive seafloor habitats and topographic features. Thus, Vineyard Offshore has a strong understanding of the sensitive habitat areas that exist within the Lease Area [REDACTED]

Habitats within the Lease Area [REDACTED] were evaluated utilizing geophysical data, vibracores, benthic grab samples, and underwater video transects. Using these data, potential sensitive habitat boundaries were delineated according to the NMFS-modified Coastal and Marine Ecological Classification Standard (CMECS) classification system (NMFS 2021). Based on NMFS' (2021) *Recommendations for Mapping Fish Habitat*, each delineated area was assigned to one of four habitat categories: Soft Bottom (i.e., mud and/or sand), Complex (i.e., SAV, shell/shellfish, and/or hard bottom substrate), Heterogeneous Complex (i.e., a mix of soft and complex stations within a delineated area), or Large Grained Complex (e.g., large boulders). Benthic features, including sand bedforms and Organic Mud, were also mapped using survey data. The resulting habitat maps are included in the Vineyard Northeast COP.

Most (92%) of the Lease Area consists of Soft Bottom habitat, with a small area (8%) of Heterogeneous Complex habitat located in the central-eastern portion. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Benthic features present within the Lease Area include ripples and megaripples, with areas of pitted sand surrounding the shell-filled furrows. The megaripples are present in the northeast corner of the Lease Area and the ripples occur in relatively isolated areas east and west of the shell furrow area. [REDACTED]

[REDACTED]

Based on survey data and review of existing literature, Vineyard Offshore has conducted an extensive analysis of coastal and marine habitats that may be affected by the Project as part of the Vineyard Northeast COP (see Attachment 7.1-2 to the proposal). Section 4.4 of COP Volume II describes the coastal habitats [REDACTED]

[REDACTED] Section 4.5 of COP Volume II and the Essential Fish Habitat (EFH) Assessment included as Appendix II-D of the COP provide a thorough assessment of benthic habitat that may be impacted by the Project. The assessment of key sensitive habitat areas in the Vineyard Northeast COP is briefly summarized below:

- [REDACTED]
- **EFH and Habitat Areas of Particular Concern (HAPCs):** EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” [REDACTED]
- [REDACTED] HAPCs are discrete subsets of EFH that serve important ecological functions or are especially vulnerable to degradation. [REDACTED]
- [REDACTED]
- **Artificial Reef:** Based on the Northeast Ocean Data Portal, no artificial reefs are mapped [REDACTED] within the Lease Area (NOAA Fisheries 2023).
- **Living Bottom and Corals:** The National Oceanic and Atmospheric Administration’s (NOAA’s) Deep Sea Coral Data Portal indicates the presence of living bottom (e.g., sponges, sea pens) in and around the Lease Area [REDACTED]
- Modeled results from the NOAA National Centers for Coastal Ocean Science indicate no habitat suitability for deep-sea hard or soft coral species near the Lease Area (NROC 2009). [REDACTED]

Environmental Baseline Data and Monitoring

Baseline Data

Since acquiring the Lease Area in 2019, we have performed numerous surveys, including offshore avian, fisheries, and benthic habitat surveys, to collect baseline data on the presence of wildlife in and around the Lease Area. These site-specific surveys supplement the considerable body of existing literature and survey data for MA WEA. As such, the ecological baseline for the Lease Area and surrounding waters is well understood and has been incorporated into the resource assessments provided in the Vineyard Northeast COP (see Attachment 7.1-2 to the proposal). Existing data sources and our completed survey efforts are summarized below:

- **Fisheries surveys:** The MA WEA is well-studied. The most relevant regional data sources include, but are not limited to, Northeast Fisheries Science Center's multispecies bottom trawl surveys, Atlantic surfclam and ocean quahog surveys, and Atlantic sea scallop dredge surveys as well as SMAST's regional video survey data and drop camera surveys. To supplement existing data, we have collected multiple years of site-specific baseline data on fish species, invertebrate species, and their habitat within the Lease Area via trawl surveys, drop camera surveys, benthic grab samples, underwater video, and other geophysical survey techniques. See the Fisheries Mitigation Plan (provided as Attachment 7.4-1 to the proposal) for additional details.
- **Benthic habitat surveys:** As described above, Vineyard Offshore has already completed several years of survey work to characterize potentially sensitive seafloor habitats within the Lease Area [REDACTED].
- **Avian surveys:** Our strong understanding of bird assemblages in the vicinity of the Lease Area is derived from existing regional sources, such as MassCEC aerial surveys of the MA WEA, Marine-life Data and Analysis Team (MDAT) marine bird relative density and distribution models, and the Northwest Atlantic Seabird Catalog, as well as site-specific digital aerial surveys. [REDACTED]

[REDACTED]

[REDACTED] The data from these surveys were used to develop marine bird seasonal density estimates for the Lease Area and were combined with MassCEC aerial survey data to generate integrated taxonomic group distribution models as part of the avian assessment for the Vineyard Northeast COP.

- **Marine mammal and sea turtle surveys:** Numerous data sources characterize the distribution and abundance of marine mammals and sea turtles potentially affected by the Project. Primary data sources include Marine Mammal Stock Assessment Reports; the Atlantic Marine Assessment Program for Protected Species surveys; the Duke University Habitat-based Cetacean Density Models (Roberts et al. 2016; Roberts et al.

2022); the Northeast Large Pelagic Survey Collaborative aerial and acoustic surveys; the Megafauna Aerial Surveys in the Wind Energy Areas of Massachusetts and Rhode Island; and the New York Bight Whale Monitoring Program aerial and acoustic surveys.

[REDACTED]

[REDACTED] Marine mammal and sea turtle density estimates generated from these data sources were used to perform underwater acoustic and animal exposure modeling to assess the potential effects of Project-related underwater noise and to inform our avoidance, minimization, and mitigation measures (see Section IV).

Pre-, During, and Post-construction Monitoring

Vineyard Offshore will continue to gain valuable experience assessing changes attributable to project activities through the monitoring plans being implemented for Vineyard Wind 1. For example, scientifically sound, statistically rigorous methods employed for Vineyard Wind 1 include a beyond Before-After Control-Impact (BACI) framework to assess potential impacts to fish and a combination Before-After Gradient (BAG)/BACI sampling design to assess potential impacts to benthic resources. In collaboration with federal and state agencies, leading ornithologists, and environmental non-governmental organizations, we developed a pre- and post-construction bird and bat monitoring program framework for Vineyard Wind 1 that could be applied to Vineyard Wind 2. Additionally, we have engaged in extensive consultations with BOEM, NMFS (also known as NOAA Fisheries), the United States Fish and Wildlife Service (USFWS), and other agencies regarding monitoring plans, [REDACTED]

[REDACTED] We expect that the Project's monitoring plans will build on lessons learned from implementing the plans for Vineyard Wind 1 as well as other offshore wind projects.

[REDACTED]

[REDACTED] We will also conduct appropriate monitoring during construction and post-construction to assess potential changes to the ecological baseline established for the Project. The monitoring measures will be determined in consultation with agencies and stakeholders through the Project's permitting process and will be informed by those put in place for other offshore wind projects.

Subject to federal and state permitting, pre-, during, and post-construction monitoring for the Project is expected to include the following:

[REDACTED]

- **Fisheries monitoring:** A fisheries monitoring plan will be developed to monitor key indicators before and after construction; such monitoring may be part of regional monitoring efforts. See the Fisheries Mitigation Plan (provided as Attachment 7.4-1 to the proposal) for additional details.
- **Benthic habitat monitoring:** We have developed a benthic habitat monitoring plan framework, which is included as Appendix II-R of the Vineyard Northeast COP (see Attachment 7.1-2 to the proposal), to monitor recovery after construction in areas with sensitive habitats where similar post-construction monitoring has not already been conducted for other projects. The survey design will include collection of bathymetry, underwater video, and benthic grab sample data. We expect to use a combination BAG/BACI sampling design to assess potential impacts.
- **Avian monitoring:** We will develop a framework for a post-construction monitoring program for birds, which will likely be focused on sea ducks. We plan to model the bird monitoring framework off the program developed for Vineyard Wind 1 while allowing for the flexibility to include new technologies, lessons learned, and stakeholder input. The Vineyard Wind 1 monitoring framework includes (1) acoustic monitoring for birds and bats for at least two years post-construction; (2) installation of Motus receivers on WTGs, support with upgrades or maintenance of two onshore Motus receiver stations, and provision of up to 150 Motus tags to third-party avian researchers to track roseate terns and possibly common terns and/or nocturnal passerine migrants; (3) pre- and post-construction boat surveys; and (4) avian behavior point count surveys at individual WTGs for up to three years. By the time the Project is nearing construction, the Vineyard Wind 1 framework will have been implemented. Additionally, during construction, operation, and decommissioning of the Project, we will document any dead or injured birds or bats found on vessels and offshore structures.
- **Marine mammals and sea turtle monitoring:** [REDACTED]
[REDACTED]
Planned approaches to monitor marine mammal and sea turtle presence during survey and construction activities are described in Section IV. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Monitoring techniques for these species typically include the use of digital aerial surveys, boat surveys, and/or passive acoustic monitoring (PAM) (specific to marine mammals). However, as new technologies become available, additional/alternative tools may also be used.

We will work to develop robust monitoring plans and survey programs with adequate sample sizes, appropriate spatial and temporal coverage, and proper design. We will also continue to design our surveys to be compatible with established survey methods, whenever practicable, so that data generated can be compared to existing data and ongoing regional studies. For example, our fisheries surveys in the Lease Area followed the same protocols used for

Vineyard Wind 1 and are aligned with ongoing regional surveys (see Attachment 7.4-1 to the proposal). [REDACTED]

Potential Impacts to Onshore Coastal Beaches and Ecosystems

[REDACTED]

IV. PRELIMINARY ENVIRONMENTAL PROTECTION MEASURES

A preliminary plan based on the latest science at the time the plan is made that highlights the approach to avoid, minimize, or mitigate environmental impacts (onshore and offshore) from the wind farm array, transmission cabling, substations and other infrastructure from pre-construction through the duration of the project based on best management practices, including but not limited to:

- Pre-construction and post-construction monitoring to understand the effects of facilities on marine and avian species.
- Description of operational protocol to avoid, minimize, and mitigate impacts to fish, invertebrates, marine mammals, birds and bats, including mitigation of sound exposure on marine mammals like the North Atlantic Right Whale, supporting nesting habitat for affected avian species or supporting marine mammal survey and monitoring efforts.
- Impact of planned cable burial depth, use of protective materials, and monitoring of cables to avoid, minimize, and mitigate continuous impacts on marine species.
- Use of co-location or siting with compatible existing infrastructure.
- Minimizing the number of transmission cables used, reducing the area of seafloor or shoreline disturbance, and/or reducing the number of cable landfalls.
- Plan to avoid, minimize, or mitigate impacts on the National Marine Fisheries Service (NMFS) surveys and the Massachusetts Department of Marine Fisheries (DMF) inshore trawl surveys.

- Description of any cooperation and efforts with other developers or regional entities to avoid and minimize potential cumulative impacts across the MA/RI Wind Energy Areas.

Pre-, During, and Post-construction Monitoring

Section III describes Vineyard Offshore's plans to conduct monitoring of marine and avian species before, during, and after construction. As discussed in Section III, Vineyard Offshore will continue to evolve and refine its pre-, during, and post-construction monitoring methods to incorporate results from other offshore wind projects, to be compatible with or a part of regional science efforts (as practicable), and to adopt advancements in science and technology.

Avoidance, Minimization, and Mitigation Measures

Vineyard Offshore's approach to reducing environmental impacts prioritizes avoidance of impacts wherever possible. Where impacts cannot be avoided, Vineyard Offshore seeks to minimize and then mitigate those impacts to the maximum extent practicable. The avoidance, minimization, and mitigation measures proposed for Vineyard Wind 2 are based on lessons learned during the Vineyard Wind 1 project and the latest available science. Preliminary environmental protection measures for key species and resources are summarized below. A comprehensive description of the Project's avoidance, minimization, and mitigation measures, including measures to reduce effects on water quality and air quality, can be found in Volume II of the Vineyard Northeast COP (see Attachment 7.1-2 to the proposal).

Marine Mammals and Sea Turtles

Vineyard Offshore will continue our industry-leading efforts to develop measures that effectively avoid, minimize, and mitigate the risk of impacts to marine mammals and sea turtles from offshore wind development. This will be an iterative and adaptive process that accounts for changing technologies, shifting patterns in species distribution, and lessons learned from other offshore wind projects in the Northeast. [REDACTED]

[REDACTED]

[REDACTED] Vineyard Offshore will also integrate any relevant learnings from and/or new technologies advanced through Vineyard Wind 1's Wind and Whales Fund and the Offshore Wind Challenge (which focused on innovations in marine mammal monitoring; see Attachment 7.3-1 to the proposal). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Preliminary Measures to Reduce Acoustic Impacts

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The proposed measures described below, which focus on protections for marine mammals, also provide significant protection for sea turtles.

Temporal Constraints on Pile Driving: We do not intend to conduct pile driving between January 1 and April 30 when higher numbers of NARW are expected to be present in the vicinity of the Lease Area. This will reduce potential acoustic impacts to NARW and other species with similar seasonal presence in the region. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Pile Driving Noise Attenuation Systems (NAS):

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Several recent studies have demonstrated that NAS are capable of attenuating broadband sound levels by approximately 7 to 17 decibels (dB) (Buehler et al. 2015; Bellmann et al. 2020). We will use NAS during pile driving to reduce sound levels by a target of approximately 10 dB [REDACTED]

[REDACTED]

Soft-start/Ramp-up Procedures: A soft-start will be used at the beginning of pile driving events. A soft-start utilizes an initial set of low energy strikes from the impact hammer, followed by a waiting period. Additional strike sets gradually increase in energy to what is needed to install the pile. This gradual increase in hammer energy (and correspondingly, sound levels) provides a “warning” to marine mammals and sea turtles in the area and allows time for them to move away, avoiding potential injury or impairment of their hearing abilities.

[REDACTED]

[REDACTED]

Use of Protective Zones, PSOs, and Underwater Vocalization Detection Systems: Pre-start clearance and shutdown zones will be established to avoid and minimize potential impacts of underwater sound on marine mammals and sea turtles during pile driving and certain HRG survey activities (for acoustic sources operating below specified frequencies based on species’ hearing ranges). Pre-start clearance zones are typically zones in which marine mammal and sea

turtle observations are made prior to starting an activity (e.g., pile driving). If an animal is observed entering or within the relevant species-specific clearance zone prior to initiating pile driving or specified HRG surveys, the activity will be delayed, and the observed animal will be allowed to leave the zone of their own volition. A shutdown zone is an area surrounding pile driving or certain HRG survey activities that may be defined relative to Level A Harassment Zones (as defined in NMFS 2018) or other appropriate criteria. If a marine mammal or sea turtle is detected within or about to enter the applicable shutdown zone for that species after pile driving or HRG survey work has commenced, PSOs will request a shutdown of the activity.

[REDACTED]

[REDACTED] Pile driving will only be reinitiated after a shutdown once the pre-start clearance zones are confirmed to be clear of marine mammals or sea turtles for the defined species-specific periods. The size of feasible pre-start clearance and shutdown zones is anticipated to be determined in consultation with BOEM and NMFS during the federal permitting process.

Qualified, trained PSOs will monitor these protective zones utilizing visual aids (e.g., standard handheld and/or high-magnification binoculars) when necessary. Additionally, we expect to use an underwater vocalization detection system (e.g., PAM) to supplement visual monitoring of pile driving pre-start clearance and shutdown zones when PSOs are unable to visually observe the entire zone due to poor visibility. The specifics of the PAM system will be determined in consultation with BOEM and NMFS.

[REDACTED]

Sound Field Verification (SFV): To measure sound levels during pile driving and assess the efficacy of mitigation measures, we plan to conduct SFV.

[REDACTED]

Other Measures: Vineyard Offshore will also continue reporting protected species sightings to BOEM and NMFS and collaborating with BOEM and NMFS to integrate practicable choices in mitigation and monitoring equipment (e.g., thermal cameras, NAS, etc.) to meet the necessary standards for permitting and successful consultations.

Preliminary Measures to Minimize Risk of Ship Strikes

Trained visual observers aboard each vessel will maintain a vigilant watch for all marine mammals and sea turtles, and vessel operators will slow down or maneuver their vessels, as appropriate, to avoid striking protected species.

[REDACTED]

We will follow NMFS guidelines for vessel strike avoidance, including vessel speed restrictions and separation distances, that are applicable at the time of construction and operations.⁷ Based on current NMFS guidelines, survey vessels must maintain separation distances of:

- greater than 500 meters (m) from all ESA-listed whales (including NARW) or other large unidentified whales;
- greater than 100 m from all other large whales (e.g., humpback whales); and
- to the greatest extent possible, greater than 50 m from all other marine mammals, with the exception of delphinids and pinnipeds that approach the vessel, in which case the vessel operator must avoid excessive speed or abrupt changes in direction.

In accordance with current NMFS guidance, all other vessel types must maintain separation distances of:

- greater than 500 m from NARW or large unidentified whales;
- greater than 100 m from all other (non-NARW) baleen whales and sperm whales; and
- to the greatest extent possible, greater than 50 m from all other marine mammals, with the exception of delphinids and pinnipeds that approach the vessel, in which case the vessel operator must avoid excessive speed or abrupt changes in direction.

With respect to vessel speed restrictions, all vessels will comply with the final amendments to the North Atlantic Right Whale Vessel Strike Reduction Rule at 50 Code of Federal Regulations (CFR) Part 224. All personnel working offshore will receive environmental training, which will stress individual responsibility for marine mammal and sea turtle awareness and reporting as well as marine debris awareness.

Fish and Invertebrates

Vineyard Offshore is considering several measures to reduce potential impacts to fish, invertebrates, and their habitats. Generally, mitigation measures to protect marine mammals and sea turtles (described above) also protect fish species. For example, pile driving noise will be mitigated through a soft-start, which allows fish time to move away from the area, and we will use NAS during pile driving to reduce sound levels by a target of approximately 10 dB.

The WTGs and ESP are widely spaced so that their foundations (and associated scour protection), along with cable protection for inter-array cables (if needed), only occupy a minimal portion of the Lease Area, leaving a large majority of the site undisturbed. The addition of foundations, scour protection, and cable protection (if required) may act as an artificial reef and provide habitat for structure-oriented species. We will evaluate the feasibility of using

⁷ Except where following these requirements would put the safety of the vessel or crew at risk.

nature-inclusive scour protection and cable protection designs, which refers to options that can be integrated in or added to the design of scour and cable protection to create suitable habitat for native species (Hermans et al. 2020).█

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Cable burial techniques will be selected to maximize the likelihood of achieving sufficient cable burial, minimize the need for cable protection, and minimize suspended sediments during installation. Cable burial in the substrate or beneath cable protection (in limited instances where sufficient burial depth cannot be achieved) will reduce the potential effects of EMFs.
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Vessel anchors and legs will avoid known sensitive seafloor habitats (i.e., eelgrass and hard/complex bottom) to the extent technically feasible and without compromising the vessel's safety or the cable's installation. Prior to the start of construction, contractors will be provided with a map of sensitive habitats to avoid so they can plan their anchoring positions accordingly. For vessels other than anchored cable laying vessels (which must maintain tension on anchor lines), where it is considered impossible or impracticable to avoid a sensitive seafloor habitat when anchoring, the use of mid-line anchor buoys will be considered (where feasible and considered safe) as a potential measure to reduce impacts from anchor line sweep.

Additional measures to reduce impacts to fish and invertebrates will be determined based on knowledge gained in the field from other offshore wind projects and consultations with agencies and stakeholders during the permitting process. We will continue to work with agencies and stakeholders to explore research opportunities and other measures to reduce potential impacts to fish, invertebrates, or their habitats.

Birds, Bats, and Terrestrial Wildlife

The location of the WTGs far offshore largely avoids exposure of coastal birds and bats. The Project is in the MA WEA, which was identified by BOEM through a public, multi-step process over a period of approximately six years. During this siting process, BOEM extensively reduced the size of the MA WEA to address agency and stakeholder concerns, including removing an area of high sea duck concentration on Nantucket Shoals. The Shoals support a high abundance of benthic mollusks and amphipods, providing important foraging areas for sea ducks (Bowman et al. 2022) and other marine birds (Veit et al. 2016). Although the Lease Area is largely outside the core concentration of marine birds (including sea ducks) shown in the MDAT and MassCEC/digital aerial survey integrated models, there is some overlap in the northeastern corner.

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The WTGs will be spaced far apart and have significant air gaps, which minimizes collision risk to many marine birds (e.g., sea ducks, phalaropes, terns, loons) that typically fly below the rotor swept zone. To avoid attracting birds and bats to the offshore facilities (and thus reduce the risk of collision), Vineyard Offshore will reduce lighting to the extent practicable by using best management practices (e.g., using down-shield lighting or down-lighting) and adhering to federal regulations and BOEM guidance. During operations, we will use an Aircraft Detection Lighting System (ADLS) or similar system that automatically activates all aviation obstruction lights on the WTGs and ESP when aircraft approach the structures. The use of an ADLS will dramatically reduce the amount of time that the aviation obstruction lights are illuminated. Based on an analysis of historical air traffic for the Lease Area, the use of ADLS would reduce the amount of time that the aviation obstruction lights are illuminated to approximately 1.25 hours per year. To the extent practicable and in accordance with health and safety requirements, we will evaluate the feasibility of installing bird deterrents at WTGs that have been identified as having high use by birds.

[REDACTED]

[REDACTED]

Whenever practicable, down-shield lighting or down-lighting will be used to minimize the effects of artificial light on terrestrial fauna.

[REDACTED]

Measures to Reduce Potential Impacts from Offshore Cables

Siting OECCs is an extremely complex endeavor that must account for a multitude of technical, environmental, commercial, and logistical constraints. [REDACTED]

The offshore export and inter-array cables will be buried beneath the stable seafloor at a target depth of five to eight feet (ft).¹⁰ [REDACTED]

Vineyard Offshore will require the cable installation contractor to prioritize the least environmentally impactful cable installation alternative(s) that are practicable for each segment of cable. Several cable installation techniques are being considered to minimize seabed disturbance, minimize sediment dispersion, and maximize the likelihood of achieving the target burial depth. [REDACTED]

[REDACTED] Cable protection may also be used if the cables need to cross other infrastructure (e.g., existing cables, pipelines, etc.), to secure the cable entry protection system in place, or where a cable splice requires protection. Cable protection methods include freely laid rock, rock bags, concrete mattresses, and half-shell pipes (or similar). As described above, cable protection will create hard, complex structure along the seafloor (similar to artificial reefs), which is expected to have localized

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

benefits for structure-oriented species and potential localized adverse impacts to species that prefer fine substrates. We will evaluate the feasibility of using nature-inclusive cable protection designs to create suitable habitat for native species.

As further described in the Fisheries Mitigation Plan (see Attachment 7.4-1 to the proposal), we anticipate that the offshore cables will include a monitoring system to continuously monitor the cables' status. [REDACTED]

Consolidation of Infrastructure

We have consistently received feedback from agencies and stakeholders, including fishermen, indicating that developers should consolidate infrastructure as much as possible. [REDACTED]

[REDACTED] The timing of onshore construction activities will be coordinated with state and local agencies to align with planned public works projects, where feasible, to minimize disturbance.

Lastly, each port planned for use by the Project is located in an industrial waterfront area where another entity intends to develop the requisite infrastructure to support the offshore wind industry. [REDACTED]

Measures to Reduce Potential Impacts to Federal and State Surveys

National Marine Fisheries Service Surveys

NMFS conducts several surveys in the Northeast region, including multi-species bottom trawl surveys, Atlantic scallop surveys, ocean quahog and Atlantic surf clam surveys, ecosystem monitoring surveys, and marine mammal and sea turtle ship-based and aerial surveys (NMFS 2023). These surveys are conducted out of the Northeast region and cover the area from Maine to Florida (NMFS 2023).

Offshore wind energy development within the designated MA WEA and RI/MA WEA may impact NMFS surveys. This concern is a consideration for all lease areas within the MA WEA and RI/MA WEA and is not limited to the Project. [REDACTED]

In December 2022, BOEM and NMFS released the NOAA and BOEM Federal Survey Mitigation Strategy for the Northeast United States (US) Region (Hare et al. 2022). This document describes the approach that NMFS and BOEM will use to mitigate the impacts of offshore wind energy development on NMFS surveys (from Maine to North Carolina) and is intended to guide the implementation of the Northeast Federal Survey Mitigation Program. [REDACTED]

Notably, the fisheries surveys for Lease Area OCS-A 0522 are modeled off the survey program that SMAST developed for Vineyard Wind 1. When designing the fisheries survey protocol for Vineyard Wind 1, SMAST considered survey methods that align with NMFS or other established survey methods with long-term datasets to facilitate data integration between our site-specific surveys and existing long-term datasets, what some refer to as a “nested and modular” survey design. In fact, SMAST received input from NMFS in designing the surveys. Vineyard Offshore will continue to work collaboratively with BOEM and NMFS to design and implement appropriate fisheries surveys for the Lease Area. See the Fisheries Mitigation Plan provided as Attachment 7.4-1 to the proposal for additional discussion of Vineyard Offshore’s fisheries studies.

State Survey Programs

[REDACTED]

[REDACTED]

Vineyard Offshore will continue to coordinate with appropriate parties throughout the construction phase and will coordinate with the US Coast Guard to provide Notices to Mariners (NTMs) that describe relevant Project-related activities. [REDACTED]

[REDACTED]

[REDACTED] Vineyard Offshore expects to provide the as-built location of cable protection on the Project's website and will coordinate with the US Coast Guard and NOAA to ensure that the as-built cable alignments, including the location of cable protection and cable crossings, are included on nautical charts. Additional measures to avoid, minimize, and mitigate potential effects to navigation and vessel traffic during the construction and operation of the Project are described in the Fisheries Mitigation Plan (see Attachment 7.4-1 to the proposal).

Regional Coordination

As further described in Section VIII, Vineyard Offshore regularly coordinates with other offshore wind developers, agencies, researchers, regional entities, fishermen, and other stakeholders to advance efforts to better understand the potential cumulative impacts of offshore wind project development across the MA WEA and RI/MA WEA and to identify opportunities to avoid and minimize those impacts. We will continue to seek opportunities to collaborate with other developers on ways to avoid and minimize potential cumulative impacts across the MA WEA and RI/MA WEA.

[REDACTED]

V. MASSACHUSETTS OCEAN MANAGEMENT PLAN COMPLIANCE

Plan for compliance and consistency with the Massachusetts Ocean Management Plan and other state and regional ocean management plans.

The Massachusetts Ocean Management Plan (OMP) protects critical marine habitat and important water-dependent uses by establishing siting and management standards for new ocean-based projects in Massachusetts (Massachusetts CZM 2021). A large part of the planning process for the OMP was devoted to mapping and evaluating natural resources and existing water-dependent uses (e.g., navigation and fishing) and identifying which of these resources and uses may be sensitive to different types of projects (e.g., transmission cables, community-scale wind facilities). The OMP's jurisdiction includes waters, seafloor, and subsurface from the seaward limit of state waters (generally three nautical miles offshore) to a nearshore boundary that lies approximately 0.3 miles seaward from Mean High Water.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

VI. MASSACHUSETTS CZMA CONSISTENCY REVIEW AND COMPLIANCE

Plan for compliance with Massachusetts Coastal Zone Management federal consistency review process, including any plans for voluntary federal consistency filing.

[REDACTED]

[REDACTED]

[REDACTED]

VII. DATA SHARING PLAN

Plan for timely data sharing with relevant environmental and fisheries stakeholders and ongoing, transparent communication with stakeholders regarding data availability.

The survey and monitoring work that we have conducted or plan to conduct will continue to generate a substantial body of environmental, fisheries, and other data that are currently or will be made available in the public domain. Much of the data will be publicly available through the federal and state permitting processes, as well as reports or academic publications that result from survey or monitoring work and will be readily accessible to stakeholders.

Our previous and ongoing efforts to share environmental and fisheries data include the following:

- We proactively publish our fisheries research on our website. Several years of fisheries data collected in Lease Area OCS-A 0522 are already available on Vineyard Offshore's website at: <https://www.vineyardoffshore.com/fisheries-522>. We are also responsive to data requests from agencies and other entities for data that are not included in these reports.
- We deployed a meteorological and oceanographic ("metocean") buoy in Lease Area OCS-A 0522 that is transmitting live weather/ocean data to a public website and is equipped with an acoustic receiver to track HMS.
- We (along with other developers) have entered into a data sharing agreement with New England Aquarium that permits them to "freely disseminate" the data gathered by the HMS acoustic transmitters deployed in Lease Areas OCS-A 0522 and OCS-A 0501 as well as any research results. See the Fisheries Mitigation Plan included as Attachment 7.4-1 to the proposal for additional description of our efforts to support HMS research.

- [REDACTED]
- We have provided benthic survey data from Lease Area OCS-A 0501 to BOEM and the Nantucket Conservation Commission.
 - We will continue to share PSO data with BOEM and NOAA per the stipulations in our existing and future permits. For example, in accordance with our current Incidental Harassment Authorization (IHA) for survey activities in Lease Area OCS-A 0522, we will report all sightings of marine mammals to NMFS within 90 days following the completion of the surveys. In accordance with the IHA, sightings of NARW are reported to the North Atlantic Right Whale Sighting Advisory System immediately.

- [REDACTED]
- We shared data from boat-based avian surveys in Lease Area OCS-A 0501 to support BOEM's study *Anticipating Shifts in Marine Bird Distributions for Planning, Leasing, and Assessment of Energy Development on the Outer Continental Shelf (AT 20-03)*.
 - For Vineyard Wind 1, we provided metocean data for BOEM's study *Hydrodynamic Modeling and Particle Tracking in the U.S. Mid-Atlantic Bight (NSL 19-04)* and to improve and verify the New York State Energy Research and Development Authority's (NYSERDA's) model of underlying hydrodynamics in the region.

We will continue working with agencies, researchers, regional entities, other offshore wind developers, fishermen, and other stakeholders to find cost-effective and user-friendly ways to streamline and standardize available data across lease areas, particularly where there are gaps in extant databases. [REDACTED]

[REDACTED]

We will continue to coordinate with third-party scientists regarding the provision of data, and we will review any requests on a case-by-case basis. In certain instances, Vineyard Offshore may impose restrictions on data provision or the deployment of research equipment (e.g., buoys, environmental sensors, telemetry receivers, cameras) within the Lease Area, [REDACTED] and on our facilities to protect proprietary and/or competitively sensitive information, maintain site security, ensure safety, etc. All requests will be considered and discussed with the requestor and will not be unreasonably denied.

VIII. COMMITMENTS TO EXISTING AND ONGOING REGIONAL RESEARCH

Description of participation in and any commitments (time, staff, and/or financial) to existing and ongoing regional regulatory, research, and science organizations regarding environmental assessment, monitoring, and mitigation, including but not limited to direct funding to the Responsible Offshore Science Alliance and the Regional Wildlife Science Collaborative.

Vineyard Offshore is firmly committed to supporting regional studies, regional science organizations, and other independent environmental research. Examples of this include the following:

- [REDACTED]
- We are an active member of RWSC and have worked through the Offshore Wind Industry Caucus to identify research priorities for funding. Our Senior Manager, Environmental Affairs serves as an industry representative on the RWSC Steering Committee.
- Our Chief Development Officer sits on ROSA's board of directors, and Vineyard Offshore financially supports the organization. Our Fisheries Manager is also a member of the Advisory Council.
- Our Chief Executive Officer is a Board Member of the Environmental League of Massachusetts and was a Chairperson of the Board for Greentown Labs, North America's largest climate tech incubator, until March 2023.
- Our Senior Manager, Strategic Implementation is a provisional member of the Ocean Advisory Commission in Massachusetts and will serve as the offshore wind representative on the commission.

- We are supporting HMS research by the New England Aquarium and INSPIRE Environmental (see the Fisheries Mitigation Plan included as Attachment 7.4-1 to the proposal for details).
- Through Vineyard Wind 1, we are an advisor on regional science projects, including Project WOW and the Woods Hole Oceanographic Institution's (WHOI's) Wind Turbine Radar Interference Mitigation (WTRIM) project and 3rd Wind Forecast Improvement Project (WFIP3). Our Senior Manager, Environmental Affairs sits on the WFIP3 and WTRIM advisory boards and serves as an industry advisor on Project WOW's External Advisory Board.
- We have partnered on research and innovation initiatives with several other organizations and institutions in connection with Vineyard Wind 1, including the New England Aquarium, SMAST, and Greentown Labs (see Attachment 7.3-1 to the proposal for details).
- We are supporting BOEM's Realtime Opportunity for Development Environmental Observations II (i.e., RODEO II) project, which is gathering acoustic data during pile driving for Vineyard Wind 1.
- For Vineyard Wind 1, we previously partnered with Ørsted, Equinor, SouthCoast Wind (formerly Mayflower Wind), MassCEC, and the New England Aquarium to fund a year of the Northeast Large Pelagic Survey Collaborative Aerial Surveys.

We are also a member of, actively participate in, and/or attend meetings for the following technical working groups, advisory boards, councils, and commissions:

- MA HWG
- MA FWG
- Connecticut Commission on Environmental Standards
- New England Fishery Management Council
- Mid-Atlantic Fishery Management Council
- NYSERDA's Environmental Technical Working Group
- NYSERDA's Fisheries Technical Working Group
- International Council for the Exploration of the Sea (member of Working Group on Offshore Wind Development and Fisheries)

These groups provide a forum for Vineyard Offshore to collaborate with other developers, agencies, and stakeholders on methods and technologies to identify and address potential environmental impacts and support regional science efforts.

IX. MASSACHUSETTS HABITAT WORKING GROUP

Plans to engage with and incorporate input from the Massachusetts Habitat Working Group on Offshore Wind Energy.

We will continue to work in close collaboration with agencies and stakeholders, including the MA HWG, to understand their concerns regarding the potential environmental impacts of offshore wind projects; incorporate their feedback into project design and siting measures (when appropriate and practicable); and develop, trial, and implement innovative environmental protection measures. As part of this, we will maintain our active participation in the MA HWG, including regularly attending meetings to provide Project updates.

X. CULTURAL AND TRIBAL RESOURCE MITIGATION

Extent to which the project avoids, minimizes, and mitigates potential impacts of the project to cultural and tribal resources and viewsheds from the Massachusetts shoreline, including through thoughtful siting and engagement with local stakeholders.

Vineyard Offshore has gained unique insight into the Section 106 of the National Historic Preservation Act process through our work on Vineyard Wind 1. [REDACTED]

[REDACTED] We will leverage this experience to engage in thoughtful discussions with Tribal Nations¹⁴ and stakeholders to identify measures to avoid, minimize, and mitigate potential impacts to cultural and tribal resources as well as Massachusetts viewsheds.

Tribal Engagement

Vineyard Offshore understands and respects that the region surrounding the Project is a part of Tribal Nations' cultural heritage and their traditional bonds to the past and that this region is important to their cultural identity, sense of self, and future well-being. Open communication, early coordination, and information sharing are therefore essential, given the potential for the Project to affect tribal communities' historical and cultural properties. Our approach to engaging with and disseminating information to tribal communities is summarized in the Environmental Justice Impact Assessment (see Attachment 7.6-1 to the proposal) and further detailed in our Native American Tribes Communication Plan (see Attachment 7.6-2 to the proposal).

Terrestrial Cultural Resources

Vineyard Offshore's terrestrial archaeology consultants have completed archaeological reconnaissance surveys in the vicinity of the Project's onshore facilities to identify areas of low, moderate, and high archaeological sensitivity. The archaeological reconnaissance survey reports are included in the Vineyard Northeast COP.

¹⁴ Throughout this Environmental Mitigation Plan, "Tribal Nations" and "tribal communities" generally refer to both federally recognized tribes/Tribal Nations and other Native American communities, including state acknowledged tribes. Where appropriate, consultations or communications with federally recognized tribes/Tribal Nations are identified.

Vineyard Offshore intends to prioritize avoiding known cultural resources. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Where appropriate, Vineyard Offshore anticipates completing intensive surveys (Phase 1B studies) prior to construction. We expect to develop and implement an Onshore Archaeological Monitoring Plan (for monitoring archeologically sensitive areas during construction) and an onshore Post-Review Discovery Plan as part of the Section 106 consultation process. Vineyard Offshore will continue to develop appropriate avoidance, minimization, and mitigation measures (as needed) in consultation with BOEM, State Historic Preservation Offices [SHPOs], federally recognized Tribes/Tribal Nations, and other relevant consulting parties through the Section 106 and National Environmental Policy Act (NEPA) processes.

Marine Cultural Resources

A Marine Archaeological Resources Assessment (MARA) has been prepared for the Lease Area [REDACTED] by a Qualified Marine Archaeologist in accordance with BOEM, [REDACTED] and other relevant guidelines. The MARA, which is included in the Vineyard Northeast COP, evaluates Vineyard Northeast’s offshore Preliminary Area of Potential Effects (PAPE) for the presence of submerged cultural resources based on G&G survey data and archival research.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Visual Resources

The Seascape, Landscape, and Visual Impact Assessment included in the Vineyard Northeast COP assesses the daytime and nighttime views of Vineyard Northeast’s WTGs and ESPs from the Massachusetts shoreline and identifies measures to avoid, minimize, and mitigate visual concerns. The Historic Resources Visual Effects Assessment included in the COP evaluates the

potential visual effects of Vineyard Northeast on aboveground historic properties and traditional cultural properties (TCPs) within the PAPE. These reports are summarized in Section 6 of COP Volume II (see Attachment 7.1-2 to the proposal).

The Project is located in the MA WEA, which was identified by BOEM as suitable for offshore wind energy development and is sited far from shore to minimize visual impacts. The sheer distance of the WTGs and ESP from the nearest coastal vantage point—greater than 30.5 miles from Nantucket—minimizes the visibility of the offshore facilities from visually sensitive resources and population centers on Nantucket, Martha’s Vineyard, Nomans Land, Muskeget, Tuckernuck, and Esther Islands. Views of the offshore facilities from all other onshore locations, including Cape Cod, mainland Massachusetts, Connecticut, Rhode Island, and New York, are negligible or non-existent.

Due to the curvature of the earth, the ESP will fall well below the visible horizon when viewed from any coastal vantage point and there are no land-based coastal vantage points from which a WTG can be viewed in its entirety. When viewed from ground-level vantage points, the expected off-white/light grey color of the WTGs generally blends well with the sky at the horizon. Additionally, atmospheric conditions reduce visibility, sometimes significantly, and the presence of waves obscure objects very low on the horizon. Furthermore, limits to human visual acuity reduce the ability to discern objects at great distances.

Aviation obstruction lights on the WTGs may be noticeable at night from beach areas, coastal bluffs, and other near coast inland areas, especially under clear weather conditions (although beach areas are primarily visited during daytime hours, minimizing the number of affected viewers). To substantially reduce the amount of time the lights are visible, the Project will use an ADLS or similar system that automatically turns on and off aviation obstruction lights in response to the detection of aircraft. The ADLS is estimated to be activated less than 1.25 hours per year. Thus, the effect of nighttime lighting is substantially minimized through the use of ADLS. Marine navigation lights on the WTGs and ESP are expected to have a designed visual range of 5 NM or less and therefore will not be visible from any coastal vantage point.

[REDACTED]

[REDACTED]

All offshore cables will be submerged and will not be visible. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

XI. ADDITIONAL INFORMATION

Any additional information that may demonstrate mitigation of environmental impacts.

Offshore wind is a critical climate change mitigation solution. The rapid deployment of offshore wind by a company that understands the process, has fostered relationships with stakeholders, and has a proven track record of responsible development—like Vineyard Offshore—is essential to meet the Commonwealth’s offshore wind and greenhouse gas (GHG) emission reduction goals.

The clean, renewable electricity generated by Vineyard Wind 2 will displace electricity from fossil fuel power plants, resulting in a significant net reduction in air emissions from the ISO New England (ISO-NE) electrical grid over the lifespan of the Project. On average, the Project is expected to reduce carbon dioxide (CO₂) emissions from the ISO-NE electrical grid by approximately 2.1 million tons per year, or the equivalent of taking approximately 414,000 cars off the road.¹⁵ This reduction in GHG emissions will help mitigate additional effects of ongoing climate change (e.g., more frequent and dangerous storms, severe heat waves and droughts, sea level rise and increased flooding, ocean acidification, changes in agricultural productivity, shifts in species’ distributions, and increases in energy system costs) that are impacting the environment and public health.

¹⁵ A typical passenger vehicle emits about 4.6 metric tons of CO₂ per year (EPA 2023).

In addition to reducing GHG emissions, the Project will reduce regional emissions of harmful air pollutants such as nitrogen oxides (NO_x), sulfur dioxide (SO₂), and fine particulate matter (PM_{2.5}), which lead to early death, heart attacks, respiratory disorders, stroke, exacerbation of asthma, and absenteeism at school and work. The Project will also reduce emissions that contribute to acid rain and ground-level ozone/smog, which can damage sensitive ecosystems and other resources.

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Attachment 7.6-1: Environmental Justice Impact Assessment

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ATTACHMENT 7.6-1

ENVIRONMENTAL JUSTICE IMPACT ASSESSMENT

I. OVERVIEW

Vineyard Wind 2 (the “Project”) is comprised of a 1,200 megawatt (MW) Offshore Wind Energy Generation facility (OWF) that will be installed in Lease Area OCS-A 0522 (the “Lease Area”).

[REDACTED]
[REDACTED] The Project also includes a [REDACTED]
transmission system and delivery point in Montville, Connecticut.

The Project has been carefully developed and sited to avoid negative impacts to Tribal Nations¹ and host communities, including environmental justice (EJ) communities, to the greatest extent practicable. [REDACTED]
[REDACTED]

[REDACTED] This includes collaborating with Tribal Nations on community benefits; working with host communities to finalize onshore export cable routing; and partnering with workforce and community organizations to increase access to offshore wind training and job opportunities for EJ communities. Overall, considering these and the other avoidance, minimization, and mitigation measures described in Section III, EJ communities and tribal communities are not expected to bear disproportionately high or adverse impacts or receive disproportionately low benefits from Vineyard Wind 2.

Furthermore, the Project will generate clean, renewable energy that will significantly reduce air pollution from the ISO New England (ISO-NE) electrical grid by displacing electricity produced by fossil fuel power plants. Recent studies on redlined² communities have shown that fossil fuel power plants are disproportionately sited in these communities, resulting in poor air quality and impacting land use patterns (e.g., causing lower housing values). Levy (2023) notes that these inequalities lead to multiple environmental and social burdens on these communities. Similarly, Cushing et al. (2023) found that the siting of fossil fuel power plants in EJ communities contributed to disproportionate air pollution exposure burdens. Thus, EJ communities in particular will benefit from the reduction in fossil fuel power plant emissions that are expected as a result of Vineyard Wind 2’s clean, renewable energy.

¹ Throughout this EJ Impact Assessment, “Tribal Nations” and “tribal communities” generally refer to both federally recognized tribes/Tribal Nations and other Native American communities, including state acknowledged tribes. Where appropriate, consultations or communications with federally recognized tribes/Tribal Nations are identified.

² Redlining is a term used to describe racism related to real estate and is derived from historic government maps that identified (in red) predominantly Black neighborhoods that were considered to be risky investments. These communities, which are largely minority communities, are considered to be EJ communities.

II. POTENTIALLY AFFECTED COMMUNITIES

Identification of potentially impacted Environmental Justice populations, federally recognized and state acknowledged tribes, and other host communities.

The EJ Impact Assessment provided herein focuses on host communities, which include EJ communities, where Vineyard Wind 2's onshore facilities and primary marine terminal facilities are proposed to be located. These host communities are assessed at the county level, consistent with the Bureau of Ocean Energy Management's (BOEM's) interim guidelines for identifying and characterizing EJ communities for offshore wind projects in the Atlantic (BOEM 2022). This assessment also identifies Tribal Nations within Massachusetts and Connecticut who may be impacted by the Project.

A comprehensive EJ impact assessment is included in the Vineyard Northeast Construction and Operations Plan (COP). For the purposes of federal permitting, "Vineyard Northeast" is Vineyard Offshore's proposal to develop, construct, and operate OWFs in Lease Area OCS-A 0522 along with associated offshore and onshore transmission systems. The permitting envelope for the COP includes 160 total WTG and ESP positions within the Lease Area. Up to three of those positions will be occupied by ESPs and the remaining positions will be occupied by WTGs.

Vineyard Wind 2 will be developed as part of Vineyard Northeast

The EJ impact assessment included in the Vineyard Northeast COP considers additional counties and states along the East Coast that may be impacted by Project activities, such as other port usage. See Section 5.2 of COP Volume II, included in Attachment 7.1-2 to the proposal, for additional details.

Environmental Justice Criteria

This EJ Impact Assessment considers all populations identified as EJ communities based on both federal and state criteria, which are described below.

Federal Environmental Justice Criteria

The federal EJ criteria for a minority population group are defined by the Council on Environmental Quality's (CEQ's) (1997) *Environmental Justice Guidance Under the National Environmental Policy Act*. CEQ defines a minority as "individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic." CEQ identifies a minority EJ population (or community) as one where either: (1) the minority population of the affected area exceeds 50%, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. CEQ defines low-income populations based on the annual statistical

poverty thresholds from the United States (US) Census Bureau's Current Population Reports Series P-60 on Income and Poverty but does not provide a threshold level for identifying a low-income population or community.

For the purposes of this EJ Impact Assessment, criteria from BOEM's interim EJ guidance (BOEM 2022) and data from EJScreen (EPA 2023a, 2023b) were used to identify an EJ community at the federal level. EJScreen data are from American Community Survey (ACS) version 2022, which includes ACS five-year summary data from 2016–2020 based upon 2020 census block group boundaries. Communities were identified as EJ communities if the minority or low-income population in the block group is greater than 50% or if the block group is in the 80th percentile or greater compared to all other block groups in the state for minority or low-income status. The 80th percentile criteria are used as a proxy for the term "meaningfully greater."

Massachusetts Environmental Justice Policy Criteria

Massachusetts' EJ Policy establishes EJ as a key consideration in all Executive Office of Energy and Environmental Affairs (EEA) programs when applicable and allowable by law. As stated in the Commonwealth's EJ Policy (EEA 2021):

It is the policy of the Executive Office of Energy and Environmental Affairs that environmental justice principles shall be an integral consideration, to the extent applicable and allowable by law, in making any policy, making any determination or other action related to a project review, in undertaking any project.... including but not limited to, the grant of financial resources or technical assistance, the promulgation, implementation and enforcement of laws, regulations, and policies, the provision of access to both active and passive open space, and the diversification of energy sources, including energy efficiency and renewable energy generation.

In Massachusetts, an EJ population is defined as a neighborhood that meets one or more of the following criteria:

- The annual median household income is not more than 65% of the statewide annual median household income;
- Minorities make up 40% or more of the population;
- 25% or more of households lack English language proficiency; or
- Minorities make up 25% or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150% of the statewide annual median household income.

The Massachusetts EJ Maps were last updated in 2022; this update included EJ populations based on 2020 census block groups and data from 2016–2020 ACS five-year estimates.

Connecticut Environmental Justice Policy Criteria

It is the policy of the Connecticut Department of Energy and Environmental Protection (DEEP) that, “no segment of the population should, because of its racial or economic makeup, bear a disproportionate share of the risks and consequences of environmental pollution or be denied equal access to environmental benefits. The Department is committed to incorporating environmental equity into its program development and implementation, its policy making and its regulatory activities” (Connecticut DEEP c2024).

Connecticut’s state-level criteria for an “environmental justice community” uses the following definitions contained in Connecticut’s Public Act 20-6, *An Act Concerning Enhancements to the State’s Environmental Justice Law*:

- A census block group, as determined in accordance with the most recent US census, for which 30% or more of the population consists of low-income persons who are not institutionalized and have an income below 200% of the federal poverty level; or
- A “Distressed Municipality,” as discussed below.

The 2022 EJ census block groups were determined using data from the 2016-2020 ACS five-year estimates. Distressed Municipalities are scored based on fiscal and economic indicators including the tax base, personal income of residents, and the residents’ need for public services; the top 25 towns with the highest total scores are designated as Distressed Municipalities. Additionally, Distressed Municipalities include municipalities that no longer meet the threshold requirements but are still in a five-year grace period. The Connecticut Department of Economic and Community Development (DECD) maintains a list of Distressed Municipalities, which are used by state agencies to target funding for housing, insurance, open space, brownfield remediation, and economic development programs (Connecticut DECD 2023).

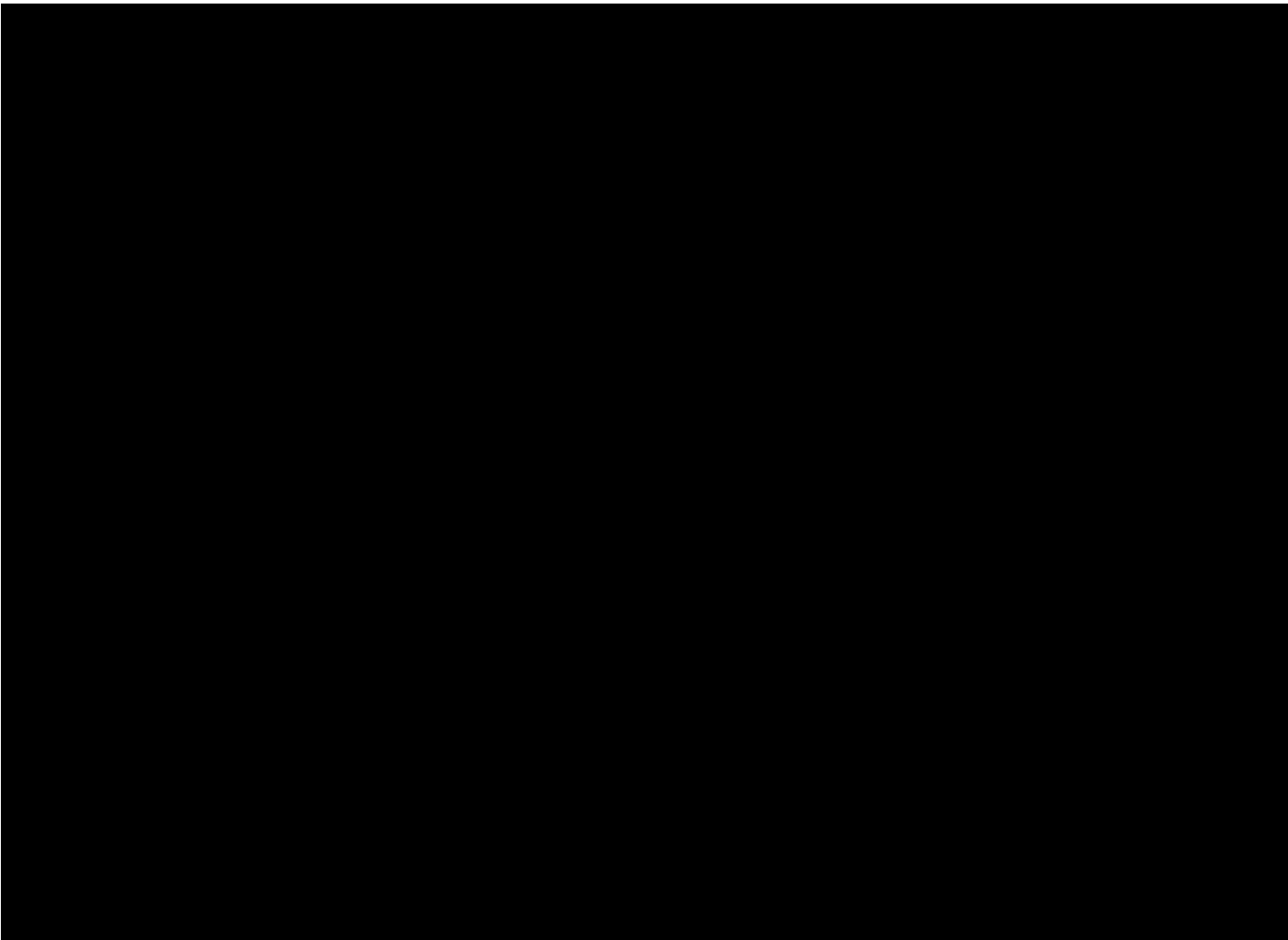
Potentially Affected Communities in Massachusetts

Potentially affected communities in Massachusetts include host communities (including EJ communities) in Bristol County and Essex County, as well as Tribal Nations.

Host Communities in Bristol County

Vineyard Offshore will establish an operations and maintenance (O&M) base at the [REDACTED] [REDACTED] in New Bedford, Bristol County, Massachusetts. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

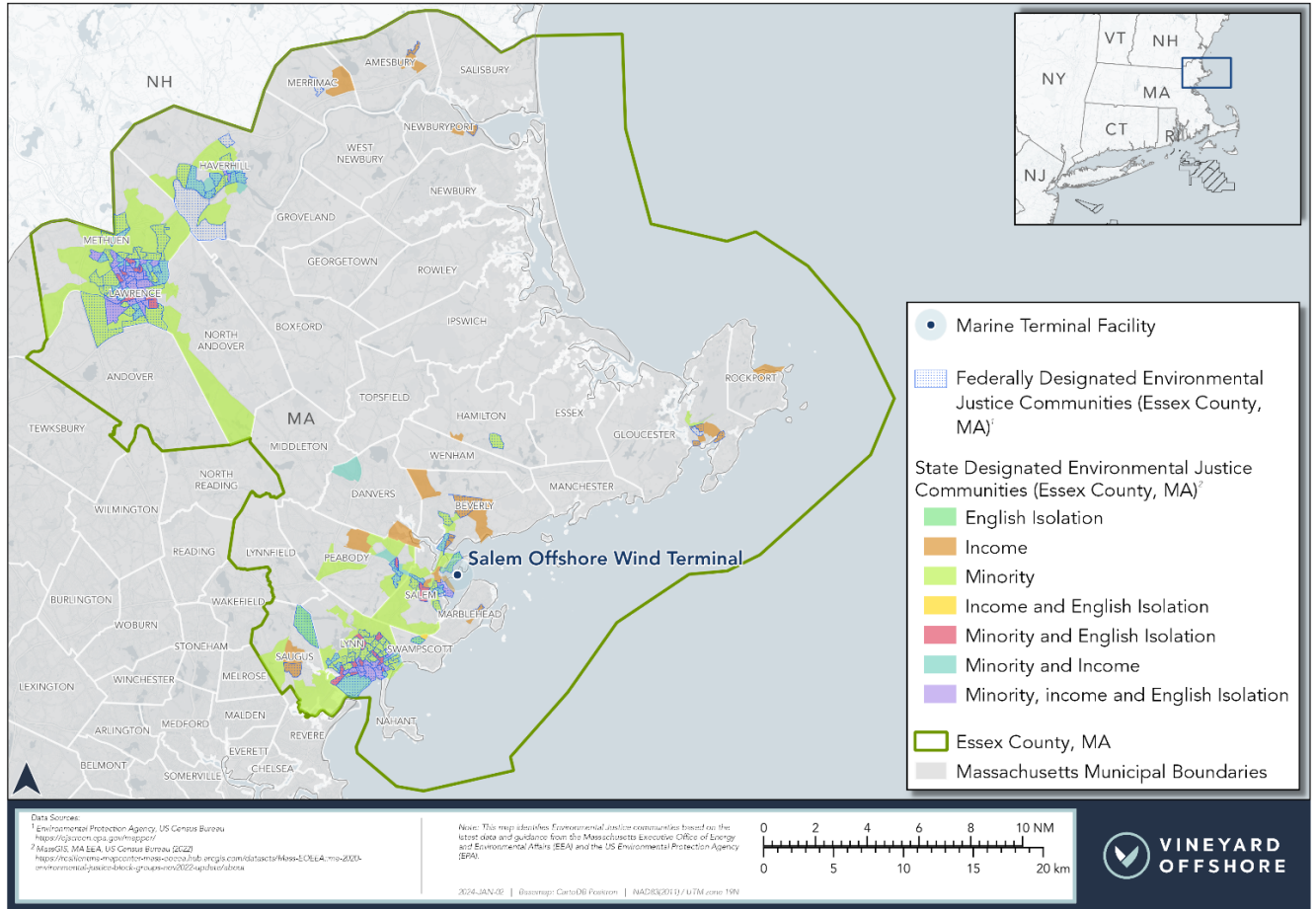
Bristol County, Massachusetts, contains 130 census block groups that meet the federal EJ criteria and 183 census block groups that meet the Commonwealth’s EJ criteria. As shown in Figure 1, the EJ communities in Bristol County that may be impacted by Project-related activities are concentrated around the City of New Bedford.



Host Communities in Essex County

Construction staging activities are expected to occur at the Salem Offshore Wind Terminal in Salem, Essex County, Massachusetts (see Section 10 of the proposal for details). In Essex County, 165 census block groups meet the federal EJ criteria and 267 meet the Commonwealth's EJ criteria. As shown in Figure 2, EJ communities are present around Salem Harbor, although the marine terminal facility itself is not located within an EJ community.

Figure 2 Environmental Justice Communities in Essex County, Massachusetts

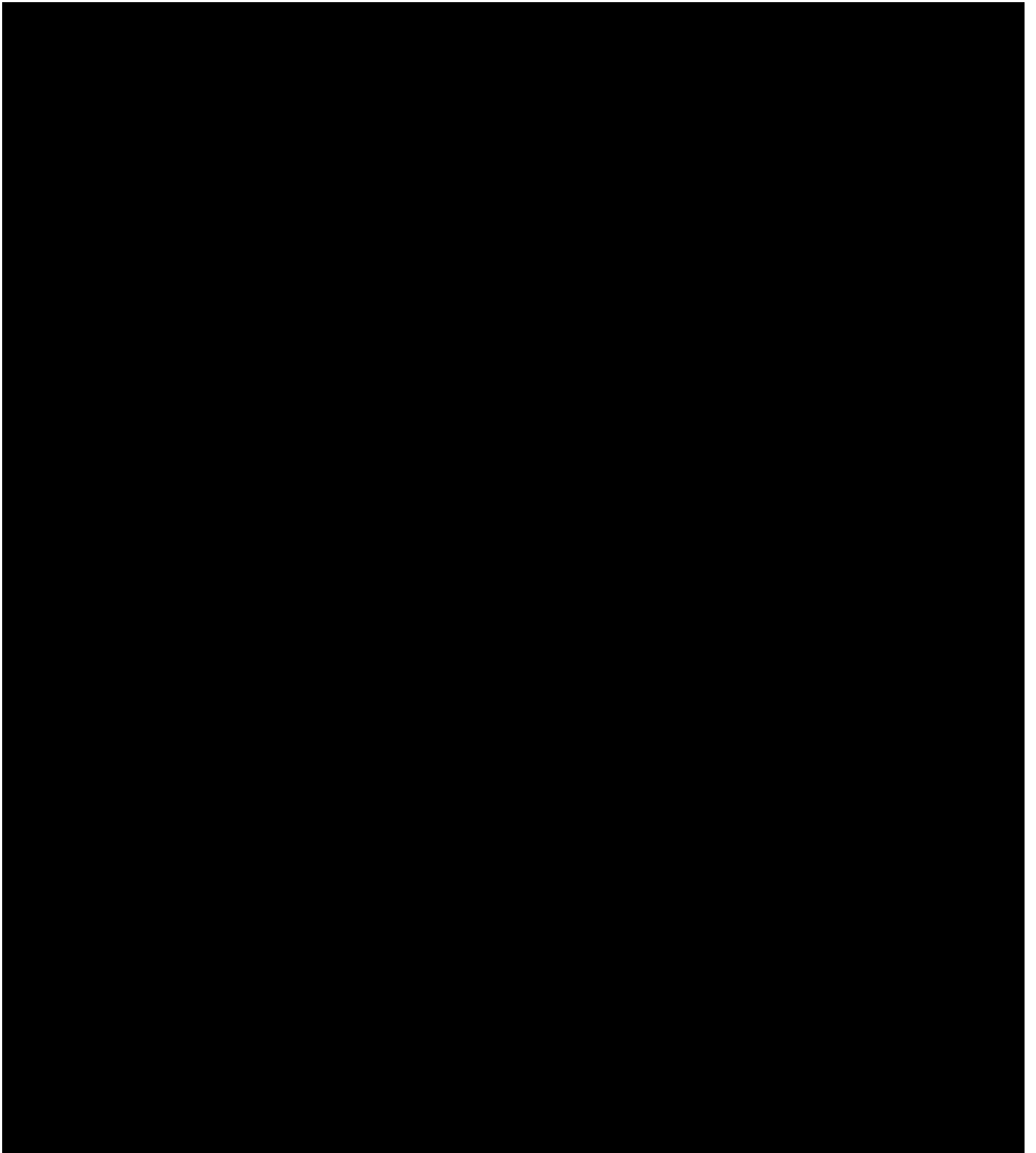


[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



III. AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Demonstrated plans or investments to avoid, minimize, and mitigate environmental burdens and other negative impacts from the project on host communities, Environmental Justice populations, and tribal communities or tribal resources.

Unlike fossil fuel power plants, offshore WTGs produce energy without generating harmful emissions, producing hazardous waste, or exacerbating climate change. The potential environmental burdens and other negative impacts associated with this renewable energy resource, therefore, are largely avoided or comparatively minor. Critically, unlike fossil fuel power plants, offshore wind projects are not anticipated to cause adverse health effects to any population.

Assessing the benefits and impacts associated with an offshore wind project on host communities is a multi-faceted endeavor that requires consideration of many factors and stakeholder views, as well as a recognition that stakeholder views are not static and may change over time. The siting, design, and mitigation measures that determine the location, nature, and extent of potential negative impacts are in the early phase of development and will be advanced through the permitting process.

For the same reasons, the location, nature, and extent of the potential benefits cannot be fully assessed at this stage. With some exceptions, developing community and other Project benefits requires significant stakeholder engagement over the course of several years. This engagement effort cannot be circumvented or condensed to fit into a competitive solicitation's timeline; however, a framework for delivering Project benefits directly to affected communities has been established and will evolve as the Project moves forward.

An overview of the Project's benefits, potential onshore impacts to host communities (including EJ communities) and tribal communities, and proposed avoidance, minimization, and mitigation measures is provided below. Potential offshore impacts and associated avoidance, minimization, and mitigation measures are detailed in Section 5.2 of COP Volume II, included in Attachment 7.1-2 to the proposal.

Project Benefits

Vineyard Wind 2 will deliver more than 5,000 gigawatt-hours of emission-free renewable energy annually—enough to power more than 650,000 Massachusetts homes—starting in 2031. The Project will provide significant electricity market impacts and other benefits over a 20-year

power purchase agreement (PPA) period. [REDACTED]
[REDACTED]
[REDACTED]

The Project’s clean energy will also support further decarbonization of the ISO-NE electrical grid, improve air quality, and avoid air pollution-related health costs and economic impacts. On average, the Project is expected to avoid approximately 2.1 million tons of carbon dioxide (CO₂) emissions across the entire ISO-NE electrical grid each year, or the equivalent of taking approximately 414,000 cars off the road.⁴ These avoided emissions [REDACTED] will help the Commonwealth achieve its nation-leading net zero by 2050 greenhouse gas (GHG) emission reduction target.

Although the construction of any new infrastructure will generate emissions, Vineyard Wind 2’s construction impacts will be quickly offset by its benefits. For Vineyard Wind 1, for example, without any additional mitigation, direct carbon dioxide equivalent (CO₂e) emissions from construction, operation, and decommissioning of the project will be offset after less than five months of operation by displacing electricity produced by fossil fuel power plants. Vineyard Offshore expects that the Project will offset its direct CO₂e emissions within a similar timeframe.

A summary of Vineyard Wind 2’s climate benefits in Massachusetts and New England is provided in Table 1. Additional information is provided in Attachment 13.5-1 to the proposal.

Table 1 Vineyard Wind 2’s Climate Benefits

State/Region	CO ₂ Emission Reductions (tons) ^{1,2}	Avoided Social Costs (2023\$) ^{1,2}
Massachusetts	19.4 million	[REDACTED]
ISO-NE	42 million	[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

In addition to reducing GHG emissions, the Project will reduce regional emissions of harmful air pollutants such as nitrogen oxides (NO_x), sulfur dioxide (SO₂), and fine particulate matter (PM_{2.5}), which lead to early death, heart attacks, respiratory disorders, stroke, exacerbation of asthma, and illnesses that result in absenteeism at school and work.

⁴ A typical passenger vehicle emits about 4.6 metric tons of CO₂ per year (EPA c2023).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Project Impacts

Onshore Construction and Maintenance Activity Impacts

Construction and maintenance activities related to the Project’s onshore facilities may result in temporary increased traffic, noise, dust, and/or air emissions. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The timing of onshore construction activities will be coordinated with state and local agencies to avoid seasons or times of peak usage and to align with planned public works projects, where feasible, to minimize disruption. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EJ

communities are not anticipated to be disproportionately impacted by these short-term activities.

[REDACTED]

Port Utilization Impacts

As described in Section II, construction staging and O&M activities are expected to occur at marine terminal facilities in Essex County and Bristol County, Massachusetts, respectively. Each port planned for use by the Project is located in an industrial waterfront area where another entity intends to develop the requisite infrastructure to support the offshore wind industry. Project activities at these ports will be typical of marine industrial uses and may result in temporary increases in traffic, noise, and air emissions from support vehicles and vessels. The marine industrial activities at these ports are not anticipated to disproportionately affect EJ communities. Further, port utilization may result in additional employment opportunities in host communities, including EJ communities, as described above.

Potential Visual Effects

Host communities may experience visual effects [REDACTED] (see Sections 6 and 8 of the proposal for additional details). Although some EJ communities may be impacted, the potential effects to EJ and non-EJ communities are comparable, so no disproportionate impacts are expected. [REDACTED]

[REDACTED]

Summary of Avoidance, Minimization, and Mitigation Measures

Vineyard Offshore’s proposed measures to avoid, minimize, and mitigate potential effects to tribal communities, EJ communities, and other host communities are summarized as follows:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Considering these and the other avoidance, minimization, and mitigation measures identified in the Environmental Mitigation Plan (see Attachment 7.5-1 to the proposal), it is not expected that EJ communities or tribal communities will bear disproportionately high or adverse impacts or receive disproportionately low benefits from the Project.

IV. ENGAGEMENT WITH AFFECTED COMMUNITIES

Plans to engage with affected communities through public involvement, best practices targeted outreach and education events, including identified partnerships with existing Environmental Justice organizations, and federally recognized and state acknowledged tribes.

Vineyard Offshore’s approach to community engagement—pioneered on Vineyard Wind 1—has cultivated enduring support for offshore wind projects and delivered tangible benefits to state and local economies. This approach is stakeholder-driven, features a broad range of communication and dialogue strategies, and is centered on a collaborative process whereby projects and project benefits are developed in partnership with Tribal Nations, host communities, stakeholders, and regulators.

We recognize that affected communities may have different needs when it comes to receiving information and participating in the offshore wind development process. For that reason, we employ an array of methods to disseminate information and engage with interested community stakeholders while also evaluating and adapting approaches to ensure the effectiveness of community outreach efforts. These methods include holding information sessions in public spaces, staffing information tables at community events, and hosting office hours. Such events will be advertised on Vineyard Offshore’s dedicated community webpage (<https://www.vineyardoffshore.com/local-communities>), and through social media, press releases, other media, and in-person outreach. We will consider accessibility when scheduling and hosting events to ensure that affected communities have the opportunity to meaningfully participate.

Our Community Engagement Plan, included as Attachment 7.8-3 to the proposal, further details our ongoing efforts and plans to engage with affected communities, including EJ communities. Our approaches to engaging with and disseminating information to Tribal Nations are summarized below and further outlined in the Native American Tribes Communication Plan, which is provided as Attachment 7.6-2 to the proposal.

[REDACTED]

Tribal Engagement

Vineyard Offshore respects the sovereignty of Tribal Nations and is committed to a robust engagement process with attention to economic, cultural, environmental, and capacity issues. We also understand and respect that the region surrounding the Project is a part of Tribal Nations’ cultural heritage and their traditional bonds to the past and that this region is important to their cultural identity, sense of self, and future well-being. With the goal of a

mutually beneficial partnership, we work to have open communication, early coordination, and information sharing to ensure that trust and relationships are built and sustained throughout the Project's lifespan.

[REDACTED]

Vineyard Offshore has a Tribal Lead who serves as Vineyard Offshore's primary point of contact for tribal communities. The Tribal Lead focuses on building and maintaining collaborative relationships with tribal governments and members of Tribal Nations. The Tribal Lead is also responsible for coordinating pre-survey meetings as well as regular check-ins with Tribal Nations either by text, email, phone calls, or meetings (in-person or virtual). The Tribal Lead will provide timely notice to tribal communities on critical development milestones and public comment opportunities during the permitting process. The Tribal Lead also regularly participates in local, state, and national tribal events and conferences, including the National Congress of American Indians.

As further described in the Native American Tribes Communication Plan provided as Attachment 7.6-2 to the proposal, Vineyard Offshore will work with each Tribal Nation individually to develop communication and information sharing protocols that reflect their preferred method(s) and frequency of communication. These approaches could include, but are not limited to, one-on-one and group meetings, conference calls, text messages, listening sessions, email updates, certified letters, virtual and in-person vessel tours and site visits, and social media updates.

To ensure that tribal communities have ready and timely access to data and information, Vineyard Offshore has developed a dedicated tribal webpage. This public "Tribal Nations" webpage will be updated, as needed, to provide information and documents on topics relevant to tribal communities, such as the Section 106 of the National Historic Preservation Act process, survey activities, fisheries science, and, eventually, construction updates. [REDACTED]

[REDACTED]

[REDACTED]

We will also collaborate with other offshore wind developers, as well as federal agencies (where appropriate), to identify opportunities to streamline communication and information sharing efforts to reduce the demand for limited tribal resources to participate in offshore wind project development processes.

V. INCORPORATING INPUT

Plans to incorporate input from impacted host communities, especially Environmental Justice populations and tribes, into decision-making regarding project siting and development as well as plans for avoidance, minimization, and mitigation.

Vineyard Offshore began outreach specific to Lease Area OCS-A 0522 in 2019, early in the project development process and well before the start of the federal permitting process. [REDACTED]

Throughout the development, construction, operations, and decommissioning phases, we will continue to actively engage with agencies, Tribal Nations, host communities (including EJ communities), and other stakeholders to identify and discuss their interests and concerns regarding the Project. [REDACTED]

Additional information about how input has been or will be incorporated into project design and siting measures for Vineyard Wind 2 is provided in the Fisheries Mitigation Plan, Environmental Mitigation Plan, and Community Engagement Plan included as Attachments 7.4-1, 7.5-1, and 7.8-3 to the proposal, respectively. Evidence of our track record of engaging with affected communities and implementing measures to avoid, minimize, and mitigate impacts is provided in Section 7.3 of the proposal.

VI. PROJECT BENEFITS, TRACKING, AND REPORTING

Plans to direct positive benefits from the project to Environmental Justice communities and strategy plan to track and report on the status of environmental justice impacts, meaningful engagement and employment (effective training, recruitment and hiring goals) opportunities. Strategy plans may include a commitment with a government entity to share said tracking and reporting. If such a commitment is not presented, DOER will work with selected bidder after selection but before contract execution to implement an agreed-upon tracking and reporting strategy.

Tribal Nation and EJ Community Benefits

Vineyard Offshore will continue to prioritize and expand engagement with Tribal Nations and host communities, including EJ communities, potentially impacted by Vineyard Wind 2, with a focus on ensuring that the economic benefits of offshore wind development are available to these communities. [REDACTED]

Vineyard Offshore is well positioned to succeed with these efforts as demonstrated by our experience with Vineyard Wind 1 (see Attachments 7.3-1 and 7.3-2 to the proposal). Additional information about the Project's economic and job benefits, and our commitment to building a diverse and inclusive offshore wind sector, is provided in Section 13 of the proposal.

Tracking and Reporting

Vineyard Offshore's plan to track and report on the status of EJ impacts and engagement and employment opportunities is detailed in Sections 7.7 and 13.8 of the proposal.

VII. REFERENCES

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Attachment 7.6-2: Native American Tribes Communication Plan

Native American Tribes Communication Plan

Vineyard Offshore

Document Title:	Native American Tribes Communication Plan
Company	Vineyard Offshore
Date:	November 2023
Document Type:	Plan
Revision:	3
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List of Abbreviations

NATCP	Native American Tribes Communication Plan
US	United States

Native American Tribes Communication Plan

I. Overview

Vineyard Offshore is an offshore wind development company established by the same team that developed Vineyard Wind 1 (Lease Area OCS-A 0501), the nation's first commercial-scale offshore wind project. Vineyard Offshore leads the development of two lease areas along the United States (US) East Coast – Lease Area OCS-A 0522 (also known as Vineyard Northeast) and Lease Area OCS-A 0544 (also known as Vineyard Mid-Atlantic).

This Native American Tribes Communication Plan (NATCP) describes the strategies that we intend to use for communicating with Native American tribes and outlines specific methods for engaging with and disseminating information to tribal communities with cultural and/or historical ties to the region surrounding Vineyard Northeast's offshore and onshore facilities.

Vineyard Offshore understands and respects that the areas surrounding Vineyard Northeast's offshore and onshore facilities are part of Native American tribes' cultural heritage and their traditional bonds to the past and that these areas are important to their cultural identity, sense of self, and future well-being. Open communication and consultation are therefore essential, given the potential for Vineyard Northeast to affect tribal communities' historical and cultural properties.

Throughout this NATCP, "Native American tribes" and "tribal communities" refers to both federally recognized Tribes/Tribal Nations and other Native American communities. However, Vineyard Offshore understands and respects that federally recognized Tribes/Tribal Nations are sovereign entities with particular standing when it comes to the potential impacts and benefits of offshore wind developments. Vineyard Offshore respects the sovereignty of the Tribes/Tribal Nations associated with its projects and is committed to the industry's most robust Tribal engagement process, with attention to economic, cultural, environmental, and capacity issues, among others, in the interest of environmental justice, equity, and partnership. Where appropriate, consultations or communications with federally recognized Tribes/Tribal Nations are identified.

This NATCP is based on our experience working with federally recognized Tribes/Tribal Nations in conjunction with Vineyard Wind 1 and reflects the best practice recommendations outlined in the handbook published by the Advisory Council on Historic Preservation in 2019.¹ This document will be updated, as needed, to reflect feedback from tribal communities and federal agencies and to ensure communication and information sharing protocols remain relevant and effective.

¹ See https://www.achp.gov/sites/default/files/documents/2019-10/EarlyCoordinationHandbook_102819_highRes.pdf.

II. NATCP Approach

Vineyard Offshore has gained experience engaging and communicating with tribal communities both informally and through the National Historic Preservation Act's Section 106 consultation process. We fully understand that effective communication, early coordination, and information sharing are key to building productive working relationships with tribal communities and addressing tribal concerns. Because Vineyard Offshore is developing multiple lease areas, the company is taking a comprehensive approach to communication with Native American tribes about the company's project development plans.

Through the implementation of this NATCP, Vineyard Offshore aims to:

- develop and maintain positive, long-term working relationships with tribal communities in support of tribal efforts to preserve and maintain cultural heritage and histories.
- identify opportunities to recruit, mentor, and train tribal community members for careers in the offshore wind industry.
- ensure that tribal communities are aware of Vineyard Northeast's development milestones, provided with up-to-date information, and informed of and invited to local outreach events and public meetings.
- give timely notice ahead of geological surveys and afford ample opportunities for tribal representatives to review and discuss survey results with Vineyard Offshore and contracted experts.
- understand tribal concerns about potential impacts to historical and cultural properties from the development of Vineyard Northeast.
- where appropriate, develop collaborative mitigation strategies for potentially unavoidable impacts.
- solicit input from tribal communities on offshore wind survey plans as well as project siting and design elements.

Vineyard Offshore will work with tribal communities to develop mutually acceptable protocols for effective communication and information-sharing. As much as possible, these protocols will account for how tribal communities prefer to engage with offshore wind developers and receive information.

III. Federally Recognized Tribes/Tribal Nations

Lease OCS-A 0522 requires coordination of tribal pre-survey meetings with the following federally recognized Tribes/Tribal Nations:

- Mashpee Wampanoag Tribe
- The Narragansett Indian Tribe
- Wampanoag Tribe of Gay Head (Aquinnah)

In addition to these Tribes, Vineyard Offshore is including those Tribes/Tribal Nations that are identified in Lease OCS-A 0544 and may also have historical or cultural connections to Vineyard Northeast:

- Absentee-Shawnee Tribe of Indians of Oklahoma
- Delaware Tribe of Indians
- Eastern Shawnee Tribe of Oklahoma
- Mashantucket Pequot Tribal Nation
- Mohegan Tribe of Connecticut
- Stockbridge-Munsee Community Band of Mohican Indians
- The Delaware Nation
- The Shinnecock Indian Nation

IV. Tribal Lead

Vineyard Offshore has designated a Tribal Lead who will be the primary point of contact for tribal communities for Vineyard Northeast and other lease areas. The Tribal Lead's name and contact details are provided below:

Tribal Lead

Name: Jacob Miller

Email: jmiller@vineyardoffshore.com

Phone: 774-929-0835

The name and contact details for the secondary point of contact for tribal communities are provided below:

Secondary Contact

Name: Nate Mayo

Email: nmayo@vineyardoffshore.com

Phone: 617-840-4045

The Tribal Lead will work with individual tribal representatives to ensure open lines of communication between tribal communities and Vineyard Offshore and to identify opportunities for engagement on the job training, work opportunities, energy savings projects, and sponsorship opportunities through which Vineyard Offshore and Native American tribes engage with one another and build and maintain long-term mutually beneficial relationships.

The Tribal Lead will also be responsible for coordinating pre-survey meetings as well as regular check-ins with Native American tribes either by text, email, phone calls, or meetings (in-person or virtual). The Tribal Lead will also provide timely notice to tribal communities on critical development milestones and public comment opportunities during the federal, state, and local permitting processes. The Tribal Lead will proactively identify opportunities for Native American tribes to participate in open houses or set up tribal-specific events for tribal members including, but not limited to, workforce opportunities, project updates, or Tribal Council meetings.

V. Tribal Communication and Collaboration Strategies

Vineyard Offshore's tribal communication and collaboration strategies will utilize a number of methods and tools to engage and consult with Native American tribes, disseminate information, and keep tribal stakeholders informed. Based on our experience with Vineyard Wind 1, we expect that a combination of in-person, virtual, and digital communication approaches will be essential to build relationships, ensure effective two-way communication, and share information. These approaches will include, but will not be limited to, one-on-one and group meetings, conference calls, text messages, listening sessions, e-mail updates, certified letters, virtual and in-person vessel tours and site visits, and social media updates. Vineyard Offshore will also explore with the Native American tribes opportunities to attend, present at, and support tribal meetings and events.

To ensure that Native American tribes have ready and timely access to data and information, Vineyard Offshore has developed a dedicated tribal page on our website. This "Tribal Nations" webpage will be a public resource that hosts information and documents on topics relevant to tribal communities, such as the Section 106 process, survey activities, fisheries science, and, eventually, construction updates. This page will serve as a one-stop-shop for tribal communities interested in learning about Vineyard Northeast and opportunities to engage with Vineyard Offshore. Vineyard Offshore will also create a separate non-public, log-in-only page for Tribal Historic Preservation Officers from the Native American tribes. This log-in-only page will host sensitive and confidential information that will not be available to the public, such as archaeology reports.

a. Communication and Information Sharing Protocols

Vineyard Offshore will work with Native American tribes individually to develop communication and information sharing protocols that reflect each Native American tribe's preferred method(s) and frequency of communication. Effective communication is not a one-size-fits-all endeavor, and we will attempt to tailor our approach to the needs of each Native American tribe. We are committed to working with tribal leadership and members to ensure that concerns are heard and addressed. Through a mix of trainings, programs, and conferences, we continue to build relationships that will greatly assist our communication efforts. Our Tribal Lead maintains communications through all means including calls, texts, e-mails, and in-person meetings.

We will also collaborate with other offshore wind developers as well as federal agencies, where appropriate, to identify opportunities to streamline communication and information sharing efforts to reduce the demand for limited tribal resources to participate in the offshore wind project development process.

b. Tribal Pre-Survey Meetings

Vineyard Offshore held tribal pre-survey meetings for the Mashpee Wampanoag Tribe, the Narragansett Indian Tribe, and the Wampanoag Tribe of Gay Head (Aquinnah) as required in Section 4.2.3 of Lease OCS-A 0522 Addendum "C." The purpose of these meetings was to provide these federally recognized Tribes/Tribal Nations with an opportunity to discuss

Vineyard Northeast's Survey Plan with Vineyard Offshore and a Qualified Marine Archaeologist and to request the ability to monitor portions of the survey, including the visual logging and analysis of geotechnical sampling. Tribal pre-survey meeting notifications were sent at least 15 calendar days prior to the date of the proposed tribal pre-survey meetings, and the meetings were held for each individual Tribe/Tribal Nation at least 30 calendar days prior to the commencement of survey activities.

Once survey data have been collected and reviewed, Vineyard Offshore will offer the Tribes/Tribal Nations opportunities to discuss and review the findings.

c. Workforce Development

Vineyard Offshore will work proactively with Native American tribes to identify opportunities to recruit, mentor, and train interested tribal community members for careers in the offshore wind industry. As a first step, we will discuss with Native American tribes their interest in a tribal workforce assessment to identify individuals and Native American tribe-affiliated businesses who are interested in working in the offshore wind industry during construction or operations, within the supply chain, or in support of development work such as surveys and permitting. A similar assessment was conducted for Vineyard Wind 1 to classify skills gaps and associated needs and map out pathways forward with existing training programs and barrier-reduction tools.



Attachment 7.8-1: Letters of Support

REDACTED



Attachment 7.8-2:



REDACTED



Attachment 7.8-3: Good Neighbor Agreement

GOOD NEIGHBOR AGREEMENT

This Good Neighbor Agreement (“Agreement”) is made and entered into on this 27 day of August, 2020 (the “Effective Date”), by and between **Vineyard Wind, LLC**, a Delaware limited liability company with its principal office located at 700 Pleasant Street, Suite 510, New Bedford, Massachusetts 02740 (“Vineyard Wind”), the **Town and County of Nantucket, Massachusetts** (the “Town”), the **Maria Mitchell Association** (“MMA”), and the **Nantucket Preservation Trust** (“NPT”) (collectively the “**Nantucket Parties**”).

WHEREAS, Vineyard Wind is the leaseholder of two commercial wind energy leases on the Outer Continental Shelf known as OCS-A 0501 and OCS-A 0522 which are located within the Massachusetts Wind Energy Area; and

WHEREAS, Vineyard Wind intends to develop, permit, finance, construct, operate and maintain a total of five (5) offshore wind projects within its OCS-A 0501 and OCS-A 0522 lease areas; and

WHEREAS, Vineyard Wind’s first 800 MW offshore wind project is located in the northern portion of the OCS-A 0501 lease area with the northern edge of the project located approximately 15 statute miles from the island of Nantucket; and

WHEREAS, the islands of Nantucket, Tuckernuck, and Muskeget comprise the Nantucket Historical District National Historic Landmark by the National Park Service listed in the National Register of Historic Places; and

WHEREAS, the Nantucket Parties support appropriately designed and sited renewable energy development and Vineyard Wind supports measures that protect, restore, and preserve cultural and historic resources, including those affected by utility-scale energy development, sea level rise, and global climate change; and

WHEREAS, Vineyard Wind and the Nantucket Parties will be neighbors for decades to come, the Parties believe it is in their best interests to have a long-term, productive and mutually beneficial relationship with one another.

NOW, THEREFORE, in consideration of the mutual covenants and mutual consideration hereinafter contained, the sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. Purpose of the Agreement

The purpose of this Agreement is to establish a long-term relationship between Vineyard Wind and the Nantucket Parties and more generally, the Nantucket Community, to support and promote the Parties’ mutual interests in renewable energy development, combating the effects of global climate change, enhancing coastal resiliency, and protecting, restoring, and preserving

cultural and historic resources through the establishment of the Nantucket Offshore Wind Community Fund.

2. Definitions

“Community Foundation for Nantucket” means the tax exempt, nonprofit organization located at 9 Bayberry Court, Nantucket, MA 02554 and established to support broad-based charitable interests on Nantucket.

“Effective Date” means the date as written in the opening paragraph of this Agreement.

“Financial Close” means for each individual project (i.e., the Vineyard Wind 1 Project, and each of the individual subsequent Future Projects), the date on which the financing agreements are executed and designated as effective and disbursement of funds under such agreements are made available for the construction of the applicable project.

“MMA” means the Maria Mitchell Association, a private nonprofit organization located on Nantucket whose mission is to create opportunities to develop a life-long passion for science through education, research, and first-hand exploration of the sky, land, and sea of Nantucket Island.

“Nantucket Community” means the full and part-time residents, landowners, business owners, nonprofit organizations, and other stakeholders on the islands of Nantucket, Tuckernuck, and Muskeget.

“Nantucket Historical District National Historic Landmark” means the islands of Nantucket, Tuckernuck, and Muskeget together, which are listed in the National Register of Historic Places and designated a National Historic Landmark by the National Park Service.

“Nantucket Offshore Wind Community Fund” or “Fund” means the fund established pursuant to this Agreement to support projects and initiatives related to protecting, restoring, and preserving cultural and historic resources, coastal resiliency, climate adaptation, and renewable energy.

“Nantucket Parties” means the Town, MMA, and NPT.

“NPT” means the Nantucket Preservation Trust, a nonprofit, membership-based organization whose mission is to protect, promote and preserve Nantucket’s unique architectural heritage and sense of place.

“Party” means Vineyard Wind, the Town, MMA, or NPT as the case may be and “Parties” shall be construed to mean collectively Vineyard Wind, the Town, MMA, and NPT.

“Projects” means the Vineyard Wind 1 Project and the Vineyard Wind Future Projects, collectively.

“Section 106 Process” means the process mandated by Section 106 of the National Historic Preservation Act (54 U.S.C. § 300101 *et seq.*) that requires federal agencies to take into account the effects of their permitting activities on historic properties.

“Section 110(f)” means Section 110(f) of the National Historic Preservation Act (54 U.S.C. § 306107) that requires federal agencies to require all possible planning to minimize harm to National Historic Landmarks;

“Select Board” means the elected body created by and vested with the powers enumerated in the Charter of the Town of Nantucket.

“Town” means the Town and County of Nantucket, Massachusetts, including its Boards, Commissions, and Committees as established pursuant to the Charters of the Town and County of Nantucket.

“Vineyard Wind” means Vineyard Wind, LLC, a limited liability company organized and authorized to conduct business under the laws of the State of Delaware and authorized under the operating rules of its business to hold and operate leases, right-of-way grants, and right-of-use and easement grants for activities that produce, or support production, transportation, or transmission of energy from sources other than oil and gas, on the Outer Continental Shelf (OCS), and right-of-use and easement grants for the alternate use of OCS facilities for energy or marine-related purposes.

“Vineyard Wind Future Projects” means the four (4) projects Vineyard Wind intends to develop, permit, finance, construct, operate, and maintain within its OCS-A 0501 and OCS-A 0522 lease areas with associated export cables to Massachusetts and potentially other states, the precise timing of regulatory approval, Financial Close, construction, and operation of each project being currently unknown.

“Vineyard Wind 1 Project” means Vineyard Wind’s first 800 MW offshore wind project located in the northern portion of its OCS-A 0501 lease area with an export cable through federal and Massachusetts state waters and Nantucket municipal waters connecting to the grid in Barnstable, Massachusetts, which has received all required state permits and is expected to receive all federal permits necessary in early 2021 and reach Financial Close in the second or third quarter of 2021.

3. The Nantucket Offshore Wind Community Fund

- 3.1. The Nantucket Parties shall establish the Nantucket Offshore Wind Community Fund to support projects and initiatives related to protecting, restoring, and preserving cultural and historic resources, coastal resiliency, climate adaptation, renewable energy, and other such areas related to the Parties’ mutual interests.
- 3.2. The Fund shall be managed by the Community Foundation for Nantucket, or another appropriate foundation agreed to by the Parties. Funding decisions shall be made by the Fund’s Board of Directors. The Town shall appoint the initial members of the Fund’s Board of Directors, which shall include reserved seats for at least one representative from each of the Nantucket Parties and an ex officio member from Vineyard Wind. The Fund’s Board of Directors will adopt qualifying criteria for additional board members. The Fund shall be established prior to Financial Close for the Vineyard Wind 1 Project.

4. Vineyard Wind's Obligations. Vineyard Wind hereby covenants and agrees as follows:

- 4.1. To support the establishment of the Offshore Wind Community Fund and facilitate its viability, at Financial Close for the Vineyard Wind 1 Project Vineyard Wind shall contribute \$4 million to the Fund. To provide continued support for the fulfillment of the purposes of the Fund, Vineyard Wind shall contribute \$3 million to the Nantucket Offshore Wind Community Fund at Financial Close for each of the Vineyard Wind Future Projects. Vineyard Wind's obligations under this Section 4.1 are contingent on the U.S. Department of Interior, Bureau of Ocean Energy Management (BOEM) completing the Section 106 process and issuing a Record of Decision and Vineyard Wind reaching Financial Close for the Vineyard Wind 1 Project and for each of the Vineyard Wind Future Projects.
- 4.2. Vineyard Wind shall coordinate with the Nantucket Parties with regard to the development, permitting, construction, and operations and maintenance of the Projects, as well as to identify additional opportunities by which the Nantucket Parties and Vineyard Wind may work together to promote their mutual interests.
- 4.3. For the Vineyard Wind 1 Project, Vineyard Wind agrees to paint the turbines a non-reflective off- white/light gray color to blend into the horizon and to install an Automatic Detection and Lighting System (ADLS). For each Future Project, Vineyard Wind agrees, subject to available technology and approval by BOEM and/or the Federal Aviation Administration (FAA), to paint the turbines a non-reflective off- white/light gray or similar color that blends into the horizon and to install an ADLS or similar system to reduce nighttime lighting and minimize the potential visual impacts of the Projects on the Nantucket Historical District National Historic Landmark. If Vineyard Wind declines to paint the turbines a color that blends into the horizon and/or install an available system that would reduce nighttime lighting for a Future Project despite receiving approval from BOEM and/or the FAA to do so, the Nantucket Parties reserve their right to oppose that Future Project in any available forum and likewise, in that event, Vineyard Wind reserves its right not to make payment in accordance with section 4.1 for that Future Project. If the turbines are painted a color that blends into the horizon and an ADLS or similar system is installed, the Nantucket Parties are satisfied that all possible planning has been used to minimize adverse effects, as required by Section 110(f) of the National Historic Preservation Act.
- 4.4. No future turbines will be sited closer to Nantucket Historic District than the front row of turbines currently planned for Vineyard Wind 1 Project.

5. Nantucket Parties' Obligations. The Nantucket Parties hereby covenant and agree as follows:

- 5.1. The Nantucket Parties agree to establish the Nantucket Offshore Wind Community Fund in accordance with the terms of this Agreement.
- 5.2. From and after the Effective Date through the Term of this Agreement, the Nantucket Parties shall use reasonable good faith efforts to (a) ensure that Nantucket residents and

visitors are informed of the benefits of the Projects, receive opportunities to learn about and engage in the Projects, and address concerns as they arise, (b) provide Vineyard Wind with advice and guidance as how to best to engage with the Nantucket Community with respect to the Projects, and (c) convey support for the Projects and Vineyard Wind's demonstration of community engagement through the Nantucket Offshore Wind Community Fund. Nothing herein shall preclude the Nantucket Parties from being eligible for other programs and services that may be made available by Vineyard Wind, including, for example, the Affordability & Resiliency Fund, Workforce Training, and future arrangements for discounted electrical supply.

- 5.3. From and after the Effective Date through the Term of this Agreement, and in consultation with Vineyard Wind, the Nantucket Parties shall use their reasonable best efforts to inform federal, state, and local elected officials of their support for the Projects, as part of BOEM's National Environmental Policy Act and Section 106 and Section 110(f) reviews and applicable Massachusetts state and local permit and approval reviews, including where applicable Nantucket Conservation Commission reviews.
- 5.4. The Nantucket Parties agree that Vineyard Wind's commitments pursuant to Sections 4.3 and 4.4 herein are sufficient to minimize and/or mitigate the potential visual impacts of the Projects for Section 106 and Section 110(f) purposes and further agree to so inform BOEM, the National Park Service, and the Massachusetts Historical Commission of such agreement.
- 5.5. If the Nantucket Parties decline to fulfill their obligations under this Section 5 related to one or more Projects, Vineyard Wind shall have no further obligations under Section 4.1 to contribute funding to the Fund with respect to those Projects. Likewise, if Vineyard Wind declines to fulfill its obligations for one or more projects, the Nantucket Parties shall have no further obligations with respect to those Projects.

6. Parties' Mutual Obligations

- 6.1. The Parties agree to communicate with one another on a regular basis on community relations and potential opportunities to advance the Parties' mutual interests.
- 6.2. The Parties agree to collaborate on sourcing additional support for the Fund.

- 7. Term and Termination.** The term ("Term") of this Agreement shall commence on the Effective Date and terminate the earlier of 15 years from the Effective Date or the date upon which Vineyard Wind reaches Financial Close for its last and final Future Project to be constructed in its OCS-A 0501 or OCS-A 0522 lease areas.

- 8. Representations and Warranties.** Each Party represents and warrants to the other Party that:

- (i) the execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any applicable laws;

(ii) this Agreement, and each document executed and delivered in accordance with this Agreement, constitutes its legally valid and binding obligation enforceable against it in accordance with its terms; subject to any bankruptcy, insolvency, reorganization and other laws affecting creditors' rights generally, and with regard to equitable remedies, the discretion of the applicable court;

(iii) all such persons as are required to be signatories to or otherwise execute this Agreement on its behalf under all applicable laws have executed and are authorized to execute this Agreement in accordance with such laws;

(iv) it is acting for its own account, and has made its own independent decision to enter into this Agreement, and is not relying upon the advice or recommendations of the other Party in so doing; and

(v) it is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions, and risks of this Agreement.

9. Confidentiality.

9.1. To the extent permitted by law, the Parties acknowledge that any oral or written information exchanged between the Parties in connection with the preparation of this Agreement is regarded as confidential information, provided that the foregoing shall not apply to any such information that: (a) was generally available to the public at the time of disclosure or subsequently became generally available to the public through no act or omission attributable to the receiving Party; (b) was rightfully in the possession of the receiving Party, without an obligation of confidentiality to the disclosing Party, prior to disclosure or prior to the date of this Agreement; (c) is hereafter received by the receiving Party from a third party which is not and was not bound by confidentiality obligations to the disclosing Party; or (d) is subject to disclosure pursuant to applicable state or federal law, government regulation or order, or by the requirements of any securities exchange, or is requested to be disclosed by a governmental authority or agency or court or any self-regulatory organization (including, without limitation, any stock exchange authority), provided the receiving Party gives the disclosing Party reasonable prior notice of such requirement and affords such Party the opportunity to seek a protective order or other appropriate means to safeguard the confidentiality of such information.

9.2. Notwithstanding the foregoing, the receiving Party may disclose any oral or written information exchanged between the Parties in connection with the preparation of this Agreement to its financial, accounting or legal advisers, and to its and its affiliates' owners, members, directors, officers, employees, independent contractors, counsel, and agents, as well as existing or potential debt or equity financing parties, provided in each case that such entity or individual is under a legally binding contractual or professional ethical obligation to maintain the confidentiality and restrict its use of such information consistent with the obligations of the receiving Party under this Section 9 and provided further that the receiving Party shall be liable for any disclosure or use of such information inconsistent with its obligations hereunder.

- 10. Entire Agreement; Amendments.** This Agreement constitutes the entire agreement between the Parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings between the Parties relating to the subject matter hereof. This Agreement may not be amended or otherwise modified except by a written instrument signed by each of the Parties.
- 11. Severability.** Every provision of this Agreement is intended to be severable. If any term or provision hereof is determined by a court of competent jurisdiction to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity or legality of the remainder of this Agreement, and the other provisions hereof shall remain effective and enforceable to the greatest extent permitted by law.
- 12. Joint Work Product.** This Agreement shall be considered the joint work product of the Parties hereto and shall not be construed against either Party by reason thereof.
- 13. Successors and Assigns.** This Agreement shall be binding upon and inure to the benefit of the Parties and their respective affiliates, successors and permitted transferees and assigns.
- 14. Assignment.** No Party may assign, delegate or otherwise transfer or dispose of any of its rights or obligations under this Agreement without the prior written consent of the other Parties.
- 15. Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, excluding, to the maximum extent permitted by law, any provisions and principles thereof that would otherwise require the application of the laws of another jurisdiction.
- 16. Waivers.** The Parties recognize that the development of offshore wind power projects are subject to many risks and uncertainties, that there is no assurance that the Projects will obtain permits and approvals necessary for development and construction or receive necessary financing, and that Vineyard Wind may abandon a Project at any time, at its sole discretion. In no event will any Party or its affiliates be liable to the other Party or its affiliates for (i) any claim based on a failure to obtain a lease or a failure to receive financing, utility agreements or other approvals, or decision to abandon a Project, (ii) any claim based on a failure of an assignment to be approved or realized, or (iii) special, incidental, consequential or punitive damages, whether or not foreseeable.
- 17. WAIVER OF JURY TRIAL.** EACH PARTY IRREVOCABLY WAIVES ALL RIGHT TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM (WHETHER BASED ON CONTRACT, TORT OR OTHERWISE) ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE ACTIONS OF THE PARTIES IN THE NEGOTIATION, ADMINISTRATION, PERFORMANCE AND ENFORCEMENT HEREOF, INCLUDING THE REPUDIATION OF THIS AGREEMENT. EACH PARTY AGREES TO NON-BINDING MEDIATION PRIOR TO LITIGATION.

18. Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be delivered to the addresses set forth on the signature page to this Agreement. Such notice and other communications shall be deemed properly served (i) if delivered by hand, on the day and at the time on which delivered to the intended recipient at the address set forth in this Agreement; (ii) if sent by mail, on the third business day after the day on which deposited in the United States certified or registered mail, postage prepaid, return receipt requested, addressed to the intended recipient at its address set forth in this Agreement; or (iii) if by overnight Federal Express or other reputable overnight express mail service, on the next business day after delivery to such express mail service, addressed to the intended recipient at its address set forth in this Agreement. In each case, a copy of such notice or other communication shall be sent by email to the intended recipient at the address set forth in this Agreement. Any Party may change its address and contact person for the purposes of this Agreement by giving notice thereof in the manner required herein.

19. Further Assurances. Each Party agrees to perform all further acts, and to execute, acknowledge and deliver any documents, which may be reasonably requested by any of the other Parties to carry out the provisions of this Agreement.

20. Titles and Headings. The titles and headings used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

21. Counterparts; Execution. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, and all of such counterparts together shall constitute one and the same agreement. This Agreement, once executed by each Party, may be delivered by such Party by facsimile or similar electronic means of transmission pursuant to which the signature of or on behalf of such Party can be seen, and such execution and delivery shall be considered valid, binding and effective for all purposes. At the request of a Party, the other Party will confirm facsimile or scanned image signatures by signing an original instrument and submitting it to the requesting Party.

22. Payments. All payments made in accordance with this Agreement shall be made in immediately available U.S. Dollars by wire or electronic fund transfer to a dedicated escrow account of legal counsel to the Town, Cultural Heritage Partners, PLLC, from which that firm will convey payments to the Community Foundation for Nantucket or other foundation agreed to by the Parties for the Nantucket Offshore Wind Community Fund.

23. No Partnership. The relationship between the Parties shall not be that of partners, agents, or joint ventures, and nothing contained in this Agreement shall be deemed to constitute a partnership or agency agreement between them for any purposes, including tax purposes.

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties have executed this Agreement on the date first set forth above.

VINEYARD WIND LLC

DocuSigned by:

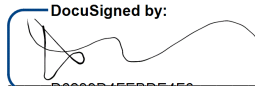
33AC5DF1A2C44C1
Name: Lars Thanning Pedersen
Title: CEO

Address for Notices:

700 Pleasant Street, Suite 510
New Bedford, MA 02740

E-mail: lpedersen@vineyardwind.com

TOWN AND COUNTY OF NANTUCKET

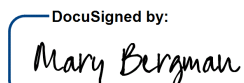
DocuSigned by:

D6239D4FEBDE4F6...
Name: Dawn Hill Holdgate
Title: Chair, Nantucket Select Board

Address for Notices:

16 Broad Street
Nantucket, MA 02554

E-mail: dhillholdgate@nantucket-ma.gov

NANTUCKET PRESERVATION TRUST

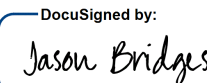
DocuSigned by:

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Name: Mary Bergman
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Nantucket, MA 02554

E-mail:
mbergman@nantucketpreservation.org

MARIA MITCHELL ASSOCIATION

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FC7D030DF2604A3...
Name: Jason Bridges
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Nantucket, MA 02554

E-mail: jbridges@mariamitchell.org



Attachment 7.8-4: Community Engagement Plan

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ATTACHMENT 7.8-4

COMMUNITY ENGAGEMENT PLAN

I. INTRODUCTION

This Community Engagement Plan (the “Plan”) was developed for Vineyard Wind 2 (the “Project”) and is based on the approach implemented for Vineyard Wind 1. This approach has proven effective at generating community support for offshore wind and gathering stakeholder feedback. Vineyard Wind 1, for example, enjoys broad support across a range of stakeholders in Massachusetts and across the region.

This Plan details our approach to working with stakeholder groups to successfully develop, construct, and operate the Project and collaboratively develop community benefits. Our years of experience working with local communities means we understand better than any other developer what it takes to build support for offshore wind projects and turn that into permitting success. Although challenges will present themselves, the Project is well-positioned to reap the benefits of our cumulative efforts to date. We are confident in our ability to succeed.

This Plan focuses on stakeholder groups in the communities where Vineyard Wind 2 will be installed, constructed, and operated. Importantly, it does not elaborate on ongoing or planned engagement activities with Tribal Nations or fisheries, workforce development, supply chain, and related stakeholders and partners. Tribal Nation communication and engagement are primarily governed by the Native American Tribes Communication Plan developed for Lease Area OCS-A 0522 (the “Lease Area”), included as Attachment 7.6-2 to the proposal, and in the Environmental Justice (EJ) Impact Assessment included as Attachment 7.6-1 to the proposal. Fisheries communication and engagement efforts are further described in the Fisheries Mitigation Plan (FMP), included as Attachment 7.4-1 to the proposal, and the Fisheries Communication Plan for the Lease Area, included as Attachment 7.4-2 to the proposal. Workforce, labor union, and supply chain engagement will largely, but not exclusively, be managed through the economic and workforce development commitments and initiatives described in Section 13 of the proposal.

II. COMMUNITY ENGAGEMENT APPROACH

Vineyard Offshore’s approach to community engagement has cultivated enduring support for offshore wind projects and delivered tangible benefits to state and local economies. This approach is stakeholder-driven, features a broad range of communication and dialogue strategies, and is centered on a collaborative process whereby projects and project benefits are developed in partnership with federal and state agencies, Tribal Nations, local communities, and other interested stakeholders.

By meeting stakeholders where they are and communicating openly and transparently, our team has built trust and productive working relationships with a diverse array of stakeholders. Vineyard Offshore spends a great deal of time listening to and learning from local communities

and leaders. We also regularly attend, speak at, host, and sponsor community events. Vineyard Offshore believes this kind of outreach and engagement is not only important to build support for our projects but is a necessary part of being a good corporate citizen.

We understand that each stakeholder group and community we engage with is unique and may have different perspectives and goals regarding offshore wind's benefits and potential impacts. Our ongoing stakeholder engagement efforts are grounded in building trust with people and organizations who live in, are representative of, and work in project-impacted communities to better understand the outcomes they desire regarding the growing offshore wind ecosystem.

Vineyard Offshore's overarching goals for community engagement across all project phases include the following:

- Identify a diverse and representative set of stakeholders and opportunities for collaboration that will yield impactful community benefits.
- Forge constructive stakeholder relationships built on trust and transparency.
- Provide accurate, factual, timely, and relevant information.
- Ensure information regarding project features and benefits is accessible and well-understood.
- Provide a range of opportunities for meaningful and inclusive public engagement and stakeholder consultation.
- Incorporate stakeholder input into project design, construction, and operations plans wherever feasible.
- Develop a shared understanding of practicable opportunities to avoid, minimize, and mitigate potential impacts.
- Deliver tangible, direct, and sustained economic benefits to local economies, host communities, and underserved populations.

Our team of experts understands that engagement is multifaceted. We engage to inform, to gather feedback, to obtain buy-in, and to shape or make decisions. Through all forms of engagement, we pursue the goal of ensuring a collaborative approach that forges positive relationships with an array of stakeholders, is consistent throughout an offshore wind project's lifecycle, and informs the allocation of direct investments and resources such as community benefits.

III. COMMUNITY ENGAGEMENT TEAM

Vineyard Offshore's community engagement efforts are primarily led by our external affairs team, which includes community organizing and campaign veterans who have spent years working for environmental non-profits, community organizations, elected officials, and political campaigns in and around the region. The external affairs team regularly coordinates with the development and commercial teams on community engagement activities to ensure effective

and targeted engagement throughout every project phase. Vineyard Offshore has also hired specialized staff to lead engagement activities with Tribal Nations, as well as commercial and recreational fishermen and marine users, to facilitate efficient communication and relationship building with these stakeholders through every project phase.

Key members of our team involved in Tribal Nation, community, fisheries, and stakeholder engagement are shown in Figure 1. Many members of the team have spent the last several years working on the Vineyard Wind 1 project, and several have experience with subsequent offshore wind projects in Massachusetts, Connecticut, and New York. [REDACTED]

[REDACTED] It is important to note, however, that all levels of Vineyard Offshore staff regularly participate in and support community engagement efforts, including members of the senior management team.

Figure 1 **Key Vineyard Offshore Stakeholder Engagement Personnel**



IV. STAKEHOLDER MAPPING

Vineyard Offshore defines “stakeholders” broadly to include individuals, institutions, organizations, groups, or communities directly or indirectly impacted by project-related activities or with a direct or indirect interest in them. This diverse group is centered in Massachusetts but spans several states and includes communities and individuals; their formal and informal representatives, including national, tribal, and local government authorities; elected officials; community organizations; public interest groups; and many others.

The stakeholder groups identified herein may overlap with one another, and the groups themselves may not include every stakeholder potentially impacted by, or interested in, our projects. As such, they should be viewed as non-exhaustive and representative of the broad range of stakeholders that Vineyard Offshore has been and will continue to consult, collaborate, and communicate with as the Project moves forward. To avoid repetition, the following discussion addresses similar stakeholder groups together.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

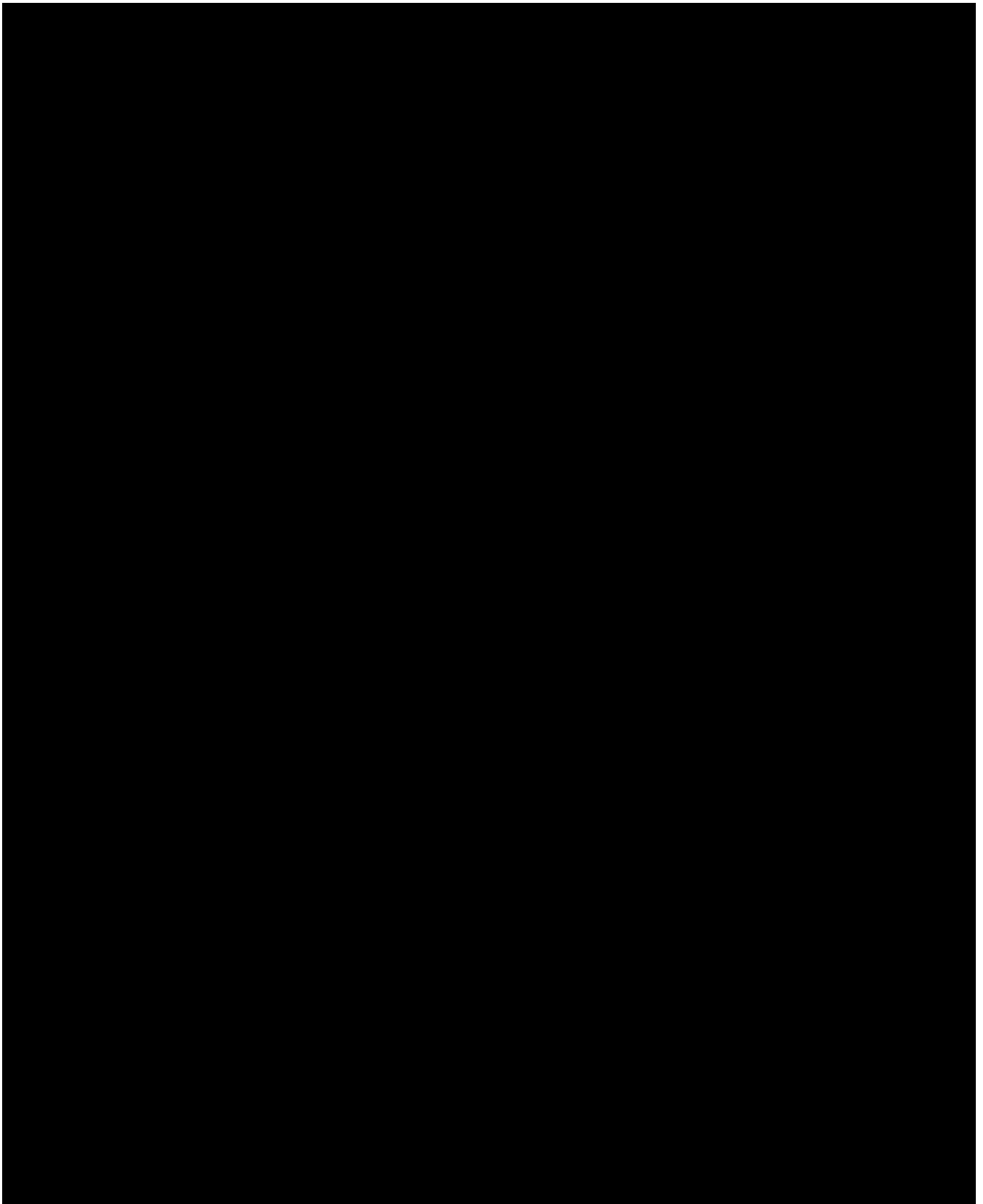
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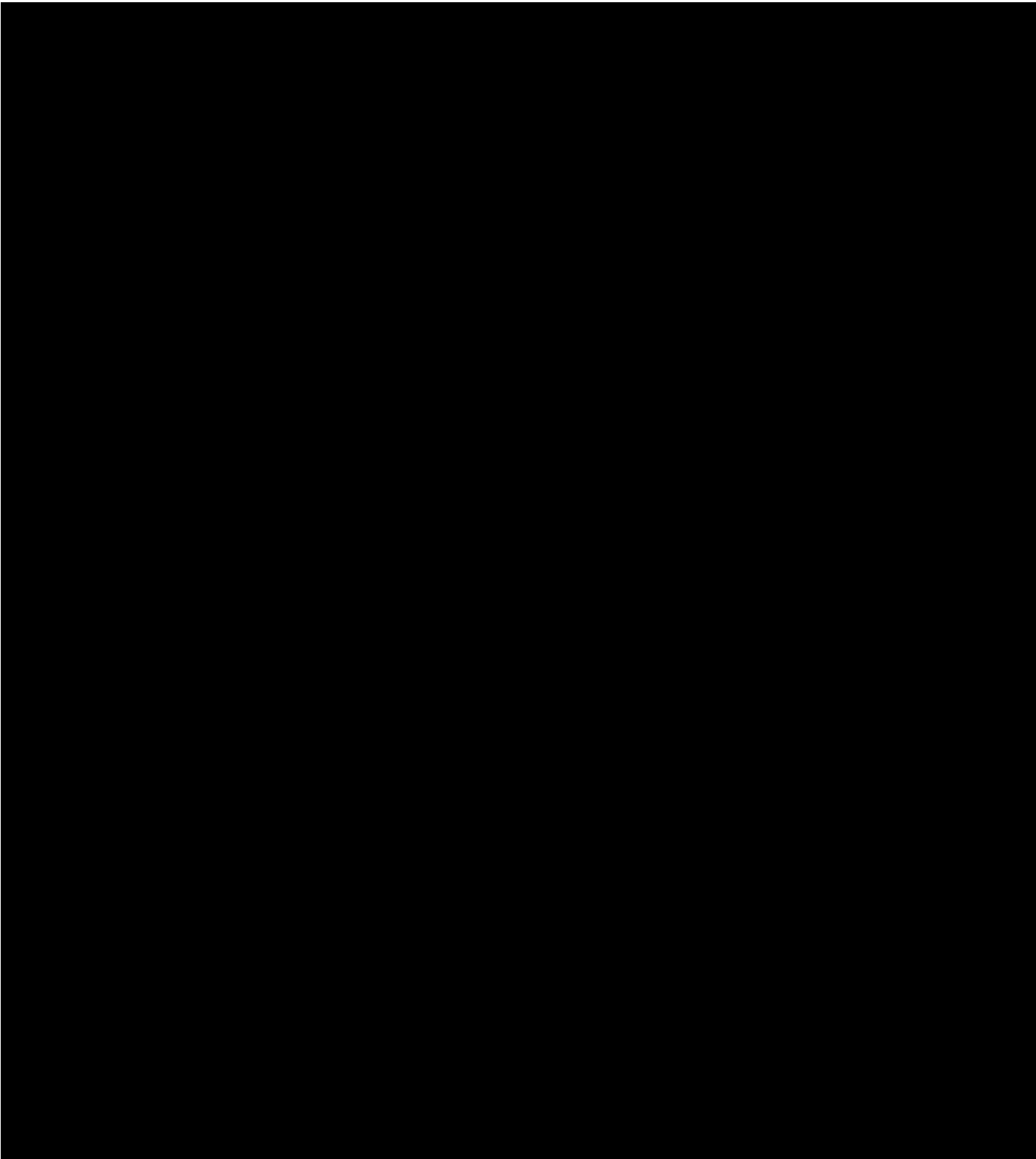
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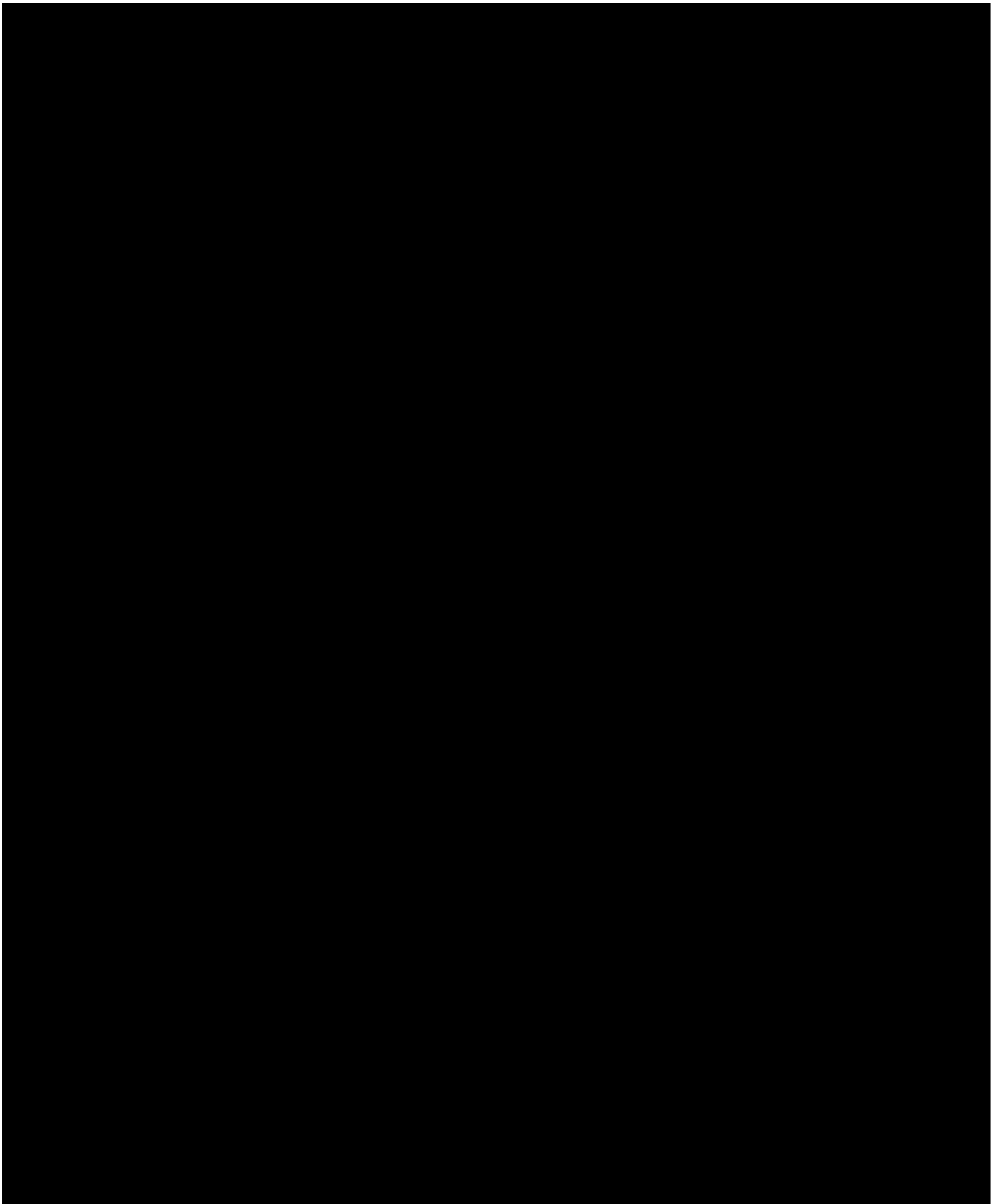
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[REDACTED]





[Redacted text block]



[REDACTED]

[REDACTED]

V. COMMUNITY ENGAGEMENT PLAN

Vineyard Offshore is well-practiced in engaging and educating the public about offshore wind, building support for projects, and responding to opposition respectfully and constructively. Our track record readily demonstrates the ability of our hands-on collaborative approach to stakeholder engagement to forge positive relationships with a variety of stakeholders at the federal, state, and local levels.

Communication and Engagement Methods

Recognizing that individuals and stakeholder groups have different needs when it comes to receiving information and participating in the project development process, we employ an array of methods to disseminate information and engage stakeholders, and we continually evaluate and adapt our approach to ensure the effectiveness of our efforts. As the COVID-19 pandemic eased, we transitioned from a fully virtual stakeholder engagement model to a hybrid model that includes a mix of in-person and virtual meetings and events. Table 1 summarizes the primary communication and engagement methods in our stakeholder engagement toolkit.

Table 1 Communication and Engagement Methods

Stakeholder Group	Communication and Engagement Method
All Stakeholder Groups	Vineyard Offshore website; social media; newsletters; emails; videos; press releases; newspaper, radio, podcast, and television interviews; virtual and in-person meetings and events; digital advertisements; third-party grievance mechanism
[REDACTED]	[REDACTED]

Table 1 **Communication and Engagement Methods (Continued)**

Stakeholder Group	Communication and Engagement Method
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED] [REDACTED] [REDACTED]
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	[REDACTED] [REDACTED]

Table 1 Communication and Engagement Methods (Continued)

Stakeholder Group	Communication and Engagement Method
[REDACTED]	[REDACTED]
	[REDACTED]
	[REDACTED]
[REDACTED]	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]

Community Engagement Activities and Targeted Outreach

Development Phase Activities

The development phase begins with initial site assessment activities and continues until financial close. Community engagement during the development phase is a significant and important investment in the long-term success of a project, the delivery of economic benefits, and the implementation of bid commitments associated with any awarded power purchase agreements (PPAs).

[REDACTED]

[REDACTED]

[REDACTED]

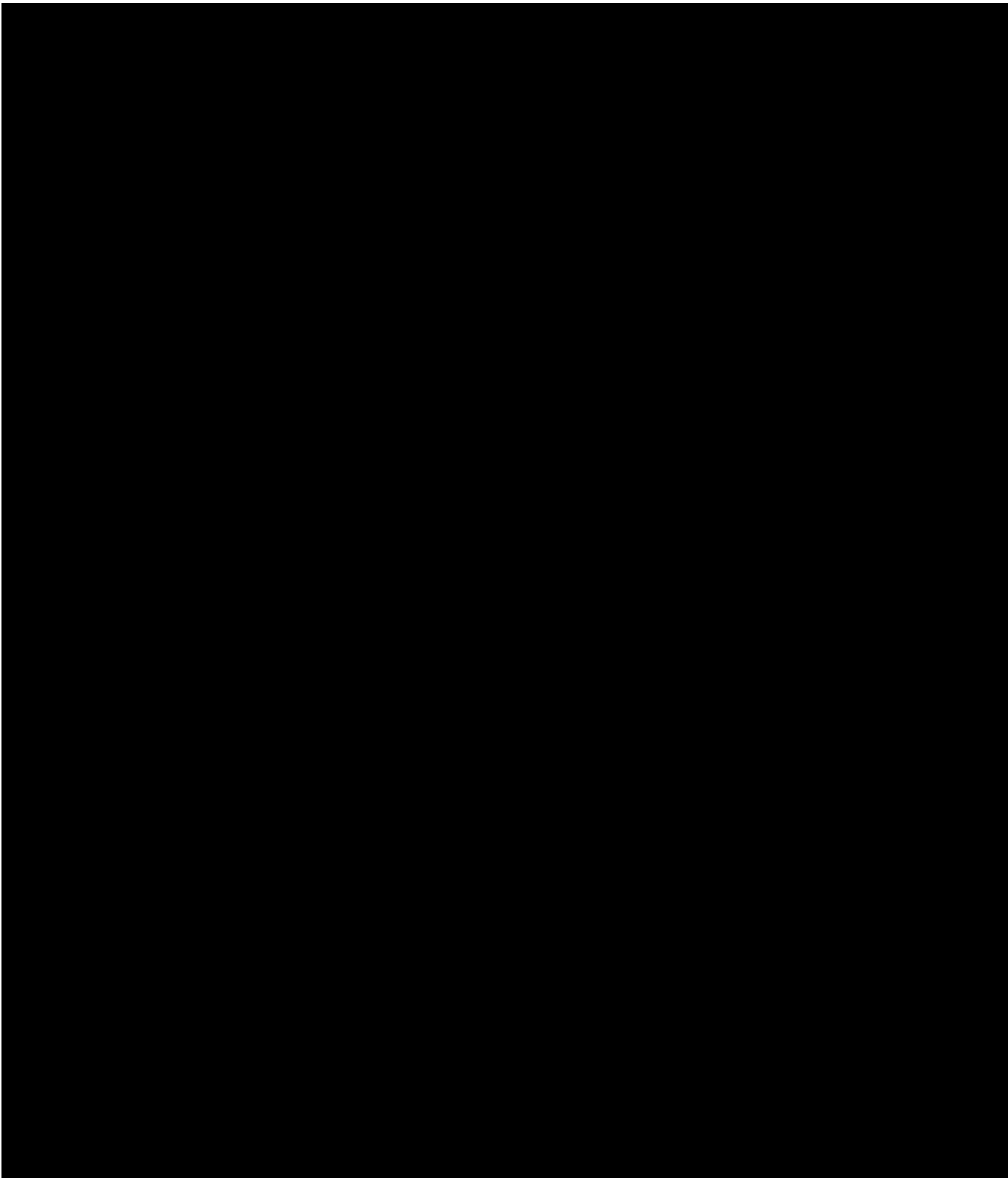
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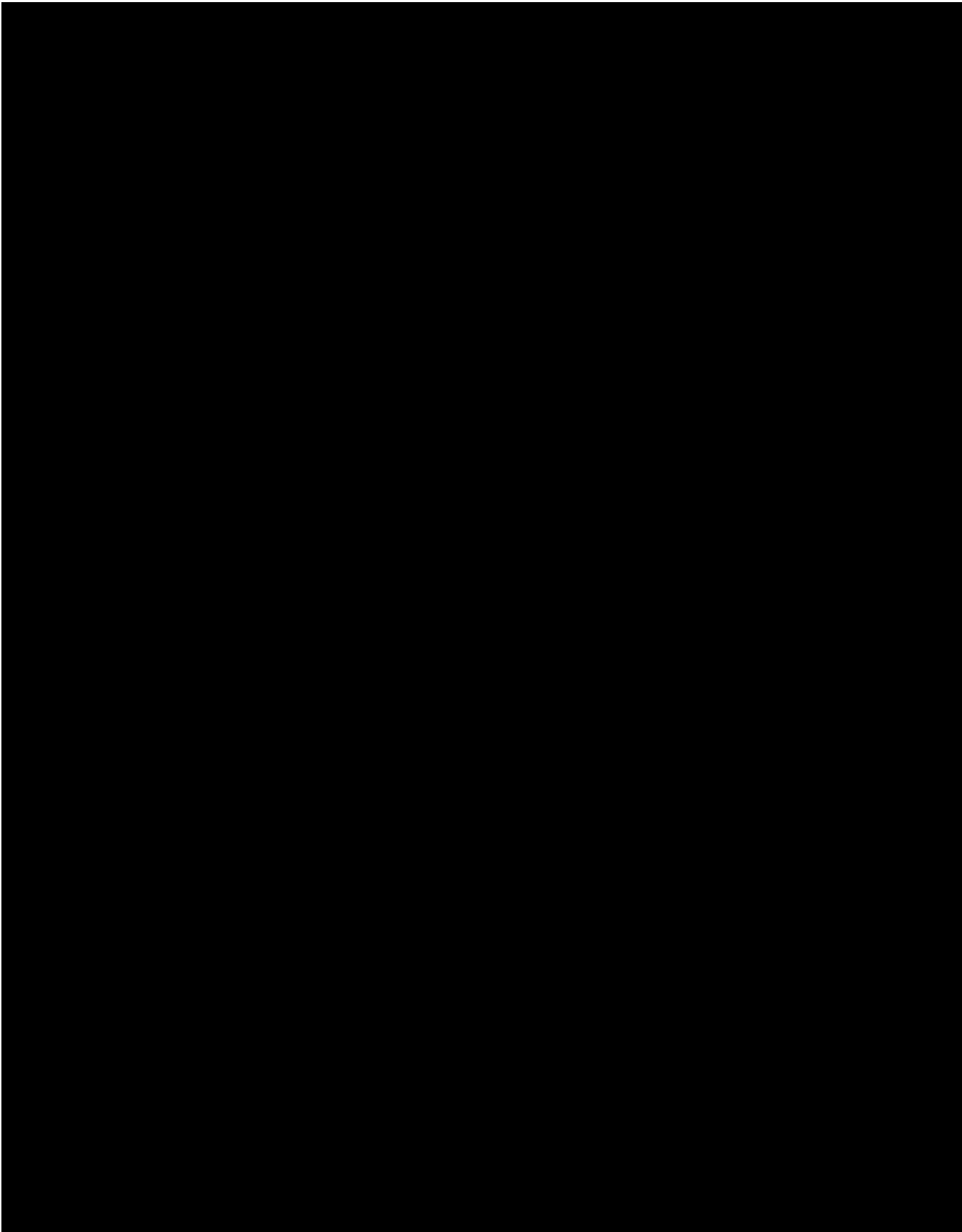
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[Redacted text block]



[REDACTED]

[REDACTED]

Construction Phase Activities

The construction phase, which includes both onshore and offshore construction activities, begins immediately after financial close. [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

Operations Phase Activities

The operations phase begins once construction activities are completed and commercial operation is achieved. [REDACTED]

[REDACTED] Overlapping construction and operations phases with other offshore developments may require an enhanced and coordinated engagement and communication effort.

[REDACTED]

Stakeholder Engagement Tracking

Tracking and measuring the impact of communication and engagement activities is an important component of Vineyard Offshore’s outreach efforts. To facilitate this, we have built and maintained a database of contacts that is accessible across teams, capturing feedback, ensuring consistent communication with stakeholders, and analyzing feedback and engagement metrics throughout every project phase. This work is central to ensuring that we maximize opportunities to consider feedback as it relates to project siting and design measures and that we remain aware and responsive to stakeholder input and concerns. Vineyard Offshore will continue to rely on stakeholder relationship management and other tools to track engagement activities and support effective and efficient stakeholder communication tailored to specific areas of interest and concerns.



Attachment 7.8-5: Project Engagement Activities

REDACTED



Attachment 9.1-1: Project Schedule

REDACTED



Attachment 10.2-1:



REDACTED



Attachment 11.2-1:

REDACTED



Attachment 12.3-1: Key Personnel Resumes

REDACTED



Attachment 12.4-1: CIP Project Portfolio Overview

REDACTED



Attachment 13.1-1: Economic Benefits Analysis

REDACTED



Attachment 13.1-2: Project Labor Agreement Commitment Letters

REDACTED



Attachment 13.1-3: Vineyard Wind 1 Project Labor Agreement

REDACTED



**Attachment 13.1-4: Vineyard Wind 1 Impact on Jobs and Economic
Output Report**



VINEYARD WIND

Vineyard Wind 1

Impact on Jobs and Economic Output

Annual Report 2
November 2023

Submitted to:

Massachusetts Department of
Energy Resources
100 Cambridge St. #1020
Boston, MA 02114

Prepared by:



UMass | Dartmouth



SPRINGLINE
RESEARCH GROUP

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Vineyard Wind is currently building the nation's first utility-scale offshore wind energy project over 15 miles off the coast of Massachusetts. The project will generate clean, renewable, affordable energy for over 400,000 homes and businesses across the Commonwealth, while reducing carbon emissions by over 1.6 million tons per year.

The Vineyard Wind parent companies consists of funds managed by Copenhagen Infrastructure Partners (CIP), whose Senior Partners are pioneers with an unparalleled track record in the offshore wind industry, and Avangrid Renewables (AR), the third largest onshore wind developer in the US with operations in more than 20 states, a Lead Market Participant in the ISO-NE market and an affiliate of the Iberdrola Group, the world's largest wind developer with more than 15,000 MW of wind installed.



The University of Massachusetts Dartmouth is a public research university in Dartmouth, Massachusetts. It is the southernmost campus of the University of Massachusetts system. Formerly Southeastern Massachusetts University, it was merged into the University of Massachusetts system in 1991. As a national research university, UMassD opens a world of exploration and discovery. Our students work with world-class faculty researchers and journey into real-world innovation and experiences.



Springline Research Group is a multidisciplinary applied research firm that specializes in projects that contribute to economic development, workforce development, public health, and community building. Collectively, our team has over 30 years of experience assisting public, private, and nonprofit organizations with research, technical assistance, and analytical services designed to help make our state, region, and communities better places to live, work, and do business.

Report Authors:

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Executive Summary

Vineyard Wind's *Offshore Wind Development and Reporting Agreement* executed with the Massachusetts Department of Energy Resources (MA DOER) requires Vineyard Wind to deliver written annual progress reports that summarize the company's progress in achieving the goals set forth in Section 1 of the *Agreement*. Accordingly, this analysis utilizes job and expenditure data collected from 2017 through September 2023 to measure Vineyard Wind's progress in meeting the requirements outlined in the *Agreement*.

This is the second annual report. The Year 1 annual report focused on Development phase activities from 2017 to 2021 and a partial-year analysis on Construction phase activities. The report also measured the extent to which the reported results align with the job and economic output estimates conducted by UMass Dartmouth's Public Policy Center in 2017. Importantly, the Construction phase is not complete.

The 2017 estimates were designed to gauge the economic impact of the complete construction phase of the project including economically meaningful project activities that are expected in 2024. Given that project phases span reporting years, the data contained in this report document the impact of project related construction activities through September 2023 only.

The current Year 2 report is focused on Construction activities that occurred over a two-year period:

- **Year 1:** October 2021 to September 2022
- **Year 2:** October 2022 to September 2023

Employment Impacts

How are Jobs Defined in this Report?

The labor needs of offshore wind developments are concentrated in Construction activities, which by their very nature are project based and not permanent. The actual number of workers on the project includes both full-time and part-time workers who may be on the project for several years, one-year, or less. This makes estimating employment impacts somewhat less intuitive than in contexts where activities are ongoing and can be accurately defined as "permanent."

Consequently, economic impact assessments of construction and other temporary project-based activities are typically reported in terms of the number of years of full-time work required. To minimize misunderstanding and to provide the most complete and accurate reporting of job impacts possible, our analysis reports employment impact in two ways – the total number of workers employed on the project or headcount (whether part-time or full), and the number of job years of work associated with the project, with one job year equal to one worker working one full-time year on the project (i.e., FTE).

Union Jobs (Headcount) and Job Years

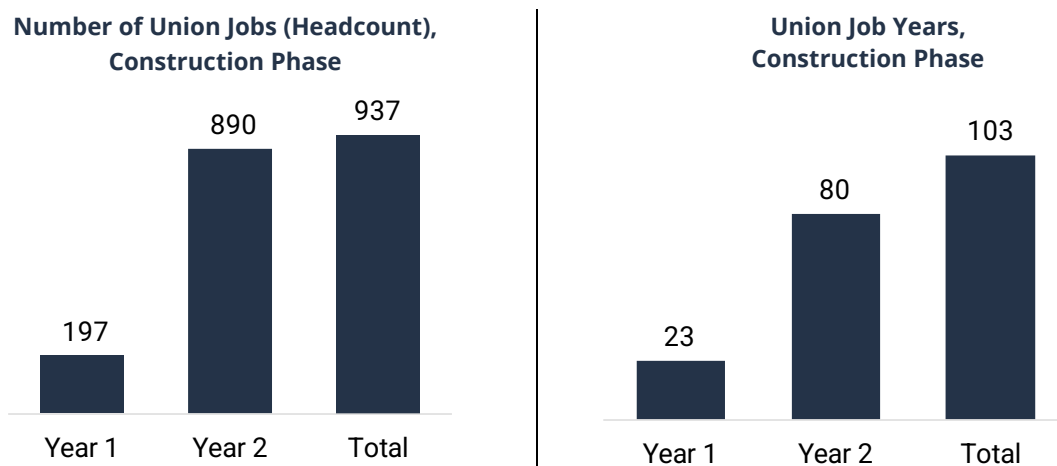
- **Jobs (Headcount):** To date, there have been 937 individual union workers employed during the Construction phase, with 197 workers in Year 1 and 890 workers in Year 2 (see Figure 1). Importantly, while some of the same employees may have worked in both Year 1 and Year 2, these jobs are only counted once in the total headcount (third bar in the chart) whether the union member worked in Year 1, Year 2, or both years. This means the total headcount over the two-year period is not the

sum of workers in Year 1 and Year 2.¹ To date, nearly 9 in 10 (88%) of union workers on the project are residents of SEMass.

- **Job Years:** As noted, the number of workers on the project includes both full-time and part-time workers who may be on the project for several years, one year, or less. In the first two years of the project there have been 103 total union job years during the Construction phase: 23 job years in Year 1 and 80 job years in Year 2 (see Figure 1).

Notably, the job-year calculation does not include overtime hours. The number of overtime hours is significant, accounting for 19.4% of total hours worked over the two-year period. These hours are paid at time-and-a-half or double-time and consequently have a larger economic impact in comparison to regular hours. If overtime hours are included in the job year calculation, the number of job years increases to 25.8 in Year 1, 102.4 in Year 2, and 128.1 in total.

Figure 1. Number of Union Jobs (Headcount) and Job Years Over the Construction Period, by Year



Source: UMass Dartmouth from monthly contractor reports

Union Worker Diversity, Equity, and Inclusion Goals

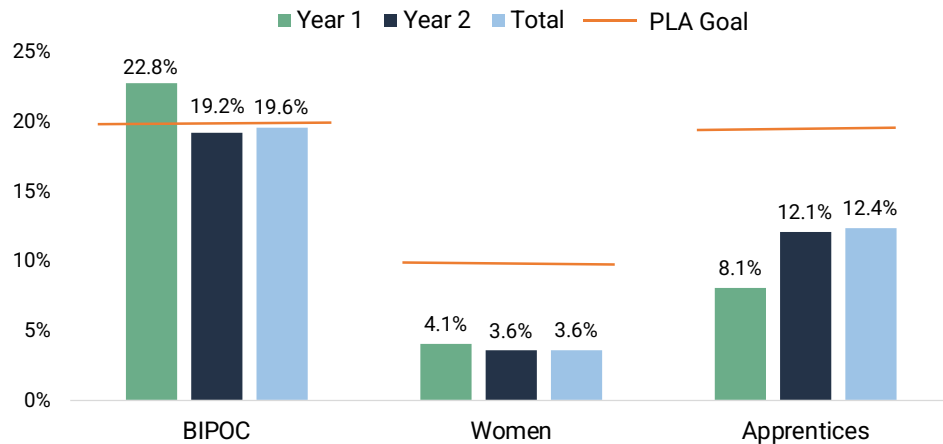
Vineyard Wind's Project Labor Agreements (PLA) with its union contractors stipulate several hiring goals related to Diversity, Equity, and inclusion (DEI) as well as the number of apprentices on the project:

1. Black, Indigenous, and People of Color (BIPOC): 20% of total union jobs (headcount)
2. Women: 10% of total union jobs (headcount)
3. Apprentice: 20% union workers (headcount)

¹ Data collection in the first two years of the project was undertaken in an environment where the project was ramping up very quickly, which resulted in incomplete reporting from some Tier 1 contractors, especially in Year 1 of the Construction phase. Consequently, the worker headcounts reported here should be considered conservative estimates.

Just under twenty percent (19.6%) of union workers on the Vineyard Wind 1 project meet the BIPOC criteria, while women comprise 3.6% of the union workforce on the project. Over twelve percent (12.4%) of workers were hired as apprentices (see Figure 2).²

Figure 2. Number of Union Workers Meeting PLA Goals

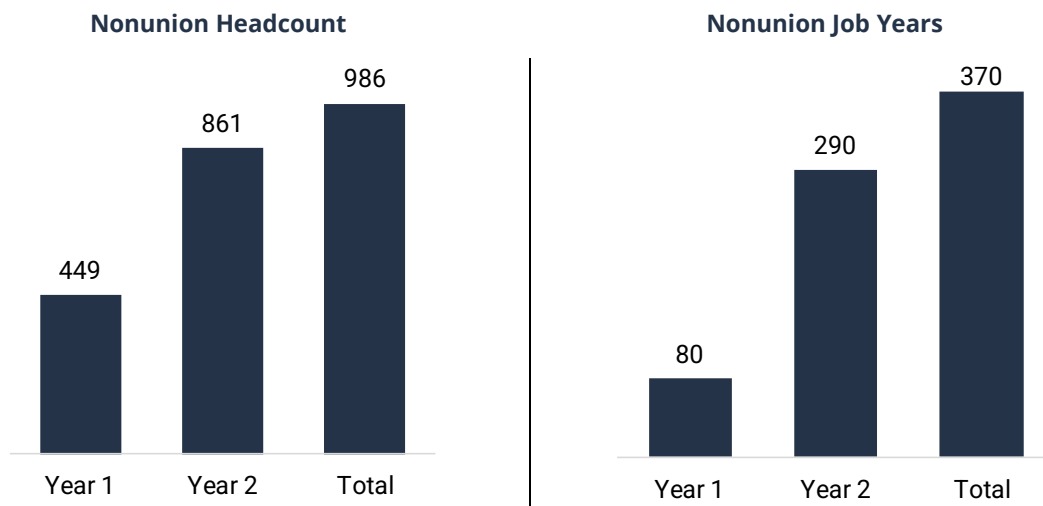


Source: UMass Dartmouth from monthly contractor reports

Nonunion Workforce, Headcount and Job Years

This section highlights the number of nonunion workers (headcount) and job years directly employed on the Vineyard Wind 1 project over the two-year Construction phase period. To date, there have been 986 unique nonunion workers employed during the Construction phase: 449 in Year 1 and 861 in Year 2 (see Figure 3). In terms of job years, as can be seen in Figure 3, there were 80 nonunion job years in Year 1, 290 in Year 2, and 370 over the two-year Construction phase.³

Figure 3. Nonunion Workforce, Headcount and Job Years



Source: UMass Dartmouth from monthly contractor reports

² BIPOC (Black, Indigenous, and people of color) is defined as any employee whose race is not White-alone.

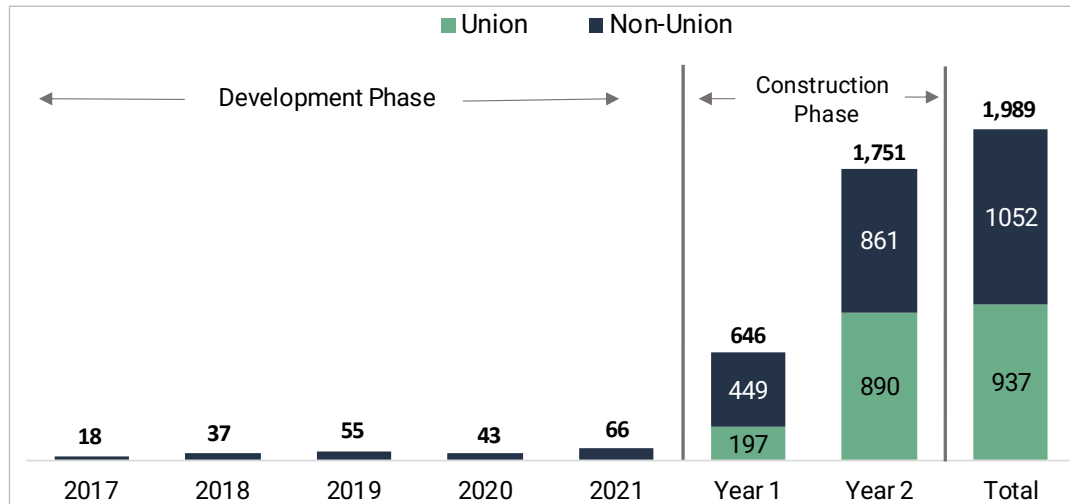
³ Similar to the union workforce reporting, the nonunion worker headcount is a conservative estimate due to incomplete reporting from some Tier 1 contractors..

Total Jobs and Job Years Over the Project Period (2017-2023)

Figure 4 presents the worker headcount since the Vineyard Wind 1 Development phase began in 2017.⁴ A total of 1,989 workers have been employed on the project since 2017. This is a conservative estimate based on incomplete reporting from some contractors during the early phases of project work.⁵

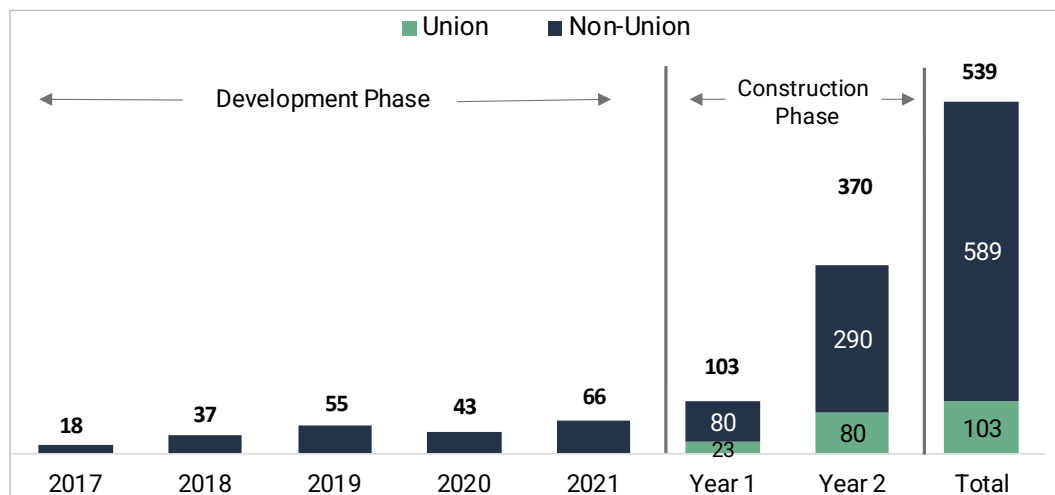
Figure 5 details the total number of job years by phase and year since development work on the project work began in 2017.

Figure 4. Jobs (Headcount), Development & Construction Phases



Source: Vineyard Wind Services Historical and Monthly Tracker Submissions

Figure 5. Job Years, Development & Construction Phases



Source: Vineyard Wind Services Historical and Monthly Tracker Submissions

⁴ See the [Year 1 Annual Report](#) for more details on Development Phase employment.

⁵ The total (last bar) represents the number of individual workers over the seven-year period, not the sum of the previous bars. That is, there have been 1,989 unique workers on the project since 2017. Some of these workers may have been employed on the project in multiple years.

Construction Phase Economic Impacts, Year 1 and Year 2

Table 1 displays the Construction Phase economic impacts⁶ for Year 1 and Year 2 on the Commonwealth of Massachusetts. Much of the Construction phase activity in Year 1 was focused on onshore work in the Town of Barnstable. Marshalling and offshore construction activity has intensified throughout Year 2, with most of that work being staged from New Bedford.

- **Indirect Impacts:** Vineyard Wind's direct payroll and non-payroll expenditures have supported an additional 213 indirect jobs in Massachusetts during the Construction phase to date. These jobs supported \$20.1 million in labor income, contributed \$25.7 million in added value to the Massachusetts economy, and supported \$123.1 million in new economic output during the Construction phase.
- **Induced Impacts:** The direct and indirect impacts induced an additional 305 jobs in Massachusetts that supported \$22.9 million in labor income. Construction phase activities also contributed over \$37.9 million in added value to the Massachusetts economy and supported \$60.2 million in new economic output.
- **Total Impacts:** In total, Construction phase economic activity to date has supported 991 jobs in Massachusetts, \$113.3 million in labor income, \$170.7 million in value added, and 424.0 million in economic output.

Table 1. Direct, Indirect, and Induced Impacts, Construction Phase

Massachusetts Impact					
Construction Phase					
Impact Type	Job Years	Labor Income	Value Added	Output	
Direct Effect	473	\$ 70,225,095	\$ 107,071,768	\$ 240,804,191	
Indirect Effect	213	\$ 20,148,702	\$ 25,674,995	\$ 123,056,476	
Induced Effect	305	\$ 22,921,309	\$ 37,948,404	\$ 60,158,973	
Total Effect	991	\$ 113,295,106	\$ 170,695,167	\$ 424,019,641	

Source: UMass Dartmouth from Implan

Total Project Impacts to Date (Development and Construction Phases)

Table 2 aggregates the impact data for the Development and Construction phases.

- **Indirect Impacts:** Vineyard Wind's direct payroll and non-payroll expenditures have supported an additional 350 indirect Massachusetts jobs during the project period. The project supported \$31.7 million in labor income, contributed \$42.5 million in added value to the Massachusetts economy, and supported \$150.9 million in new economic output.
- **Induced Impacts:** The direct and indirect impacts induced an additional 556 Massachusetts jobs that supported \$39.7 million in labor income. The project also contributed over \$66.2 million in

⁶ See Section 3.2 for a more detailed explanation of the distinction between direct, indirect, and induced impacts.

added value to the Massachusetts economy and supported \$105.1 million in new economic output.

- **Total Impacts:** In total, the project to date has supported 1,657 jobs, \$172.6 million in labor income, \$66.2 million in value added, and \$590.7 million in economic output.

Table 2. Total Project Impact to Date, Development & Construction Phases

Total Massachusetts Impact				
Total Project Impacts to Date				
Impact Type	Job Years	Labor Income	Value Added	Output
Direct Effect	751	\$ 101,282,461	\$ 141,157,270	\$ 334,707,436
Indirect Effect	350	\$ 31,654,226	\$ 42,457,233	\$ 150,877,800
Induced Effect	556	\$ 39,680,528	\$ 66,185,843	\$ 105,083,246
Total Effect	1,657	\$ 172,617,215	\$ 249,800,346	\$ 590,668,482

Source: UMass Dartmouth from Implan

Comparisons to 2017 PPC Estimates

The Public Policy Center (PPC) at UMass Dartmouth conducted an analysis in 2017 that described the economic contributions to employment and economic output that the proposed 800 MW Vineyard Wind 1 project would have on the Commonwealth of Massachusetts and the regional economy of Southeastern Massachusetts.

In its 2017 analysis, PPC estimated that the 800 MW Vineyard Wind 1 project would support an estimated 3,180 direct job years across all phases over the project period under the Base scenario and 3,658 direct job years in the High scenario for Massachusetts. This total includes 126 job years in the Development phase and 974 job years in the Construction phase (Base scenario) (see Table 3).⁷

Table 3. PPC Estimated Direct Job Years, Development & Construction Phase, 2017

	Development Phase	Construction Phase	Total Job Years
Base Scenario	126	974	1,100
High Scenario	126	1,426	1,552

Source: UMass Dartmouth Public Policy Center, 2017

⁷ The PPC developed a Base and High scenario that varied by the assumed level of state and regional supply chain expenditures.

Construction Phase, Comparison to PPC Estimates

Table 4 presents the total impacts of the project to date on the Massachusetts economy. Importantly, the Construction phase is not complete, thus the impacts are expected to be lower than the PPC estimates, which included estimates for the full Construction period.

Direct Job Impacts

- The direct number of Construction phase job years is 473. This compares to the 2017 estimate of 974 job years, a difference of 501 job years.

Indirect and Induced Job Impacts

- Indirect Impacts:** The number of indirect job years supported to date is 213. This compares to the 2017 estimate of 346 jobs-years, a difference of 133 job years.⁸
- Induced Impacts:** The direct and indirect impacts of Construction phase activities have induced an additional 305 job years. This compares to the 2017 estimate of 777 job years, a difference of 472.

Economic Output Impacts

- Economic output is higher than the PPC estimates. This is primarily due to the increased cost of the project compared to the assumptions made in 2017.

**Table 4. Construction Phase, Massachusetts Impacts
PPC Estimate Versus Actual**

Massachusetts Impact				
Construction Phase				
Impact Type	Job Years		Output	
	PPC 2017	Actual	PPC 2017	Actual
Direct Effect	974	473	\$ 148,485,739	\$ 240,804,191
Indirect Effect	346	213	\$ 68,758,340	\$ 123,056,476
Induced Effect	777	305	\$ 135,739,944	\$ 60,158,973
Total Effect	2,097	991	\$ 352,984,023	\$ 424,019,641

Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

⁸ IMPLAN does not report jobs as FTEs. Accordingly, the reported jobs for the indirect and induced impacts were converted to FTEs using IMPLAN conversion tables.

Project to Date, Comparison to PPC Estimates

Table 5 presents the total impacts of the project to date on the Massachusetts economy (Development and Construction phases).

Direct Employment Impacts

- The direct number of job years is 751. This compares to the 2017 estimate of 1,100 job years, a difference of 349 jobs years.

Indirect and Induced Employment Impacts

- Indirect Impacts:** The number of indirect job years supported to date is 350. This compares to the 2017 estimate of 373 jobs-years, a difference of 23 job years.⁹
- Induced Impacts:** The direct and indirect impacts of project activities to date have induced an additional 556 job years. This compares to the 2017 estimate of 898 job years, a difference of 342 job years.

Economic Output Impacts

- Economic output is higher than the PPC estimates, again primarily due to the increased cost of the project compared to assumptions made in 2017, particularly during the Development phase.

**Table 5. Construction Phase, Massachusetts Impacts
PPC Estimate Versus Actual**

Massachusetts Impact				
Total Project to Date				
Impact Type	Job Years		Output	
	PPC 2017	Actual	PPC 2017	Actual
Direct Effect	1,100	751	\$ 186,907,554	\$ 334,707,436
Indirect Effect	373	350	\$ 77,197,265	\$ 150,877,800
Induced Effect	898	556	\$ 169,965,557	\$ 105,083,246
Total Effect	2,371	1,657	\$ 434,070,376	\$ 590,668,482

Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

⁹ IMPLAN does not report jobs as FTEs. Accordingly, the reported jobs for the indirect and induced impacts were converted to FTEs using IMPLAN conversion tables.

1 Overview

Vineyard Wind is currently building the nation's first utility-scale offshore wind energy project fifteen miles south of Martha's Vineyard. The Vineyard Wind 1 (VW1) project will consist of an array of 62 wind turbines, spaced 1 nautical mile apart, that will generate 800 megawatts (MW) of electricity and power over 400,000 homes.

Vineyard Wind's *Offshore Wind Development and Reporting Agreement* executed with the Massachusetts Department of Energy Resources (MA DOER) requires Vineyard Wind to deliver written annual progress reports that summarize the company's progress in achieving the goals set forth in Section 1 of the *Agreement*. Accordingly, this analysis utilizes job and expenditure data collected from 2017 through September 2023 to measure Vineyard Wind's progress in meeting the following eight requirements outlined in the *Agreement*:

- (a) the total number of employees on Vineyard Wind Services LLC's payroll, as well as the number who reside in the Commonwealth and in which counties
- (b) the total number of workers employed by subcontractors and vendors for Vineyard Wind 1 LLC, as well as the number who reside in the Commonwealth
- (c) an estimate of the direct, indirect, and induced employment and economic impacts to date in Massachusetts from the Project
- (d) the extent to which the reported results align with the estimates of the project's contributions to employment and economic development contained in the project proposal *Request For Proposals For Long-Term Contracts For Offshore Wind Energy Projects*
- (e) any relevant lessons learned that Massachusetts officials can use to improve economic outcomes for Massachusetts and inform future state procurement and programmatic efforts
- (f) the impact of projects supported by the Resiliency and Affordability Fund, specifically focusing on revenue generation and the impacts on the communities in which such projects are located
- (g) how the community in Massachusetts party to a Host Community Agreement with Vineyard Wind has benefitted from the payments it received under such agreement
- (h) the share of the Innovations in Marine Mammals Protection Fund spent in Massachusetts, which institutions received funding, and the projects supported

2 Project Phases and Dates Included In the Analysis

The Year 1 annual monitoring report included job and expenditure estimates for the full Development phase (2017-2021). The Year 1 report also included estimates related to Construction phase jobs and expenditures from October 2021 through September 2021, although much of the construction-related activity up to that point had been focused on onshore work in the town of Barnstable. Marshalling and offshore construction began to ramp up in Q4 2022, with the bulk of the marshalling and offshore construction impacts beginning in Q2 2023. Accordingly, the current analysis includes two year-long construction periods: October 2021 through September 2022 and October 2022 through September 2023 (see Figure 6).

Figure 6. Project Phases Included in the Analysis

2017				2018				2019				2020				2021				2022				2023		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Development Phase 2017-2021																				Construction Phase to Date						
																				Year 1		Year 2				

3 Data Collection and Methodology

3.1 Data Collection

Data collection to obtain job, expenditure, and other information from Vineyard Wind and its subcontractors began in earnest in October 2021, shortly following the project's financial close. Two primary data collection tools were developed and used to monitor relevant project activity:

- 1) An historical spreadsheet tracker to obtain Development-related job and expenditure data from 2017 to 2021. These data were the basis for the bulk of our first annual report.¹⁰
- 2) A monthly spreadsheet tracking template that Tier 1 contractors were required to submit monthly beginning in October 2021. These tracking templates were focused on Construction phase activities. Over 300 monthly reports were received from Tier1 contractors.

Development Phase Data Collection

From the outset, conversations with subcontractors made it clear that obtaining accurate historical data from all subcontractors would be difficult, particularly from smaller companies that were no longer working on the project. Consequently, Vineyard Wind and UMass Dartmouth focused their data collection efforts on obtaining detailed job and expenditure data from companies with contracts above \$1 million (n=48), which represents 90.3% of the total contract value during the Development phase. These subcontractors were asked to provide their annual Massachusetts expenditures and counts of Massachusetts-based employees over the 2017-2021 period for activities that directly supported the Vineyard Wind 1 project. Thirty-five of the forty-nine subcontractors (69%) complied.

Construction Phase Data Collection

As noted, UMass Dartmouth and Vineyard Wind created a data collection spreadsheet that was completed monthly by the Tier 1 suppliers working on the project. The tracking sheet includes inputs for labor—both union and non-union—as well as nonpayroll expenditures by three geographic levels of analysis: the U.S., Massachusetts, and Southeastern Massachusetts. Subcontractor expenditures made by the Tier 1 suppliers, as well as various diversity, equity, and inclusion (DEI) data such as race, gender, tribal affiliation, and veteran status were also tracked. Tier 1 contractors also provided the same information for their larger Tier 2 contracts, while also providing the overall contract amounts for smaller Tier 2 and Tier 3 contractors.

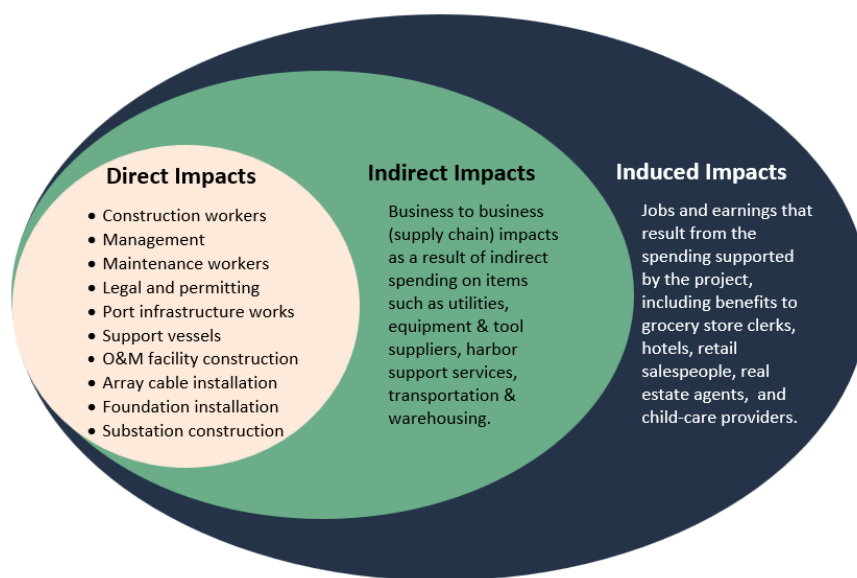
¹⁰ See <https://www.vineyardwind.com/press-releases/2023/2/16/report-shows-vineyard-wind-far-exceeded-job-creation-and-economic-output-projections-during-development-and-early-construction-period>

3.2 Economic Impact Methodology and Definitions¹¹

Economic impacts measure how spending associated with an industry circulates through and affects an economy. For example, employee wages and purchases made from suppliers circulate through the economy and support additional spending and job creation, that is, the original expenditures and job creation are multiplied. Measuring these ripple effects on the economy provides a fuller picture of the economic contributions an offshore wind farm's construction has on a particular region. These impacts are expressed as direct effects, indirect effects, and induced effects (see Figure 7).

- **Direct effects** result from expenditures associated with developing, constructing, and operating the wind farm, including money spent on salaries, supplies, and operating expenses. These are the data received directly from the contractors working on the project described in the previous section.
- **Indirect effects** result from the suppliers of the wind farm purchasing goods and services as a result of the direct spending on the project. Because these impacts measure interactions among businesses, they are often referred to as supply-chain impacts.¹² The indirect effects are specified using IMPLAN, which is an input-output database and model that traces a project's purchases of goods, services, and labor through an economic area.
- **Induced effects** result from the spending of employees directly involved in the development, construction, and operation of the wind farm, as well as the spending of employees of the wind farm's suppliers within the region (indirect effects). These induced effects are often referred to as consumption-driven impacts.

Figure 7. Examples of an Offshore Wind Project's Economic Effects



¹¹ More detail on the report's methodology can be found in Appendix A.

¹² Not including the initial round of spending, which is included in the direct effects.

3.3 Economic Impact Definitions

Economic impacts (i.e., direct, indirect, and induced) are presented in four categories: jobs, labor income, value added, and output.

Jobs

The labor needs of offshore wind developments are concentrated in Construction activities, which by their very nature are project based and not permanent. The actual number of workers on the project includes both full-time and part-time workers who may be on the project for several years, one-year, or less. For example, many of the union workers on the project work for only a month or less since individual construction workers frequently move from site-to-site and to other projects, and the number of workers on the project frequently changes based on the status of the construction project.

This makes estimating employment impacts somewhat less intuitive than in contexts where activities are ongoing and can be accurately defined as “permanent.” Consequently, economic impact assessments of construction and other temporary project-based activities are typically reported in terms of the number of years of full-time work required. While less intuitive, this approach allows for more context sensitive and empirically accurate estimates of employment impacts. This is frequently misunderstood by some who reflexively and mistakenly assume construction projects last forever. To limit the chance of this misunderstanding and to provide the most complete and accurate reporting of job impacts possible, our analysis reports employment impacts in two ways – the number of workers employed on the project or headcount (whether part-time or full), and the number of job years of work associated with the project (FTE).

Labor Income

Labor Income is the sum of all payments made to employees, including wages, salaries, benefits, and payroll taxes, as well as payments received by self-employed individuals and unincorporated business owners across the defined economy.

Value Added

Value added is a measure of the contribution of a private industry or government sector to overall GDP. The components of value added consist of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus.

Output

Output is the total value of a business’s production and is the sum of the value of all goods and services produced by the business.

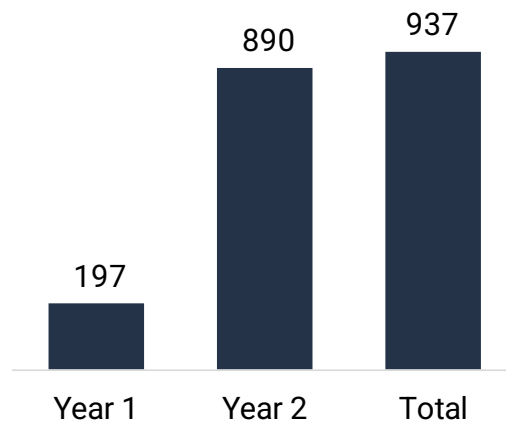
4 Construction Phase Workforce

4.1 Union Workforce – Headcount

This section highlights the number of union workers (headcount) and direct construction phase employment on the Vineyard Wind 1 project through September 2023. To date, there have been 937 unique workers employed during the Construction phase. Figure 8 presents union workers by the year in which they worked. Importantly, while some of the same workers may have worked in both Year 1 and Year 2, these jobs are only counted once in the total headcount (third bar in the chart) regardless if the union member worked in Year 1, Year 2, or both years. That is, the total headcount over the two-year period is not the sum of workers in Year 1 and Year 2.

Notably, data collection in the first two years of the project was undertaken in an environment where the project was ramping up very quickly, which resulted in incomplete reporting from some Tier 1 contractors, especially in Year 1 of the Construction phase. Consequently, the worker headcounts reported here should be considered conservative estimates.

**Figure 8. Number of Union Jobs (Headcount)
Over the Construction Period, by Year**



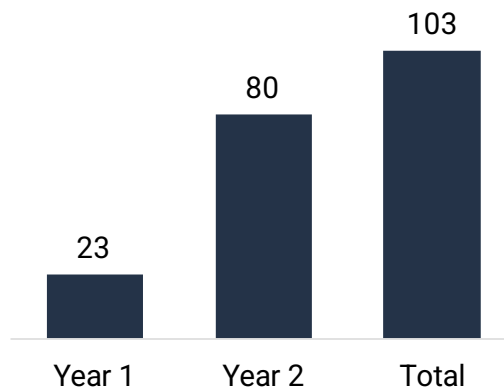
Source: UMass Dartmouth from monthly contractor reports

4.2 Union Job Years

In the first two years of the project there have been 103 total union job years during the Construction phase: 23 job years in Year 1 and 80 job years in Year 2 (see Figure 9).

As noted, the number of workers on the project includes both full-time and part-time workers who may be on the project for several years, one-year, or less. The seasonality of construction employment can also have a significant impact on the number of workers since construction work is heavily dependent on weather conditions. Construction both onshore and offshore is also governed by a series of commitments and regulations to protect communities and sensitive species which limit the times when construction can occur. This shrinks the construction season and leaves the project vulnerable to unexpected delays which can alter the timing of project employment.

**Figure 9. Job Years
Over the Construction Period, by Year**



Source: UMass Dartmouth from monthly contractor reports

The job year calculation also does not include overtime hours. The number of overtime hours is significant, accounting for:

- 10.4% of total hours worked in Year 1
- 21.7% of total hours worked in Year 2
- 19.4% of total hours worked over the two-year period

In fact, overtime hours accounted for 20% or greater of the total hours worked since February 2023. If overtime hours are included in the job year calculation, the number of job years increases to 25.8 in Year 1, 102.4 in Year 2, and 128.1 in total. Overtime hours are paid at time-and-a-half or double-time and consequently have a larger economic impact in comparison to regular hours.

Notably, a significant amount of overtime is expected to continue due to the intermittency of the working season combined with weather conditions that often dictate the project schedule. While these factors will not affect the number of workers on the job to a great degree, they will have an oversized impact on the economic impacts of the project since more overtime hours will be required.

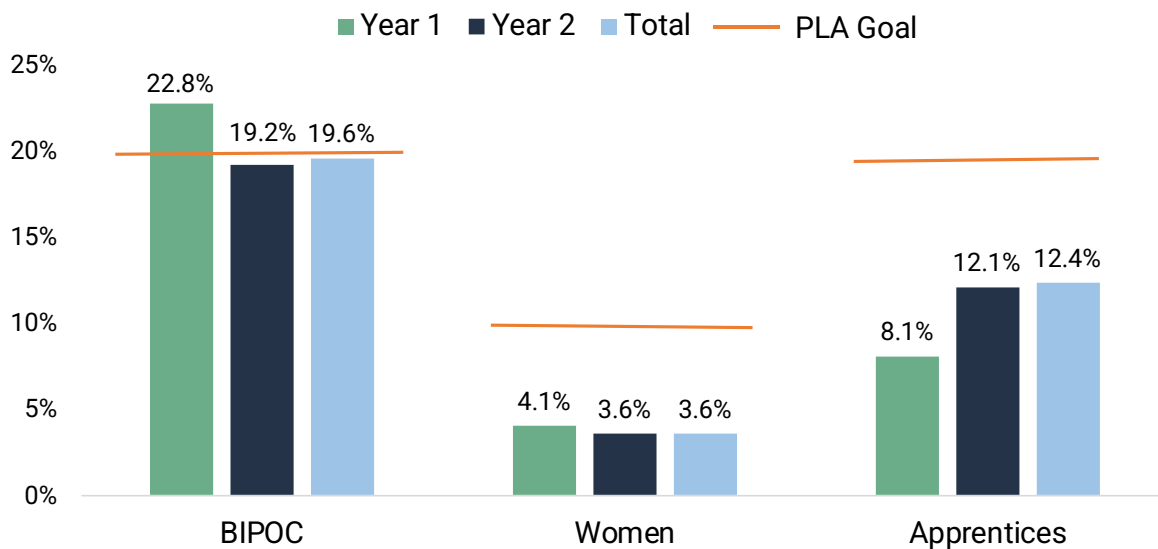
4.3 Diversity, Equity, and Inclusion Goals

Vineyard Wind's Project Labor Agreement (PLA) with its union contractors stipulate several hiring goals related to Diversity, Equity, and inclusion (DEI) as well as the number of apprentices on the project:

4. Black, Indigenous, and People of Color (BIPOC): 20% of total union jobs (headcount)
5. Women: 10% of total union jobs (headcount)
6. Apprentice: 1 in 5 union workers (headcount)

Just under twenty percent (19.6%) of union workers on the Vineyard Wind 1 project meet the BIPOC criteria, while women comprise only 3.6% of the union workforce on the project and 12.4% of workers were hired as apprentices (see Figure 10).¹³

Figure 10. Number of Union Workers Meeting PLA Goals



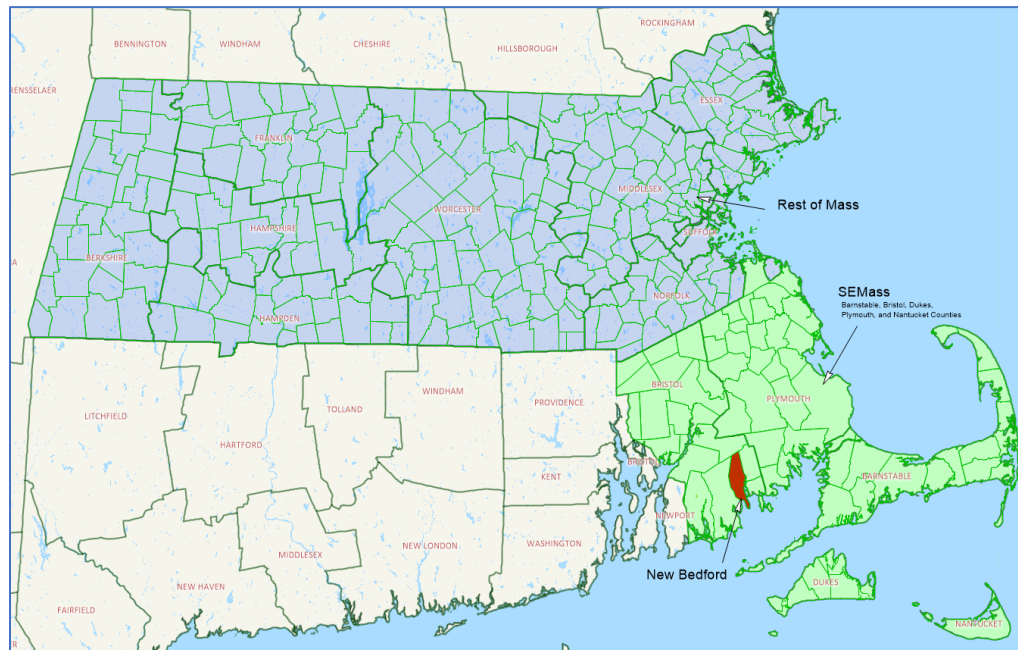
Source: UMass Dartmouth from monthly contractor reports

¹³ BIPOC (Black, Indigenous, and people of color) is defined as any employee whose race is not White-alone.

4.4 Union Workers by Region

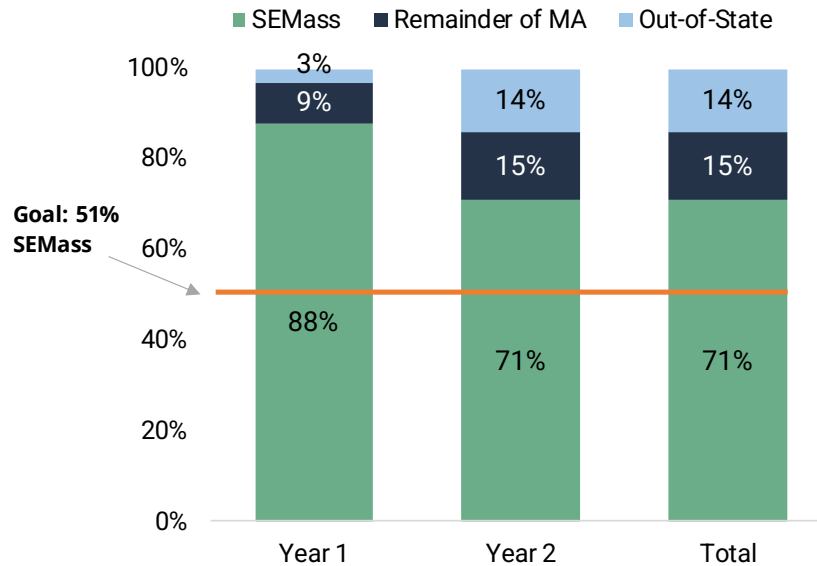
Workers' current residential ZIP Code was included in the monthly tracker template, which were then categorized into four regions: New Bedford, Southeastern Massachusetts (SEMass), remainder of Massachusetts, and out-of-state. SEMass is defined as including the counties of Barnstable, Bristol, Dukes, Nantucket, and Plymouth (see Figure 11).

Figure 11. Region Definitions



Vineyard Wind's set a goal of having 51% of workers on the project residing in Southeastern Massachusetts (SEMass). Over the two-year Construction phase to date, 88% of union workers were residents of SEMass (see Figure 12). In economic impact analysis, employment is determined by the location of the job rather than the individual's place of residence. Therefore, even if a worker is brought in from outside the region, they are still considered as "local" employment for the duration of their work. Thus, local employment in this report includes all employees on the job site, including workers who relocated to SEMass to work on the project. About 92 workers relocated to SEMass for the project. While counted as locals in economic impact terms, these workers obviously spend their income differently than longer-term residents. Accordingly, some modifications were made to the impact model to account for these relocated workers. See Appendix A for more detail.

Figure 12. Union Employee Place of Residence¹⁴



Source: UMass Dartmouth from monthly contractor reports

Nearly half of union workers reside in Plymouth County (46.0% of total Massachusetts-based workers) or are Cape Cod residents (3.4% of total Massachusetts-based workers), while 18.2% were Bristol County residents (see Table 6).

Table 6. Union Workers by Massachusetts County

County	Number	Percent
Barnstable	70	3.3%
Bristol	385	18.2%
Dukes	2	0.1%
Essex	14	0.7%
Hampden	3	0.1%
Middlesex	166	7.8%
Norfolk	272	12.8%
Plymouth	973	46.0%
Suffolk	156	7.4%
Worcester	76	3.6%

Source: UMass Dartmouth from monthly contractor reports

Counties highlighted in green are in SEMass

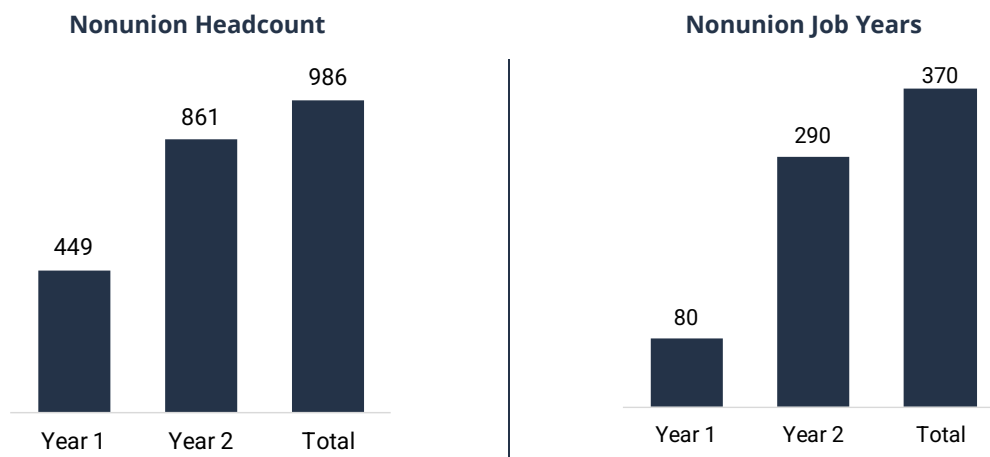
¹⁴ While some of the same workers may have worked in both Year 1 and Year 2, these jobs are only counted once in the total headcount (third bar in the chart) regardless if the union member worked in Year 1, Year 2, or both years.

4.5 Nonunion Workforce – Headcount and Job Years

This section highlights the number of nonunion workers (headcount) and job years directly employed on the Vineyard Wind 1 project over the two-year Construction phase period. To date, there have been 986 individual workers employed during the Construction phase: 449 in Year 1 and 861 in Year 2 (see Figure 13).

Figure 13 also presents the number of job years, with 80 job years in Year 1, 290 in Year 2, and 370 in total over the two-year Construction phase. Similar to the union worker headcount, while some of the same workers may have worked in both Year 1 and Year 2, these jobs are only counted once in the total headcount (third bar in the chart) regardless if the employee worked in Year 1, Year 2, or both years.

Figure 13. Nonunion Workforce, Headcount and Job Years

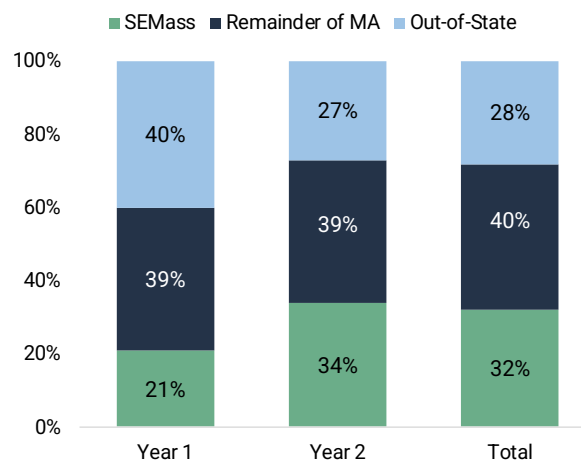


Source: UMass Dartmouth from monthly contractor reports

4.6 Nonunion Worker Residence

Thirty-two percent (32%) of nonunion workers over the Construction phase were residents of SEMass (see Figure 14). Forty percent (40%) reside in other areas of Massachusetts, while 28% reside out-of-state.

Figure 14. Nonunion Employee Place of Residence



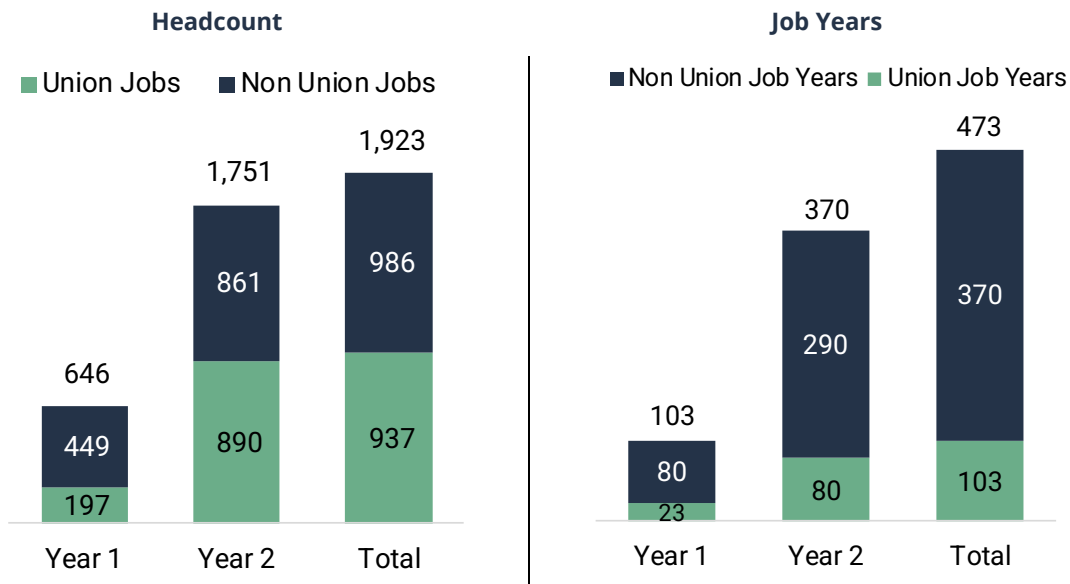
Source: UMass Dartmouth from monthly contractor reports

4.7 Total Union and Nonunion Employment, Headcount and Job Years

Total Jobs (Headcount)

Figure 15 displays the number (headcount) of reported union and non-union jobs (headcount) and job years. The total number of workers during the Construction phase rose significantly from 646 in year 1 to 1,751 in Year 2, for a total of 1,923 individual workers on the project. The number of job years also increased considerably from Year 1 (103) to Year 2 (370), for a total of 473 job years over the two-year construction phase.

Figure 15. Total Jobs, Headcount and Job Years¹⁵



Source: UMass Dartmouth from monthly contractor reports

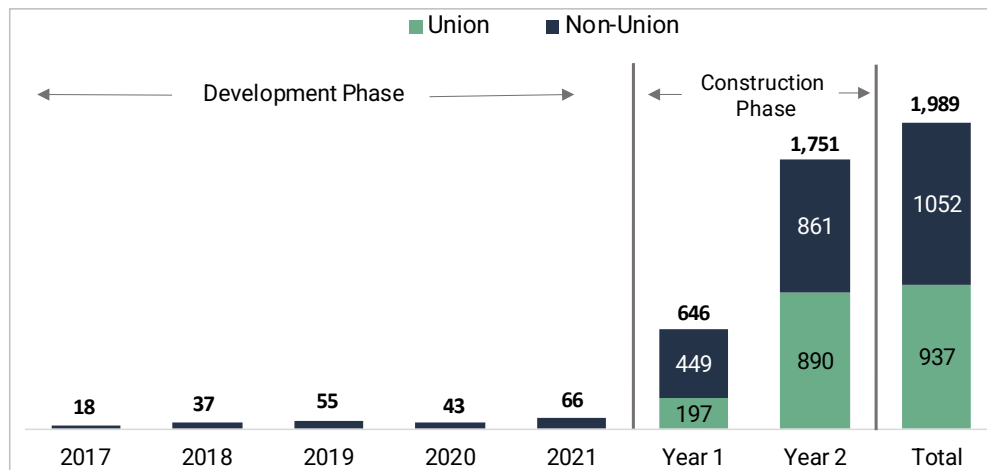
¹⁵ As noted, while some of the same workers may have worked in both Year 1 and Year 2, these jobs are only counted once in the total headcount (third bar in the chart) whether the union member worked in Year 1, Year 2, or both years.

5 Development and Construction Phase Employment

5.1 Union and Nonunion Headcount and Job Years

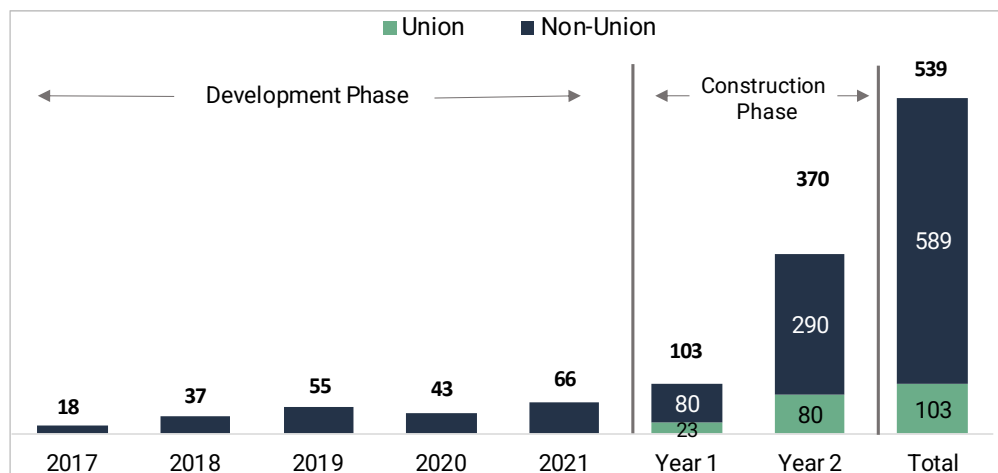
Figure 15 presents the worker headcount since the Vineyard Wind 1 Development phase began in 2017.¹⁶ A total of 1,989 workers have been employed on the project since 2017. This is a conservative estimate based on incomplete reporting from some contractors during the early phases of project work.¹⁷ Figure 17 details the total number of job years by phase and year since development work on the project work began in 2017.

Figure 16. Jobs (Headcount), Development & Construction Phases



Source: Vineyard Wind Services Historical and Monthly Tracker Submissions

Figure 17. Job Years, Development & Construction Phases



Source: Vineyard Wind Services Historical and Monthly Tracker Submissions

¹⁶ See the [Year 1 Annual Report](#) for more details on Development Phase employment.

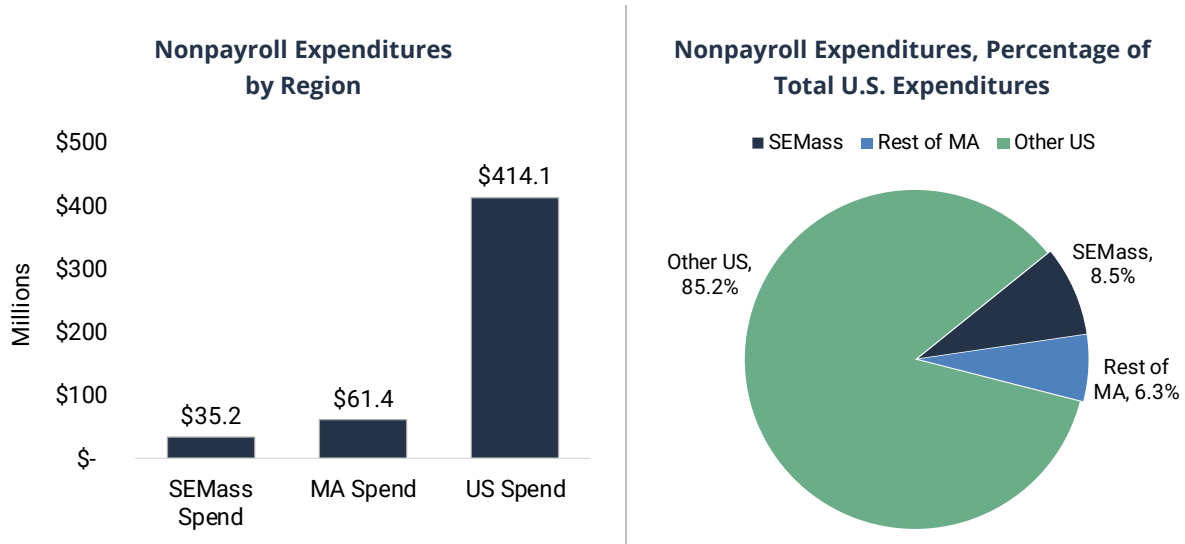
¹⁷ The total (last bar) represents the number of individual workers over the seven-year period, not the sum of the previous bars. That is, there have been 1,989 unique workers on the project since 2017. Some of these workers may have been employed on the project in multiple years.

6 Direct Expenditures

6.1 Nonpayroll Expenditures

Vineyard Wind's contractors made a total of \$35.2 million in nonpayroll expenditures to SEMass businesses during the Construction phase and \$61.4 million in Massachusetts as a whole. Massachusetts expenditures accounted for 14.8% of total US expenditures (8.5% in SEMass and 6.3% in other areas of the state) over this period (see Figure 18).

Figure 18. Nonpayroll Expenditures by Region, Construction Phase



Source: UMass Dartmouth from monthly contractor reports. Includes Tier 1 contractor reported spend from monthly reports and Tier 2 and Tier 3 contractor spend estimated from Implan based on subcontractor amounts from Tier 1 reports

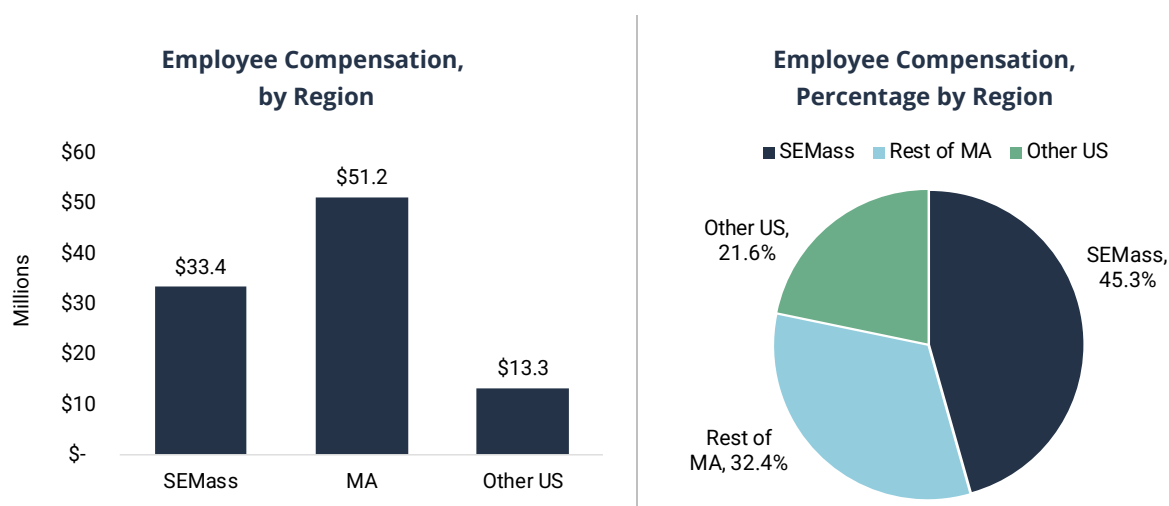
6.2 Payroll Expenditures

Massachusetts residents working on the project received a total of \$51.2 million in employee compensation over the two-year Construction period. More than \$33.4 million of this amount was earned by SEMass residents.¹⁸ SEMass accounted for 45.3% of total employee compensation over the two-year period. The remaining portion of Massachusetts workers accounted for 32.4% of employee compensation and workers outside the state accounted for 21.6% (see Figure 19).¹⁹

¹⁸ The state total includes SEMass.

¹⁹ Employee compensation includes wages and benefits. Employee compensation was estimated by utilizing actual wage and benefit data detailed in each union's prevailing wage schedule. Employee compensation for nonunion workers was estimated utilizing Massachusetts occupational wage data from Lightcast and the Bureau of Labor Statistics. All union workers are considered local on the project and therefore all employee compensation for union workers is included in the Massachusetts total. Conversely, nonunion employee compensation includes compensation for Massachusetts-based workers only. Employees without a ZIP Code were categorized as out-of-state.

Figure 19. Union and Nonunion Employee Compensation by Region, Construction Phase

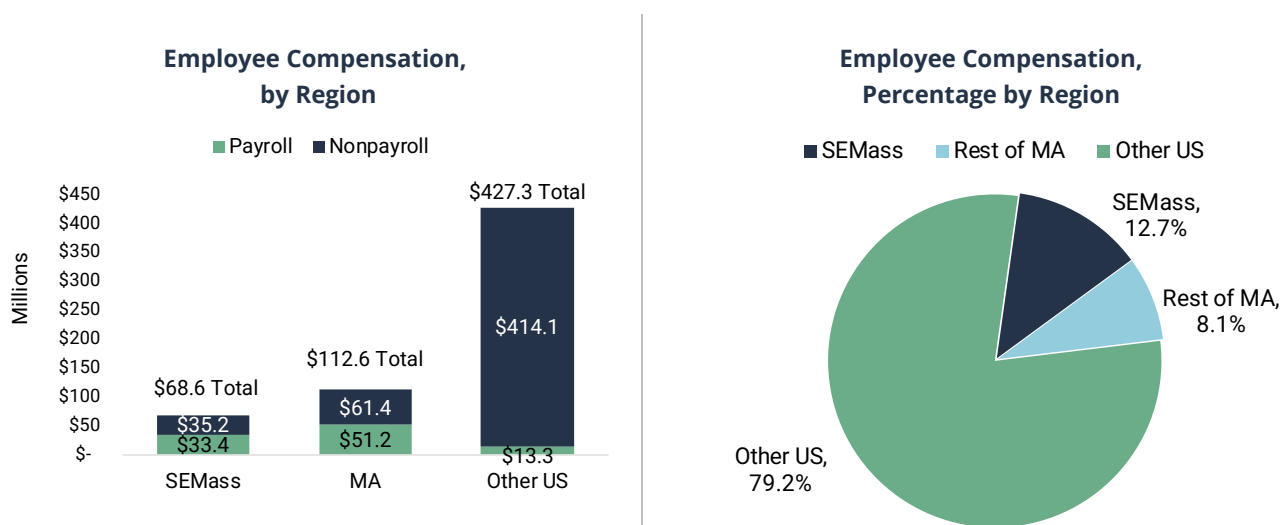


Source: UMass Dartmouth from monthly contractor reports, Emsi, and prevailing wage data by union

6.3 Total Payroll and Nonpayroll Expenditures

Total payroll and nonpayroll expenditures in Massachusetts were \$112.6 million. In all, Massachusetts accounted for 20.8% of total U.S. expenditures over the two-year period (12.7% in SEMass and 8.1% in other areas of the state) (see Figure 20).

Figure 20. Total Payroll and Nonpayroll Expenditures by Region, Construction Phase



Source: UMass Dartmouth from monthly contractor reports

7 Economic Impacts on the Massachusetts Economy

This section expands on the direct impacts by examining the broader economic impact of the project activities in the Development and Construction phases.

7.1 Development Phase Impacts, 2017-2021

The data in Table 7 revisit the results of our first annual report, which focused primarily on the Development phase. Results from the year-one analysis included:

- **Indirect Impacts:** Vineyard Wind's direct payroll and non-payroll expenditures supported an additional 137 indirect jobs during the Development phase. These jobs supported \$11.5 million in labor income, contributed \$16.8 million in added value to the Massachusetts economy, and supported \$27.9 million in new economic output during the Development phase.
- **Induced Impacts:** The direct and indirect impacts induced an additional 251 jobs that supported \$16.8 million in labor income. Development phase activities also contributed over \$28.2 million in added value to the Massachusetts economy and supported \$44.9 million in new economic output.
- **Total Impacts:** In total, Development phase economic activity supported 666 jobs, \$59.3 million in labor income, \$79.1 million in value added, and \$166.6 million in economic output.

Table 7. Direct, Indirect, and Induced Impacts, Development Phase

Massachusetts Impact					
Development Phase (2017 - 2021)					
Impact Type	Job Years	Labor Income	Value Added	Output	
Direct Effect	278	\$ 31,057,366	\$ 34,085,502	\$ 93,903,244	
Indirect Effect	137	\$ 11,505,524	\$ 16,782,238	\$ 27,821,324	
Induced Effect	251	\$ 16,759,219	\$ 28,237,439	\$ 44,924,273	
Total Effect	666	\$ 59,322,109	\$ 79,105,179	\$ 166,648,841	

Source: UMass Dartmouth from Implan

7.2 Construction Phase Impacts

Table 8 presents the impacts of Construction phase activities to date. Note that much of the Construction phase activity in Year 1 was focused on onshore work in the Town of Barnstable. Marshalling and offshore construction activity has intensified throughout Year 2, with most of that work being staged from New Bedford.²⁰

- **Indirect Impacts:** Vineyard Wind's direct payroll and non-payroll expenditures have supported an additional 213 indirect jobs during the Construction phase to date. These jobs supported \$20.1 million in labor income, contributed \$25.7 million in added value to the Massachusetts economy, and supported \$123.1 million in new economic output during the Construction phase.
- **Induced Impacts:** The direct and indirect impacts induced an additional 305 jobs that supported \$22.9 million in labor income. Construction phase activities also contributed over \$37.9 million in added value to the Massachusetts economy and supported \$60.2 million in new economic output.
- **Total Impacts:** In total, Construction phase economic activity to date has supported 991 jobs, \$113.3 million in labor income, \$170.7 million in value added, and 424.0 million in economic output.

Table 8. Direct, Indirect, and Induced Impacts, Construction Phase

Massachusetts Impact					
Construction Phase					
Impact Type	Job Years	Labor Income	Value Added	Output	
Direct Effect	473	\$ 70,225,095	\$ 107,071,768	\$ 240,804,191	
Indirect Effect	213	\$ 20,148,702	\$ 25,674,995	\$ 123,056,476	
Induced Effect	305	\$ 22,921,309	\$ 37,948,404	\$ 60,158,973	
Total Effect	991	\$ 113,295,106	\$ 170,695,167	\$ 424,019,641	

Source: UMass Dartmouth from Implan

²⁰ The job impacts are presented in job years, not number of jobs (headcount). As noted earlier, the total number of Construction phase individual workers (headcount) on the project to date is 1,927 workers.

7.3 Total Project Impact to Date

Table 9 aggregates the data in the previous two tables to present the total impacts of the Vineyard Wind 1 project through September 2023.

- **Indirect Impacts:** The project's direct payroll and non-payroll expenditures have supported an additional 350 indirect jobs during the project period. The project supported \$31.7 million in labor income, contributed \$42.5 million in added value to the Massachusetts economy, and supported \$150.9 million in new economic output.
- **Induced Impacts:** The direct and indirect impacts induced an additional 556 jobs that supported \$39.7 million in labor income. The project also contributed over \$66.2 million in added value to the Massachusetts economy and supported \$105.1 million in new economic output.
- **Total Impacts:** In total, the project to date has supported 1,657 jobs, \$172.6 million in labor income, \$66.2 million in value added, and \$590.7 million in economic output.

Table 9. Direct, Indirect, and Induced Impacts, Total Project Impacts to Date

Total Massachusetts Impact				
Total Project Impacts to Date				
Impact Type	Job Years	Labor Income	Value Added	Output
Direct Effect	751	\$ 101,282,461	\$ 141,157,270	\$ 334,707,436
Indirect Effect	350	\$ 31,654,226	\$ 42,457,233	\$ 150,877,800
Induced Effect	556	\$ 39,680,528	\$ 66,185,843	\$ 105,083,246
Total Effect	1,657	\$ 172,617,215	\$ 249,800,346	\$ 590,668,482

Source: UMass Dartmouth from Implan

8 Comparison to UMass Dartmouth Public Policy Center 2017 Estimates

The Public Policy Center (PPC) at UMass Dartmouth conducted an analysis in 2017 that described the economic contributions to employment and economic output that the proposed 800 MW Vineyard Wind 1 project would have on the Commonwealth of Massachusetts and the regional economy of Southeastern Massachusetts. The analysis was undertaken in response to inquiries contained in the *Request for Proposals for Long-Term Contracts for Offshore Wind Energy Projects (RFP)* issued by the state's four electric distribution companies in coordination with the Massachusetts Department of Energy Resources (DOER).

In its 2017 analysis, PPC estimated that the 800 MW Vineyard Wind 1 project would support an estimated 3,180 direct job years across all phases over the project period under the Base scenario and 3,658 direct job years in the High scenario for Massachusetts. This total includes 126 job years in the Development phase and 974 job years in the Construction phase (Base scenario) (see Table 10).²¹

Table 10. PPC Estimated Direct Job Years, Development & Construction Phase, 2017

	Development Phase	Construction Phase	Total Job Years
Base Scenario	126	974	1,100
High Scenario	126	1,426	1,552

Source: UMass Dartmouth Public Policy Center, 2017

This section compares the extent to which the results reported here compare with the estimates of the project's contributions to employment and economic development contained in the 2017 UMass Dartmouth analysis and included as part of Vineyard Wind's proposal submission to DOER.

8.1 Development Phase

As noted in last year's annual report, the expected impacts are larger in 2022 than expected in 2017 on every dimension of the economic impact of the project to date (see Table 11 and Figure 21). The larger impact is primarily due to the two-year federal permitting delay and expanded project envelope that extended the Development phase beyond the initial expectation. The economic impact of future projects may be closer to initial estimations as project development becomes more streamlined and predictable.

Direct Employment Impacts

- The direct number of Development phase job years is 278. This compares to the 2017 estimate of 126 job years, a difference of 152 jobs.
- In all, the total job impact of Development phase activities is 666. This compares to the 2017 estimate of 274 jobs, a difference of 392 jobs.

²¹ The PPC developed a Base and High scenario that varied by the assumed level of state and regional supply chain expenditures.

Indirect and Induced Employment Impacts

- **Indirect Impacts:** Vineyard Wind's direct payroll and non-payroll expenditures supported an additional 137 indirect job years during the Development phase. This compares to the 2017 estimate of 27 jobs, a difference of 110 jobs.²²
- **Induced Impacts:** The direct and indirect impacts of the proposed project induced an estimated additional 251 jobs during the Development phase. This compares to the 2017 estimate of 121 jobs, a difference of 130 jobs.

Economic Output Impacts

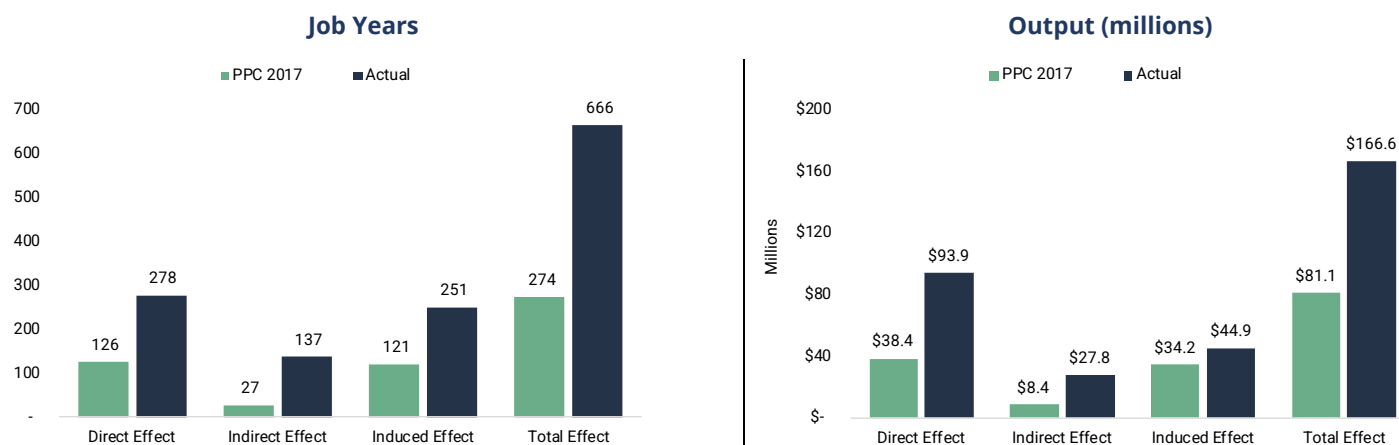
- Economic output values are also much higher than the 2017 estimates. For example, total economic output (direct + indirect + induced) is estimated to be \$166.6 million, which compared to \$81.1 million in the 2017 estimate, a difference of \$85.5 million.

**Table 11. Development Phase
Massachusetts Impacts, PPC Estimate Versus Actual**

Massachusetts Impact				
Development Phase				
Impact Type	Job Years		Output	
	PPC 2017	Actual	PPC 2017	Actual
Direct Effect	126	278	\$ 38,421,815	\$ 93,903,244
Indirect Effect	27	137	\$ 8,438,925	\$ 27,821,324
Induced Effect	121	251	\$ 34,225,613	\$ 44,924,273
Total Effect	274	666	\$ 81,086,353	\$ 166,648,841

Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

**Figure 21. Development Phase, Total Massachusetts Economic Impacts
UMass Dartmouth Estimate Versus Actual**



Source: Estimate; UMass Dartmouth Public Policy Center (2017). Current; UMass Dartmouth and Vineyard Wind

²² IMPLAN does not report jobs as FTEs. Accordingly, the reported jobs for the indirect and induced impacts were converted to FTEs using IMPLAN conversion tables.

8.2 Construction Phase

The 2017 estimates were designed to gauge the economic impact of the complete construction phase of the project, including economically meaningful project activities that are expected in 2024. What follows documents the impact of project related construction activities through September 2023 only.²³ Accordingly, comparisons to 2017 should be interpreted with caution and understood as a progress report rather than a true “apples to apples” comparison.

Direct Employment Impacts

- The direct number of Construction phase job years is 473. This compares to the 2017 estimate of 974 job years, a difference of 501 jobs years.

Indirect and Induced Employment Impacts

- **Indirect Impacts:** The number of indirect job years supported to date is 213. This compares to the 2017 estimate of 346 jobs-years, a difference of 133 job years.²⁴
- **Induced Impacts:** The direct and indirect impacts of Construction phase activities have induced an additional 305 job years. This compares to the 2017 estimate of 777 job years, a difference of 472.

Economic Output Impacts

- Economic output to date is significantly higher than the PPC estimates. This reflects the impact of inflation and project costs, both of which have been much higher than could have been foreseen in 2017.

**Table 12. Construction Phase, Massachusetts Impacts
PPC Estimate Versus Actual**

Massachusetts Impact				
Construction Phase				
Impact Type	Job Years		Output	
	PPC 2017	Actual	PPC 2017	Actual
Direct Effect	974	473	\$ 148,485,739	\$240,804,191
Indirect Effect	346	213	\$ 68,758,340	\$123,056,476
Induced Effect	777	305	\$ 135,739,944	\$ 60,158,973
Total Effect	2,097	991	\$ 352,984,023	\$424,019,641

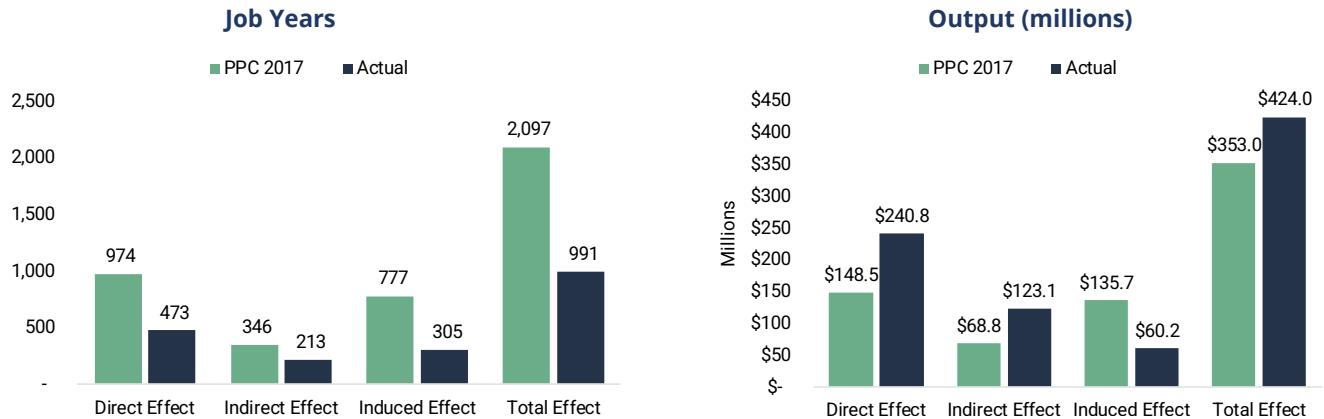
Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

Figure 22. Construction Phase Massachusetts Impacts

²³ Note again that the job impacts are presented in job years, not number of jobs (headcount).

²⁴ IMPLAN does not report jobs as FTEs. Accordingly, the reported jobs for the indirect and induced impacts were converted to FTEs using IMPLAN conversion tables.

PPC Estimate Versus Actual



Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

8.3 Total Impact of the Project to Date

Table 13 and Figure 23 present project outcomes through September 2023 and should be understood as a progress report. Construction activity will continue in 2024 and the full impact of the Construction phase will not be known before that phase is complete.

Direct Employment Impacts

- The direct number of job years is 751. This compares to the 2017 estimate of 1,100 job years, a difference of 349 jobs years.

Indirect and Induced Employment Impacts

- Indirect Impacts:** The number of indirect job years supported to date is 350. This compares to the 2017 estimate of 373 jobs-years, a difference of 23 job years.²⁵
- Induced Impacts:** The direct and indirect impacts of project activities to date have induced an additional 556 job years. This compares to the 2017 estimate of 898 job years, a difference of 342 job years.

Economic Output Impacts

- Economic output is higher than the PPC estimates. Again, this is primarily due to the increased cost of the project compared to assumptions made in 2017, particularly during the Development phase.

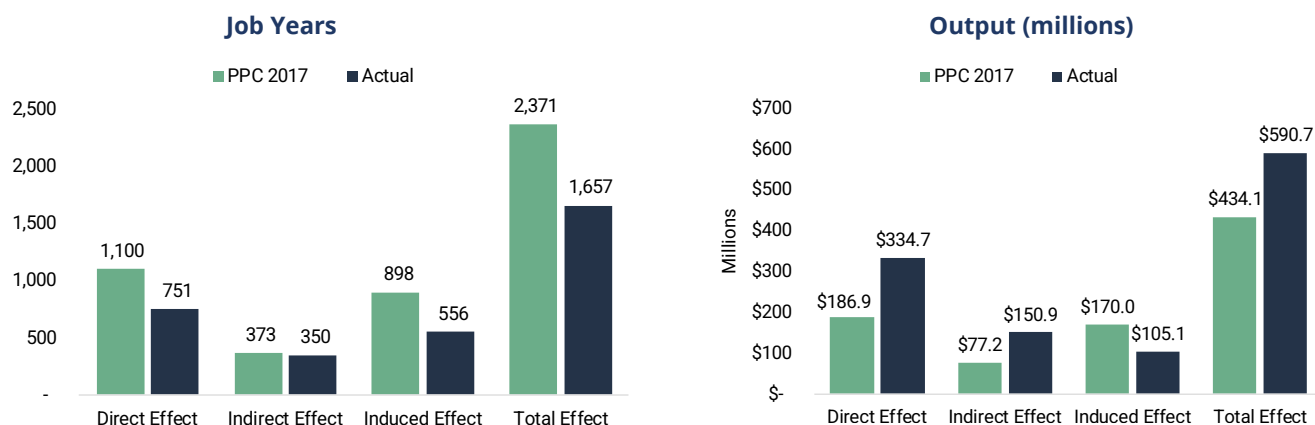
²⁵ An FTE assumes 2080 hours of work in a year. IMPLAN does not report jobs as FTEs. Accordingly, the reported jobs for the indirect and induced impacts were converted to FTEs using IMPLAN conversion tables.

Table 13. Construction Phase, Massachusetts Impacts
PPC Estimate Versus Actual

Massachusetts Impact				
Total Project to Date				
Impact Type	Job Years		Output	
	PPC 2017	Actual	PPC 2017	Actual
Direct Effect	1,100	751	\$ 186,907,554	\$ 334,707,436
Indirect Effect	373	350	\$ 77,197,265	\$ 150,877,800
Induced Effect	898	556	\$ 169,965,557	\$ 105,083,246
Total Effect	2,371	1,657	\$ 434,070,376	\$ 590,668,482

Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

Figure 23. Construction Phase Massachusetts Impacts
PPC Estimate Versus Actual



Source: Estimate; Dartmouth PPC, 2017 (Base scenario). Current; UMass Dartmouth

9 Lessons Learned to Date and Research Related Recommendations

This section highlights several relevant lessons learned while conducting this research that Massachusetts officials can use to support efforts to improve economic outcomes for Massachusetts and inform future state procurement and related programmatic efforts.

Over the course of the past two years there have been two durable lessons that we have learned that improve our understanding of the statewide and regional impact of the Vineyard Wind 1 project. Both can be classified as unintended consequences of otherwise positive conditions.

9.1 Consequences of the Project Labor Agreement

The Construction work is being performed under a Project Labor Agreement (PLA) with much of the construction labor provided by local unions. A PLA specifies the wages, overtime wages, and fringe benefits to be paid on a project and is usually higher than the prevailing wage required on public projects. While the PLA has resulted in hundreds of local union workers performing work on the project with wages that meet or exceed prevailing wage, it also narrows the number of contractors that are eligible to execute contracts on the construction portion of the project to those that employ union labor.

In a recent report prepared for Vineyard Wind and the Massachusetts Clean Energy Center (MassCEC) Greentree Consulting LLC (Greentree) identified several lessons learned through the VW1 “Meet the Buyer” initiative.²⁶ The initiative was designed to connect local companies to key project partners and make them aware of competitive opportunities to directly benefit as subcontractors or suppliers. They identified several issues that make it difficult to make these connections. As they described it:

Open lists of union hall members are not easily available or accessible without membership, therefore making it difficult to quickly identify local unionized suppliers. Another challenge is to identify minority companies. Greentree did make use of the MA Certified SBA Directory, but this directory does not include any union affiliation. Nor does this list include any industry classifications, to filter the suppliers relative to offshore wind supply chain. Not impossible, but it does require more targeted research and outreach to further filter and identify union and minority suppliers.

Greentree also noted that “buyers” (tier one contractors on the project) commented that they met several qualified suppliers, but they were not union, which would be problematic to work on Vineyard Wind 1. To the extent that a given region or community does not have a ready supply of available union construction firms, a PLA limits available contractors to the available pool of union firms. This is not an uncommon challenge in regions that do not have many large construction projects. As the industry moves forward, understanding whether PLAs will be common industry practice will allow local companies to determine whether becoming a union employer will provide better business opportunities in this sector.

Moving forward, the available supply chain directories should include information about whether a local company is signatory to unions and therefore eligible to work under a PLA.

²⁶ Vineyard Wind Meet-The-Buyer Initiative, Overview And Lessons Learned. Greentree Consulting, LLC.

9.2 Recruiting a Local and Diverse Workforce In a Very Tight Labor Market Is Difficult

The Vineyard Wind 1 project is being developed during a period where the state and nation are at or near record lows in unemployment. In an otherwise extremely tight regional labor market, the competition for labor in the construction and building trades sector has been particularly intense.

It is very difficult to persuade workers to pursue a new career and complete specialized training and certification in an environment where jobs paying competitive wages with no such requirements are readily available.

Additionally, small delays in the project can have cascading effects on whether local workers in the training pipeline end up working on the Vineyard Wind 1 or one of the many other traditional shoreside projects that require workers with their skills and that allow them to start work and begin earning a wage immediately. A delay as short as a week (due to weather or one of the many reasons an offshore project may face a short-term delay) can mean that the workforce who intended to perform the job seeks work elsewhere and then is unavailable to go offshore when the project is ready. Due to the relatively small workforce that has the full offshore capabilities and limited industry-specific training capacity, it is very difficult to train backup workers with short notice.

Going forward, future projects should be able to learn from these lessons and benefit from the larger supply of work-ready workers in the region who are now working in construction and building trades sector, even if not currently employed supporting offshore wind. If ongoing workforce development efforts are successful, this means that the local impact of future projects can be expected to be larger.

10 Resiliency and Affordability Fund

Vineyard Wind has established the Resiliency and Affordability Program (RAP) in Partnerships with Citizens Energy Corporation and Vineyard Power Development Fund, Inc.²⁷ Vineyard Wind will contribute \$15 million in total funding to the RAP with the funding to be used by the program partners to support the development of distributed battery energy storage and solar projects in local host communities as well as to provide credits directly to low-income ratepayers' electric utility bills. The RAP is focused on supporting projects and delivering benefits to low-income ratepayers in New Bedford, Martha's Vineyard, Nantucket, Barnstable, and Somerset as well as to the Mashpee Wampanoag Tribe and Wampanoag Tribe of Gay Head (Aquinnah).

The RAP is in its second year and, although no resiliency projects have been funded, Citizens Energy continues to enroll low-income ratepayers from cities/towns in the CE Geographic Region into the low-income community solar program, Joe-4-Sun (J4S). J4S leverages the Massachusetts SMART program to operate low-income community shared solar projects that generate solar bill credits that are used to lower electricity bills for low-income households. Regular J4S customers receive a 50% discount on bill credits (by far the highest discount offered in the SMART program), while the VW RAP program offers eligible and enrolled customers a 100% discount on the bill credits.

At the time of reporting, 191 RAP participants were enrolled in the J4S program, a 133% increase over last year, with another 171 in the process of being enrolled, a 99% increase vs last year. Overall, this represents a year-over-year increase of 194 RAP participants. Based on the program, each household is expected to

²⁷ Vineyard Power Development Fund, Inc. is an affiliate entity of Vineyard Power Cooperative, Vineyard Wind's community benefits partner on Martha's Vineyard.

receive about \$600 in electricity bill savings. Given the program's current capacity and remaining availability to subscribers, Citizens was able to link customers' bill savings to their household electricity consumption, providing greater benefit to RAP participants who need it most. Over the past twelve months, the participants have received about \$190,000 in electricity bill savings, with half of that, \$95,000, provided by the RAP funds, an average of \$778 per household over that timeframe. This is not a direct calculation as the # of participants has been increasing each month, but it is an average savings per RAP participant.

It should be noted that as RAP participant enrollment continues to increase, the total \$-value of bill credits allocated to each household will be adjusted to accommodate the number of enrollees while staying within the allowable budget. However, the basic construct will remain – that is, the RAP will pay for the customer's remaining 50% share of the bill credits. Based on the current enrollment, the households enrolled in the program should collectively experience annual electricity bill savings of \$217,200, with half of the savings supported RAP funds.

Table 12. Joe-4-Sun Program Participation

Community	# Participants	# In Process of Enrolling	Total
Barnstable	26	36	62
Martha's Vineyard	14	11	25
Nantucket *	0	0	0
New Bedford	87	65	152
Somerset	26	24	50
Tribes**	38	35	73
Total	191	171	362

* Nantucket is not currently eligible for J4S program due to no Citizens solar projects in Nantucket territory

** Tribes includes Mashpee Wampanoag Tribe and Aquinnah Tribe of Gay Head

11 Host Community Agreements

Vineyard Wind entered into a Host Community Agreement (HCA) with the Town of Barnstable in October 2018. The HCA requires Vineyard Wind to make annual payments to the Town of at least \$1.534 million each year in combined property taxes and Host Community Payments (HCP). The agreement guarantees a total HCP of \$16 million, plus an additional \$60,000 (adjusted for inflation annually), for each year the project is in operation beyond 25 years. To date, Vineyard Wind has made payments under the HCA of \$640,000 in 2022 (Q2) \$1.49 million in 2023 (Q2).

Apart from these payments, the HCA provided an opportunity for detailed review and consultation by the Town of Vineyard Wind's specifications for its new substation, including funding for the town to retain an external consultant. It also ensured close and ongoing communication and coordination between Vineyard Wind and town staff. Beyond the HCA, Barnstable and Vineyard Wind collaborated on the Town's sewer expansion effort by co-locating sewer infrastructure along the cable route, with Vineyard Wind assuming road reconstruction costs, which saved the town millions in project costs and minimized the need for future road construction, and helping to address the local environmental impact of wastewater and nitrogen loading that degrades the town's bays, estuaries, and ponds. The HCA also provided \$80,000 in funding for reconstruction of the bath and restroom facilities at Covell's Beach. Future annual reports will more fully capture the impacts of the HCA collaboration.

12 Accelerator Fund

In its 83C bid into Massachusetts in 2017, Vineyard Wind committed \$15 million to an Accelerator Fund, broken into three initiatives: 1) Windward Workforce (\$2 million) for initiatives that will build a skilled offshore wind workforce centered in southeastern Massachusetts; 2) Industry Accelerator Fund (\$10 million) to attract additional investment in infrastructure and supply chain development; and, 3) Marine Mammals Innovation Fund (\$3 million) to advance technologies that will allow for greater expansion of offshore wind, while continuing to protect marine mammals. The funds were deposited into a joint trust account at financial close of the project, comanaged with the Massachusetts Clean Energy Center (MassCEC) under the Offshore Wind Accelerator Program Agreement, executed on September 29, 2021.

At time of this report, over \$14 million of the total \$15 million dollars has been committed to initiatives in coordination with Mass CEC. Some of the major projects funded include the below (this is not a comprehensive list of all initiatives):

12.1 Windward Workforce Fund

Building Pathways South (BPS)

The goal of this initiative is to support and advance a pre-apprenticeship program that allows Massachusetts residents to obtain the requisite qualifications to be considered for union apprenticeship opportunities in offshore wind. The primary goal of BPS is to expand access to recruit and train local and traditionally underserved populations in Massachusetts, including South Coast residents, Mashpee and Aquinnah Wampanoag tribal members, BIPOC, and women in support of efforts to diversify the unionized offshore wind workforce in the Commonwealth.

BPS is a pre-apprenticeship program that prepares low-income men and women for careers in the building trades with a goal of increasing job-site diversity. The Building Pathways model is nationally recognized for addressing training and inclusivity in the industry and providing the critical link between diverse communities and access to family-sustaining careers that empower individuals and strengthen our communities. Through apprenticeship preparedness training, outreach to young adults, and advocacy, BPS's pre-apprenticeship program addresses the need to recruit top talent into the industry while opening career pathways to women, BIPOC, individuals with disabilities, and transitioning veterans.

Turbine Installation Training Initiative

Per the Project Labor Agreement, the work associated with offshore turbine installation includes multiple unions who are required to have additional specialized technical and Health and Safety trainings in order to perform the work. Considering this work scope is the most unique, requiring a technical skillset that cuts across several traditional union jurisdictions, the PLA established a working group comprised of the turbine supplier (General Electric), Vineyard Wind, and the relevant unions to ensure communication, coordination and financial support for identifying, recruiting and training individuals to be prepared for this work. To date, the funds have supported the Offshore Suitability Experience program at Massachusetts Maritime Academy to introduce workers to life and work offshore, and Helicopter Underwater Escape Training (HUET) offered at Survival Systems USA in Groton, CT (the only available training institution in the Northeast US).

12.2 Industry Accelerator Fund

Thayer Mahan Bubble Curtain

MassCEC and Vineyard Wind 1 funded Thayer Mahan to (a) establish the necessary equipment and operational capabilities to provide “big bubble curtain” marine noise mitigation services to offshore wind projects in southern New England and (b) deploy a secondary big bubble curtain system in a pilot demonstration campaign during the monopile foundation installation of the Vineyard Wind 1 project to mitigate underwater noise during offshore wind pile driving activity during the construction of Vineyard Wind 1 and subsequent offshore wind projects.

Business Network for Offshore Wind (BNOW) Industry Education and Training Courses

These courses support and advance offshore wind supply chain education opportunities to diverse Massachusetts vendors and contractors to increase awareness about supply chain opportunities in the offshore wind sector. This education initiative will utilize three of BNOW's existing courses: Offshore Wind 101, Offshore Wind Ready, and Foundation 2 Blade.²⁸

New Bedford's Fishing Community

Through Vineyard Wind's efforts under the Accelerator Fund, twenty-three New Bedford fishing boats are now qualified to work in OSW. As of this report, financial support of the fishing fleet includes \$16,842 in inspections, \$86,793 in safety equipment, and \$130,056 in training/ certifications/merchant mariner credentials. These funds were provided to ensure fishing vessels and fishermen have the necessary credentials and equipment to be eligible to work on the Vineyard Wind 1 project and future offshore wind projects. Once the fishermen are licensed, they are much more marketable for workboats, tug, and other maritime professions, offering career flexibility and optionality as the offshore wind industry grows.

12.3 Marine Mammal Innovation Fund

Charles River Analytics Thermal Imaging

Vineyard Wind is allocating approximately \$1,000,000 from the Wind and Whales Fund to the Charles River Analytics (CRA). These funds will be used to test a thermal imaging whale detection system that may offer improved detection for vessel strike avoidance mitigation for marine mammals. This system will be deployed by CRA before and during Vineyard Wind 1 to (1) compare the performance of a thermal imaging system to that of trained professional protected species observers; (2) conduct a feasibility trial for remote, near real-time verification during Vineyard Wind 1's operations phase to reduce the need for offshore personnel, (3) evaluate the impact of vessel speed on marine mammal detection performance, and (4) compare camera configurations for optimal marine mammal detection.

Thayer Mahan Transit Passive Acoustic Monitoring

Vineyard Wind, in collaboration with the MassCEC, is funding Thayer to provide a real-time passive acoustic monitoring (PAM) and data transmission system with remote alert capabilities that can be deployed at varying locations in advance of transiting vessels during the construction of the Vineyard Wind 1 project. Through this joint initiative, Vineyard Wind and MassCEC seek to progress the technology readiness level of real-time PAM technologies as a mitigation tool for vessel strike avoidance and provide better

²⁸ More information can be found at BNOW's website: <https://oceanic.org/education-and-training/>.

protections for North Atlantic Right Whales (NARW) in the New England region. A second objective is to acoustically record and localize NARW and other mysticete vocalizations to enhance the general understanding of the species' distribution and potentially, abundance.

Wind and Whales Fund

Vineyard Wind is allocating approximately \$1,000,000 from the Wind and Whales Fund to Charles River Analytics. These funds will be used to test a thermal imaging whale detection system that may offer improved detection for vessel strike avoidance mitigation for marine mammals. This system will be deployed by CRA before and during Vineyard Wind 1 to (1) compare the performance of a thermal imaging system to that of trained professional protected species observers; (2) conduct a feasibility trial for remote, near real-time verification during Vineyard Wind 1's operations phase to reduce the need for offshore personnel, (3) evaluate the impact of vessel speed on marine mammal detection performance, and (4) compare camera configurations for optimal marine mammal detection.

13 Sponsorships and Donations

Vineyard Wind provides sponsorships and donations throughout the year to various local organizations. Specifically in the past year, Vineyard Wind made \$490,110 in sponsorships and donations to local organizations in the areas of education, fisheries, environment, and workforce. Examples of organizations and events supported include Juneteenth activities on Marthas Vineyard, the New Bedford Historic Society, the Cape Cod Climate Change Collaborative, Marthas Vineyard Museum, Cape Verdean Veterans Hall, New Bedford Whaling Museum, Seamen's Bethel, AHA! Night, and Leadership Southcoast.

APPENDIX A: METHODOLOGY

Data Collection

Data collection to obtain job, expenditure, and other information from Vineyard Wind and its subcontractors began in earnest in October 2021, shortly following the project's financial close. Two primary data collection tools were developed and used to monitor relevant project activity:

- 1) An historical spreadsheet tracker to obtain Development-related job and expenditure data from 2017 to 2021. These data were the basis for the bulk of our first annual report.
- 2) A monthly spreadsheet tracking template that Tier 1 contractors were required to submit monthly beginning in October 2021. These tracking templates were focused on Construction phase activities. Over 300 monthly reports were received from Tier1 contractors.

Development Phase

From the outset, conversations with subcontractors made it clear that obtaining accurate historical data from all subcontractors would be difficult, particularly from smaller companies that were no longer working on the project. Consequently, Vineyard Wind and UMass Dartmouth focused their efforts on obtaining detailed job and expenditure data from companies with contracts above \$1 million (n=48), which represents 90.3% of the total contract value during the Development phase. These subcontractors were asked to provide their annual Massachusetts expenditures and counts of Massachusetts-based employees over the 2017-2021 period for activities that directly supported the Vineyard Wind 1 project. Thirty-five of the forty-nine subcontractors (69%) complied.

Construction Phase

UMass Dartmouth and Vineyard Wind created a data collection spreadsheet that was completed monthly by the Tier 1 suppliers working on the project. The tracking sheet includes inputs for labor—both union and non-union—as well as nonpayroll expenditures by three geographic levels of analysis: the U.S., Massachusetts, and Southeastern Massachusetts. Subcontractor expenditures made by the Tier 1 suppliers, as well as various diversity, equity, and inclusion (DEI) data such as race, gender, tribal affiliation, and veteran status were also tracked. Tier 1 contractors also provided the same information for their larger Tier 2 contracts, while also providing the overall contract amounts for smaller Tier 2 and Tier 3 contractors.

The following tables present the data architecture of the monthly reports.

1. Company Overview
Company Name
Primary business headquarters
Local business headquarters
Inclusion plan (Y/N)
Massachusetts SDO category:
None
Minority-Owned Business (MBE)
Women-Owned Business (WBE)
Portuguese-Owned Business (PBE)

Veteran-Owned Business (VBE)
Service-Disabled Veteran-Owned Business (SDVOBE)
Lesbian, Gay, Bisexual and Transgender-Owned Business (LGBTBE)
Disability-Owned Business (DOBE)
Other

2. Employee Data

Employee position/title
Employee current ZIP Code.
Number of monthly regular hours and OT hours for union employees
Number of weekly hours for nonunion employees
Race:
White (non-Hispanic)
Hispanic
Black or African American
American Indian
Alaska Native
Asian
Native Hawaiian or Other Pacific Islander
Two or More Races
Some Other Race
Gender:
Woman
Man
Non-binary/non-conforming
Other
Apprentice for union employees(Y/N)
Tribal status (Y/N)
Veteran status (Y/N)

3. Expenditures

Package:
Multi Package
Array cables
Construction Management
Export cable, Offshore
Foundations/ESP T&I
OPEX
OPEX Prep
Project Management/Development
Onshore Works
WTG

Expenditure categories (list populated depending on package) in SEMass, MA, US
Accommodations
Administrative and Support Services
Cable installation/Civil Works
Civil Works
Environmental, Health, Safety Monitoring
Equipment
Fabrication
Facilities/Office/Lease
Food
Insurance and Warranties
IT setup
Manufacturing/Fabrication
Materials/Supplies
New Bedford harbor operations during installation
Outreach & Governmental relation
Port Agreement
Port infrastructure works
Property Tax
Specialist Services
Surveying
Surveys
Trainings and Certifications
Travel/Airfare
Vessels
Vessels/Inspections

4. Company's US-Based Subcontractors

Subcontractor name and address
Approximate contract value
Less than \$10,000
\$10,000 - \$50,000
\$50,001 - \$100,000
\$100,001 - \$250,000
\$250,001 - \$500,000
\$500,001 - \$1,000,000
\$1,000,001 - \$1.5 million
\$1,500,001 - \$2 million
Over \$2 million
Signatory to PLA/LOA? (Y/N)

Implan Model

The economic impacts of the proposed project are specified using IMPLAN, which is an input-output database and model that traces a project's purchases of goods, services, and labor through an economic area. We constructed an input-output model for the state of Massachusetts. Model outputs are reported in 2023 dollars. The latest available IMPLAN dataset is for 2021.

Direct Inputs to the Impact Model

Employee Compensation²⁹

Union employee compensation was estimated by utilizing actual wage and benefit data detailed in each union's prevailing wage schedule. Employee compensation for nonunion workers was estimated utilizing Massachusetts occupational wage data from Lightcast and the Bureau of Labor Statistics. These data served as the primary inputs to the IMPLAN model as labor income. All union workers are considered local on the project and therefore all employee compensation for union workers is included in the Massachusetts total. Conversely, nonunion employee compensation includes compensation for Massachusetts-based workers only. Employees without a ZIP Code were categorized as out-of-state.

Nonpayroll Expenditures

Nonpayroll expenditures were obtained from the Tier 1 contractor monthly reports, which as noted in the previous tables, included the expenditure category, the amount, and where the expenditure was made (i.e., SEMass, MA, Other US).

It is not possible to estimate the economic impact of the Vineyard Wind 1 project's operations and capital expenditures simply by changing the output of an aggregated offshore wind industry in the econometric model because a mature offshore wind industry does not exist in the U.S. However, because expenditures were reported by category, we were able to utilize a more precise method for estimating the project's economic impacts. Instead we utilized a bottom-up approach that specified a change in output for the Implan code that represents construction of new power structures. We instead specified a long list of changes in the output of each industry that is a beneficiary of the project's purchases, which allows IMPLAN to apply the appropriate regional purchase coefficient to each industry.

The table below lists the IMPLAN industry codes used in this analysis. More than 650 individual expenditures were mapped to 26 IMPLAN sectors for each scenario examined (see table below). As noted above, the model includes only those expenditures that occurred in Massachusetts.

Table 14. IMPLAN Sectors Used to Construct the Construction Phase Model for Massachusetts

Implan Code	Implan Description
28	Stone mining and quarrying
35	Drilling oil and gas wells
52	Construction of new power and communication structures
55	Construction of new commercial structures, including farm structures
216	Iron, steel pipe and tube manufacturing from purchased steel
329	Power, distribution, and specialty transformer manufacturing

²⁹ Employee compensation includes wages and benefits.

360	Ship building and repairing
393	Wholesale - Professional and commercial equipment and supplies
395	Wholesale - Machinery, equipment, and supplies
396	Wholesale - Other durable goods merchant wholesalers
416	Water transportation
422	Warehousing and storage
439	Nondepository credit intermediation and related activities
444	Insurance carriers, except direct life
447	Other real estate
453	Commercial and industrial machinery and equipment rental and leasing
457	Architectural, engineering, and related services
460	Computer systems design services
463	Environmental and other technical consulting services
464	Scientific research and development services
468	Marketing research and all other miscellaneous professional, scientific, and technical services
472	Employment services
476	Services to buildings
477	Landscape and horticultural services
478	Other support services
479	Waste management and remediation services

Who is Considered Local?

In economic impact analysis, employment is determined by the location of the job rather than the individual's place of residence. Therefore, even if a worker is brought in from outside the region, they are still considered as "local" employment for the duration of their work. Thus, local employment in this report includes all union employees on the job site, including workers who relocated to SEMass to work on the project. About 92 workers relocated to SEMass for the project.

Workers from outside the area spend their income differently than local residents. Consequently, we adjusted the labor income values for these workers in the IMPLAN model. However, relocated workers have impacts on the local economy because they do spend a portion of their earnings in the region. To account for this spending, we utilized per diem spending rates from the U.S. General Services Administration.

Project Years and Multiple Models

IMPLAN is an annual model and employment estimates provided by IMPLAN represent annualized employment values. However, payroll and nonpayroll expenditures will occur over multiple years. In order to account for the phases of the project and Vineyard Wind's proposed timeline, several input-output models were constructed for the Development and Construction phases depending on the year in which the expenditures were made. The results of these individual yearly models were then aggregated to produce the final impact tables.



**Attachment 13.4-1: Economic Development Contractual
Commitments**

REDACTED



Attachment 13.5-1: Market Benefits Report

REDACTED



Attachment 13.7-1: Diversity, Equity, and Inclusion Plan

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ATTACHMENT 13.7-1

DIVERSITY, EQUITY, AND INCLUSION PLAN

I. OVERVIEW

Vineyard Offshore is committed to building a diverse, equitable, and inclusive offshore wind industry in support of a just transition. The Diversity, Equity, and Inclusion (DEI) Plan included herein was developed for Vineyard Wind 2 (the “Project”). Building upon the efforts started and knowledge gained on Vineyard Wind 1, the DEI Plan outlines strategies and commitments to increase diversity in the industry and provide environmental justice (EJ) communities, underrepresented populations, and local and diverse businesses with opportunities to join the offshore wind workforce and supply chain in Massachusetts.

The DEI Plan focuses on the geographic regions where Project activities will be based in Massachusetts—the North Shore and South Coast—and includes a Workforce Diversity Plan (WDP) and Supplier Diversity Program Plan (SDPP). [REDACTED]

[REDACTED]

[REDACTED]

Creating a diverse and inclusive offshore wind workforce requires building relationships with local communities and diverse partners, flexible and creative recruitment strategies, and cultivating career development opportunities for young people to gain access to the offshore wind industry. The WDP focuses on strategies and commitments to support these efforts to ensure we recruit, train, and hire diverse candidates for the Project’s workforce. We will implement the WDP in partnership with labor unions, education and training institutions, local communities, and other stakeholders. [REDACTED]

The SDPP is focused on increasing the number of local and diverse companies that are able to respond effectively to offshore wind procurements and secure contracts that grow their business. [REDACTED]

Additional partnerships and initiatives for the WDP and SDPP will be identified as we implement the DEI Plan.

II. DEI PLAN IMPLEMENTATION

The DEI Plan will be implemented by Vineyard Offshore’s workforce and local content team in Massachusetts, all of whom have gained invaluable experience on the Vineyard Wind 1 project (see Figure 1). This team will be expanded after power purchase agreement (PPA) award and execution and is supported by Vineyard Offshore’s procurement team, local outreach teams, fisheries team, Tribal Lead, and others.

Figure 1 **Massachusetts Workforce and Local Content Team**



Vineyard Offshore maintains strong internal coordination between our workforce and local content team and our outreach team as jobs are the economic benefit most stakeholders are interested in. [REDACTED]

The workforce and local content team is led by Jennifer Cullen who currently serves as the Director of Labor, Workforce, and Local Content for Vineyard Offshore and the Vineyard Wind 1 project. Jennifer led the project labor agreement (PLA) negotiations for Vineyard Wind 1 and is currently overseeing PLA implementation. She was also instrumental in developing and leading Vineyard Wind 1's workforce development partnerships and efforts to "Look Local First" with respect to prioritizing goods, services, and workforce needs for Vineyard Wind 1 from local communities in Massachusetts. Jennifer's resume is provided in Attachment 12.3-1 to the proposal.

Jennifer's efforts in Massachusetts are supported by Dan Kent, Labor Relations Manager for Vineyard Offshore and Vineyard Wind 1, as well as Nora McCarthy, Workforce and Outreach Coordinator for Vineyard Offshore and Vineyard Wind 1. Dan joined the Vineyard Wind 1 team in January 2022 as a workforce development intern and was subsequently offered a position as the Operations Coordinator. Dan is a graduate of MMA and has led efforts to ensure MMA and its graduates are well-connected to career opportunities within the offshore wind industry and with suppliers. In August 2023, Dan was promoted to Labor Relations Manager where he uses his relationships with labor unions, workforce partners, and local businesses to ensure the successful implementation of Vineyard Wind 1 PLA commitments at the New Bedford Marine Commerce Terminal. Nora started as an intern at Vineyard Wind 1 in 2022 after which she transferred to Vineyard Offshore where she supported the commercial team as they developed the Excelsior Wind proposal, which was recently awarded a long-term contract in New York's third offshore wind solicitation (ORECRFP22-1). She transitioned to her current role in February 2023 and has led efforts to ensure alignment between the workforce and local content and outreach teams on the Vineyard Wind 1 project.

[REDACTED]

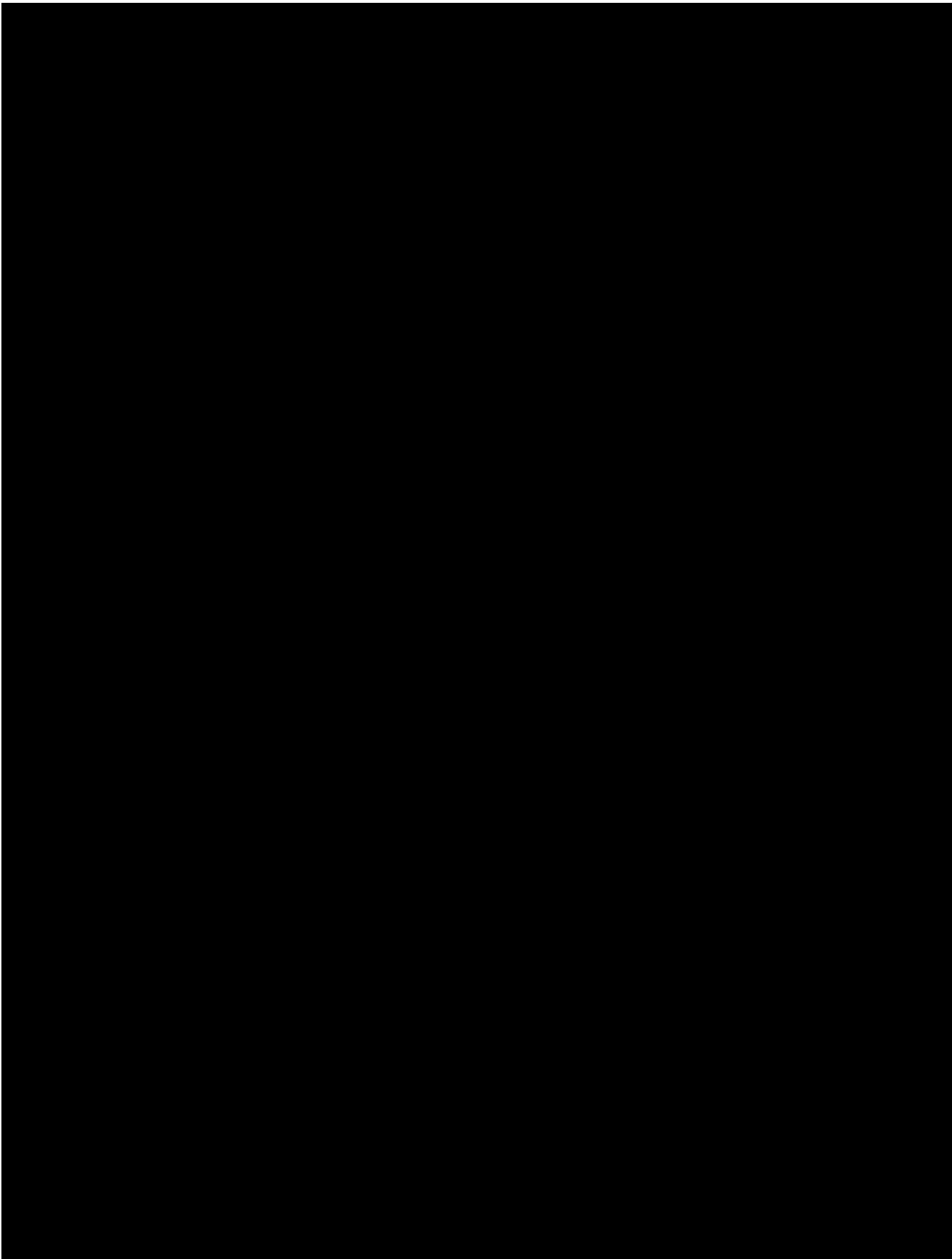
III. DEI PLAN APPROACH

The DEI Plan leverages key lessons learned on Vineyard Wind 1 along with desktop analysis and substantial stakeholder engagement to identify priority strategies and commitments to increase opportunities for diverse and local residents and businesses.

Vineyard Wind 1 Lessons Learned

The Vineyard Offshore team has gained unique insights into the opportunities and challenges associated with building a diverse and equitable offshore wind industry from Vineyard Wind 1. Some of the key lessons learned on that project are summarized below.

[REDACTED]



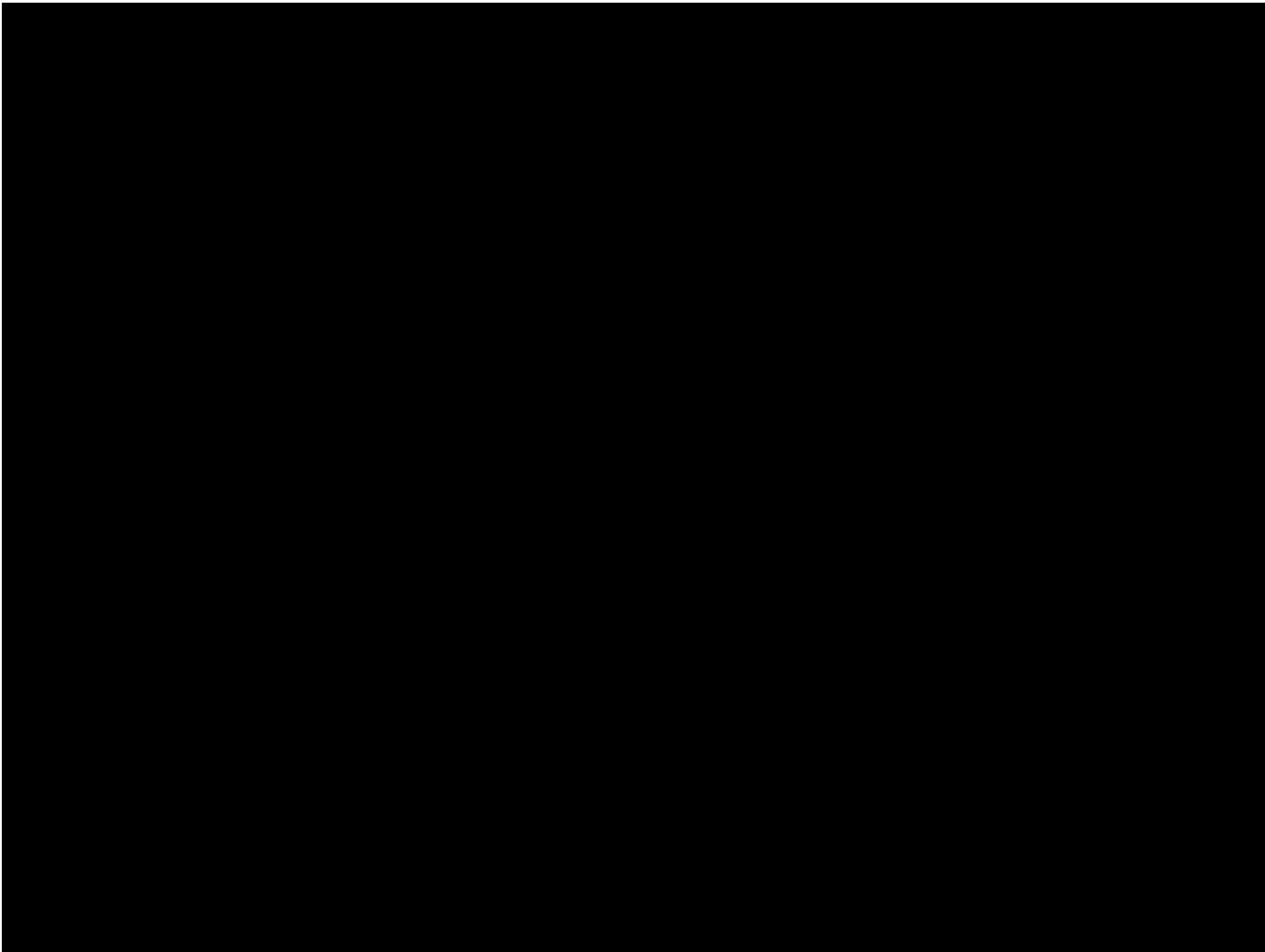
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[REDACTED]

Additional information regarding key lessons learned on Vineyard Wind 1 is provided in Attachment 13.7-2 to the proposal.

Desktop Analysis

[REDACTED]

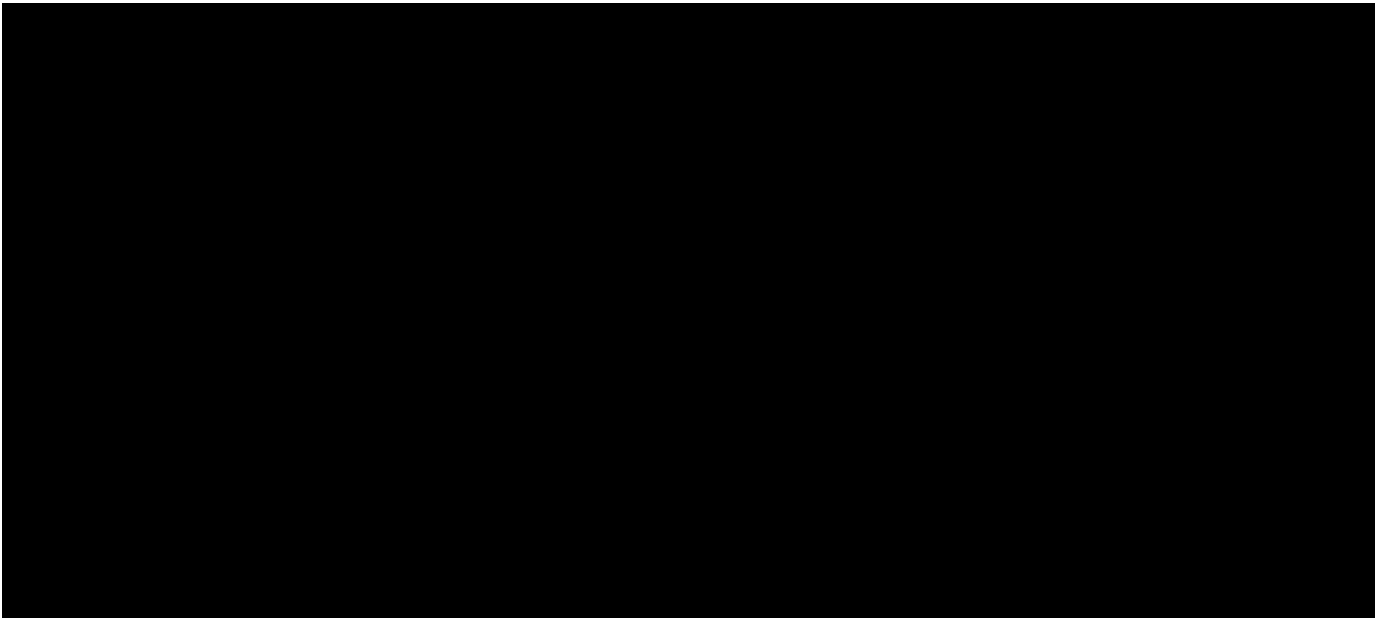


Workforce Opportunity Assessment

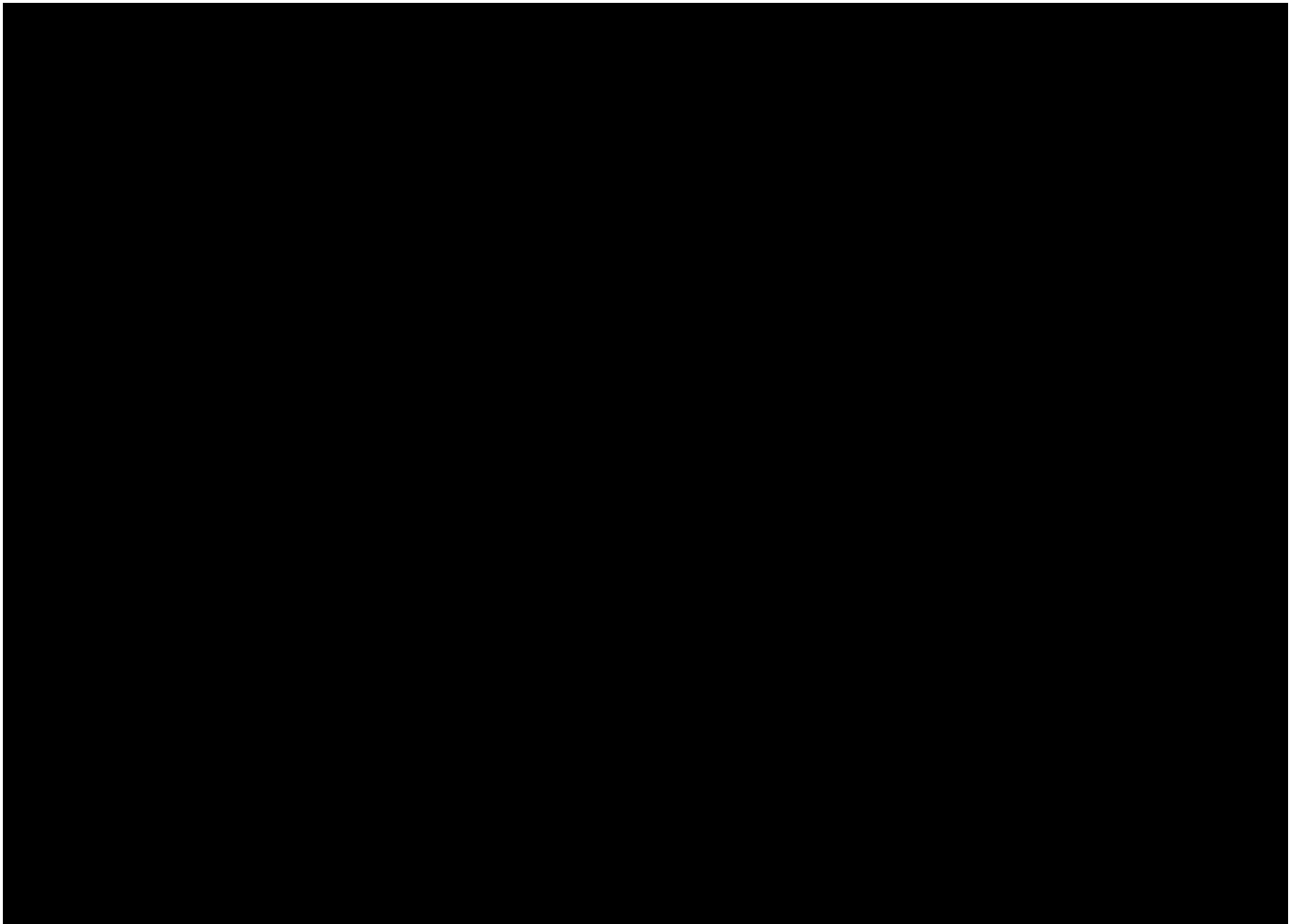
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[Redacted text block]

[Redacted text block]



Supply Chain Opportunity Assessment



[REDACTED]

Stakeholder Engagement

The Vineyard Offshore team has longstanding relationships with key workforce and supply chain stakeholders in Massachusetts developed through the Vineyard Wind 1 project, including labor unions, training partners, and local businesses. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

IV. DEI PLAN FUNDING COMMITMENT

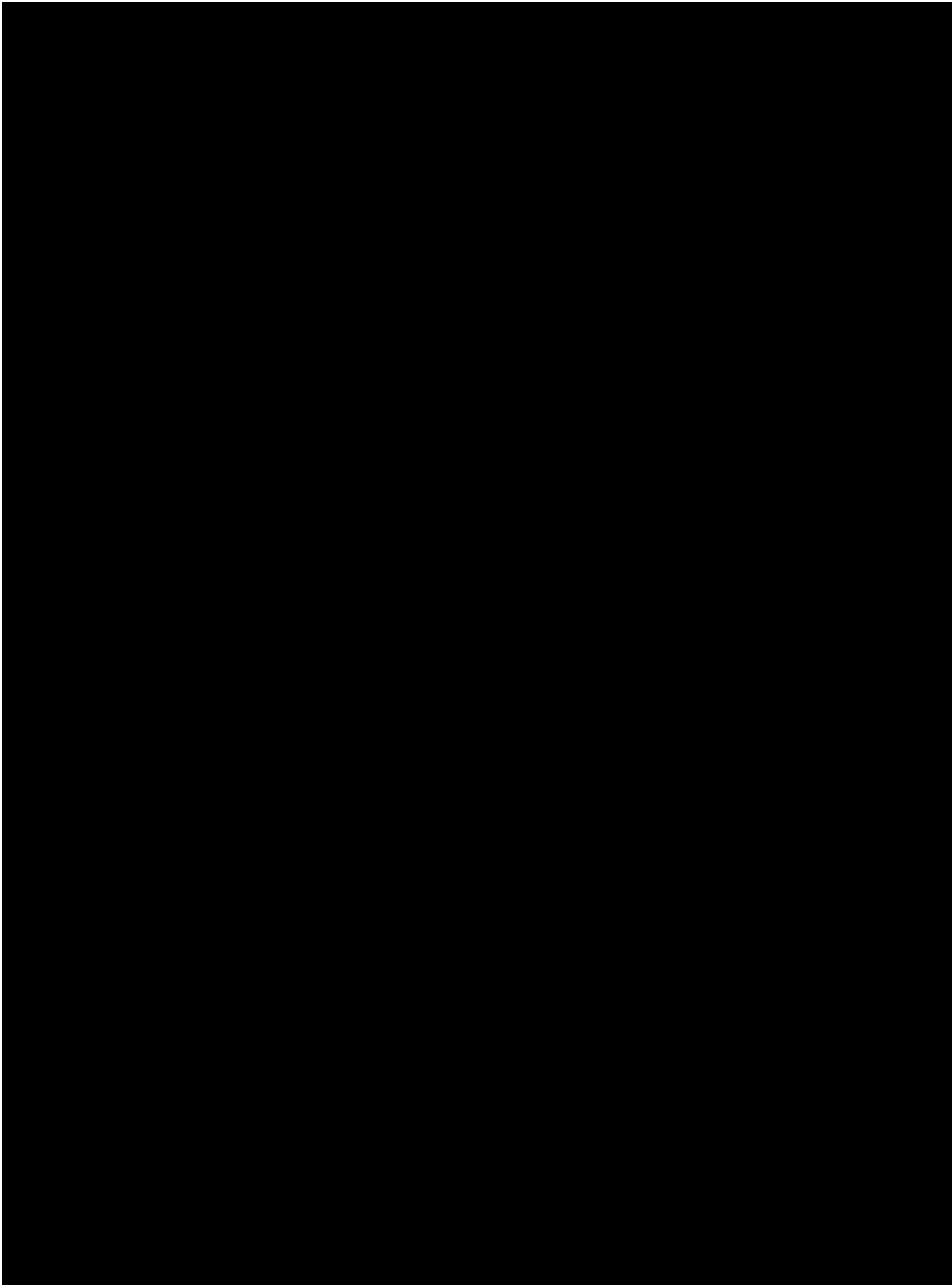
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

V. WORKFORCE DIVERSITY PLAN

The WDP reflects Vineyard Offshore's continued commitment to building a diverse and equitable offshore wind industry. Our team members' years of community outreach and workforce development efforts on the Vineyard Wind 1 project have provided us with invaluable insights into how to deliver employment benefits most directly and effectively from Vineyard Wind 2 to local communities.

Employment Opportunities

Vineyard Wind 2 will create significant short-term and long-term employment opportunities.

[REDACTED]

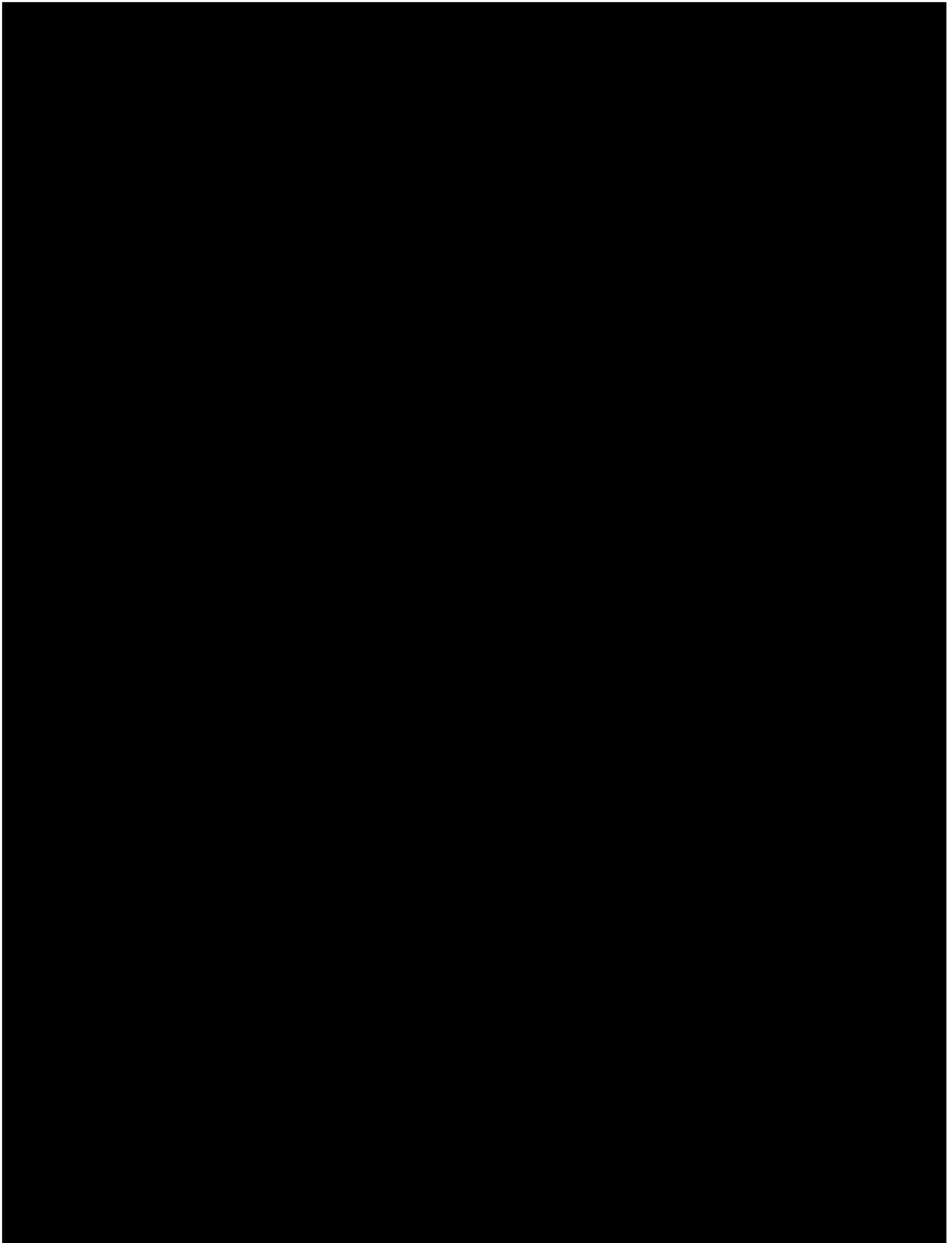
Recruiting Diverse Candidates

Vineyard Offshore Recruitment Efforts

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

Vineyard Wind 2 Recruitment Efforts

Vineyard Offshore will continue to work with suppliers, labor unions, community leaders, local partners, and others to recruit, train, and hire diverse candidates for jobs on Vineyard Wind 2. Career fairs and other community-based efforts will ensure that local residents on the North Shore and South Coast are aware of job opportunities and connected directly with contractors that are looking to hire for positions on the Project. Our Tribal Lead and fisheries team will also continue their outreach to Tribal Nations and fishermen, respectively, including hosting job fairs, providing training and education grants and scholarships, and implementing programs and initiatives for interested individuals to work on the Project.

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]

Workforce Diversity Plan Commitments

[Redacted]

[Redacted]

- [Redacted]

- [Redacted]

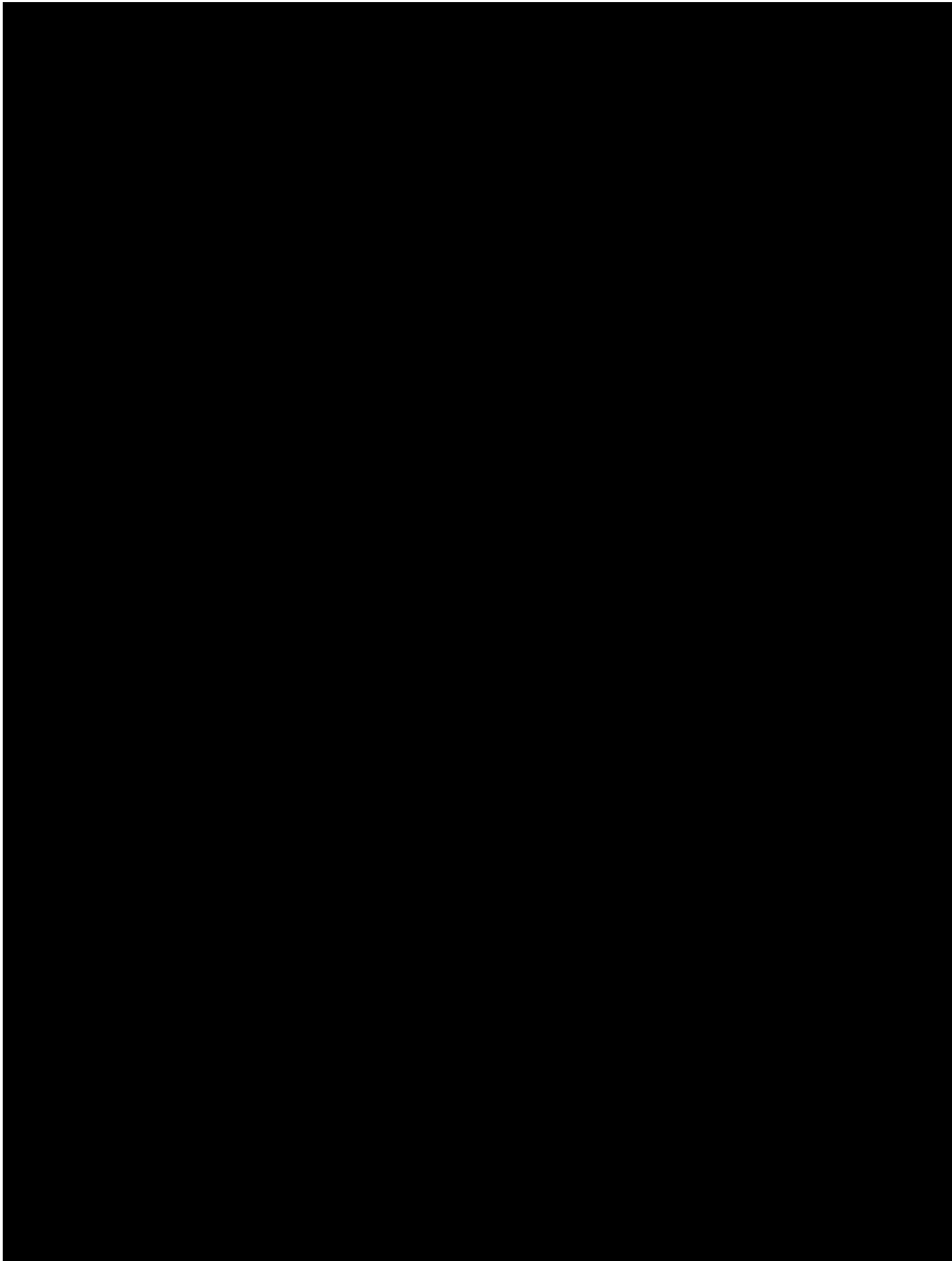
- [Redacted]

- [Redacted]

- [Redacted]

[Redacted]

[Redacted]



[REDACTED]

[REDACTED]

VI. SUPPLIER DIVERSITY PROGRAM PLAN

The SDPP outlines Vineyard Offshore’s industry-leading efforts to promote local supplier capabilities and provide opportunities for diverse businesses to supply the Project. [REDACTED]

[REDACTED]

[REDACTED]

Business Opportunities

Vineyard Wind 2 presents opportunities for diverse suppliers in Massachusetts and elsewhere in New England to provide goods and services to Tier 1, 2, and 3 contractors. [REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED] Vineyard Offshore will continue to work with our primary contractors and businesses to maximize the opportunity for local and diverse businesses to work on the Project.

Supplier Diversity Program Plan Commitments

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

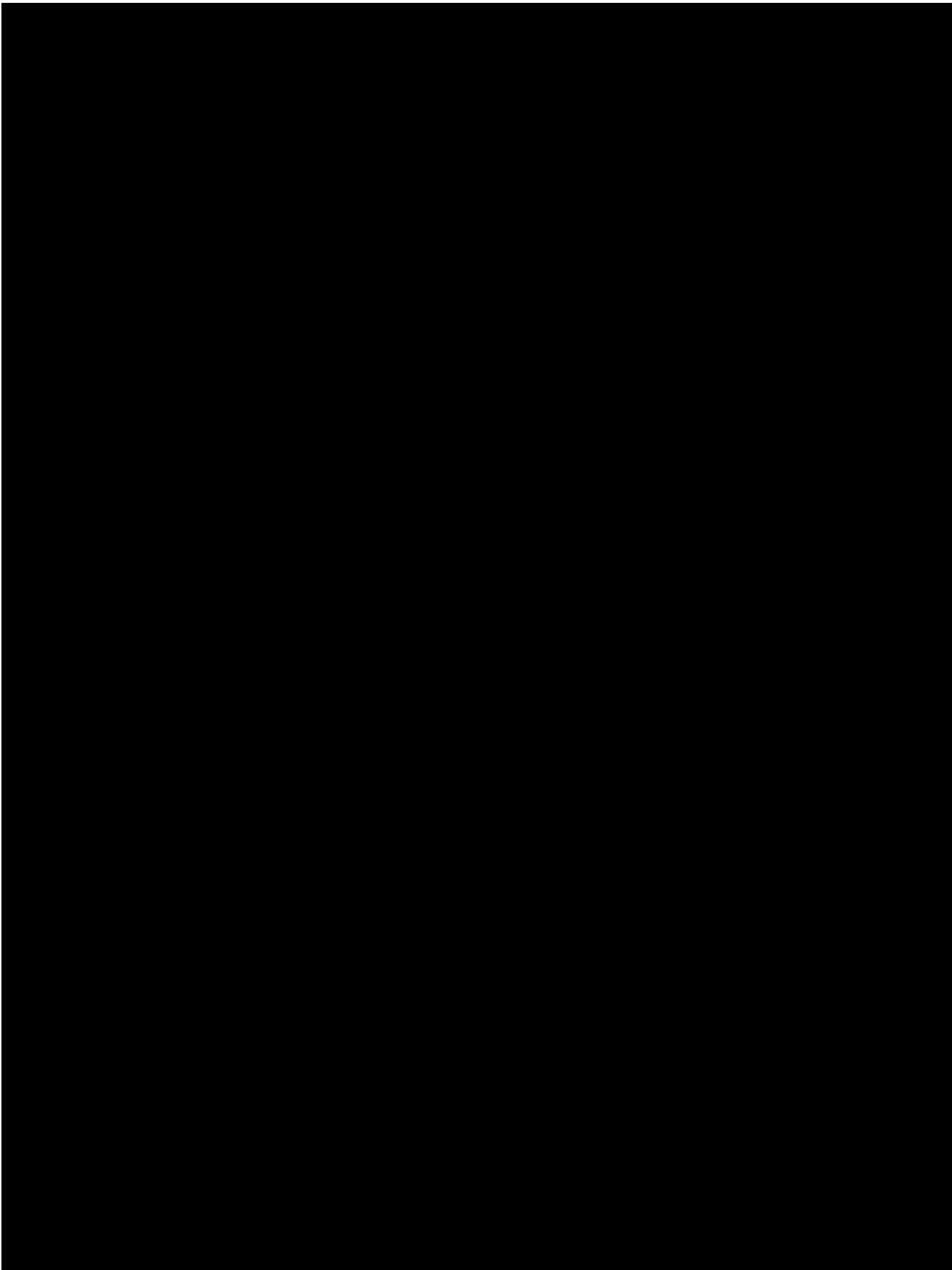
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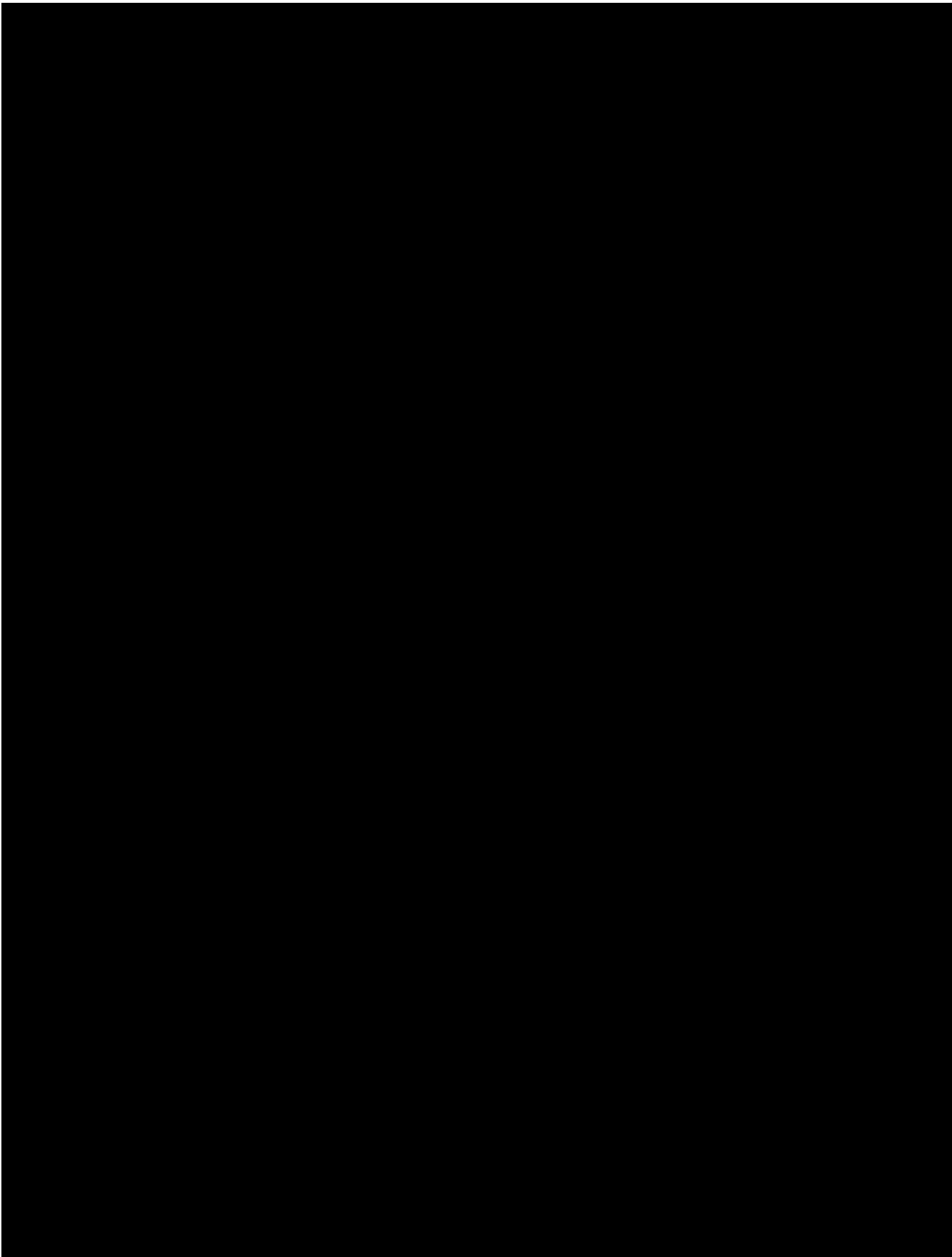
- [REDACTED]
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- [REDACTED]
 - [REDACTED]
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 - [REDACTED]
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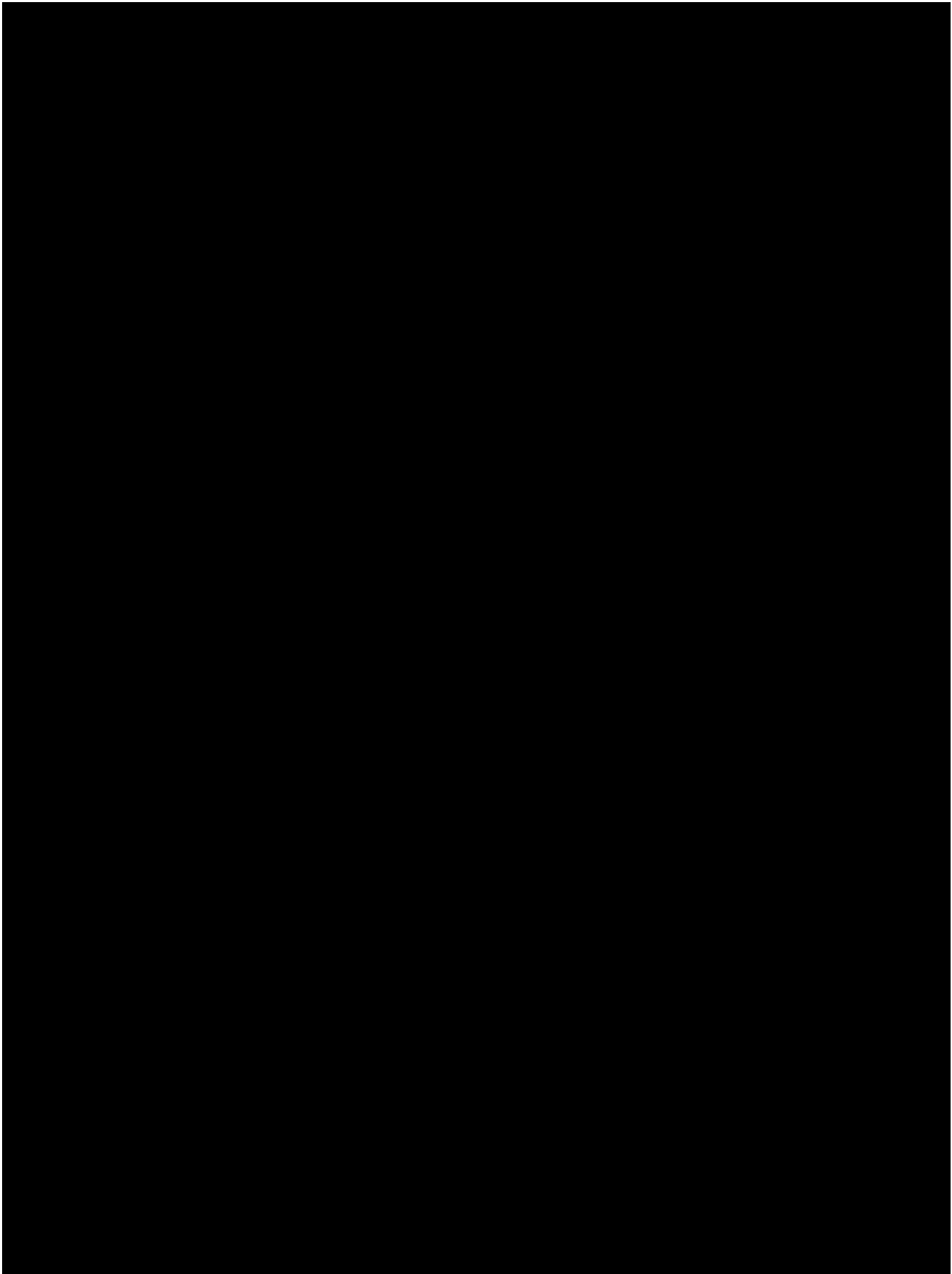
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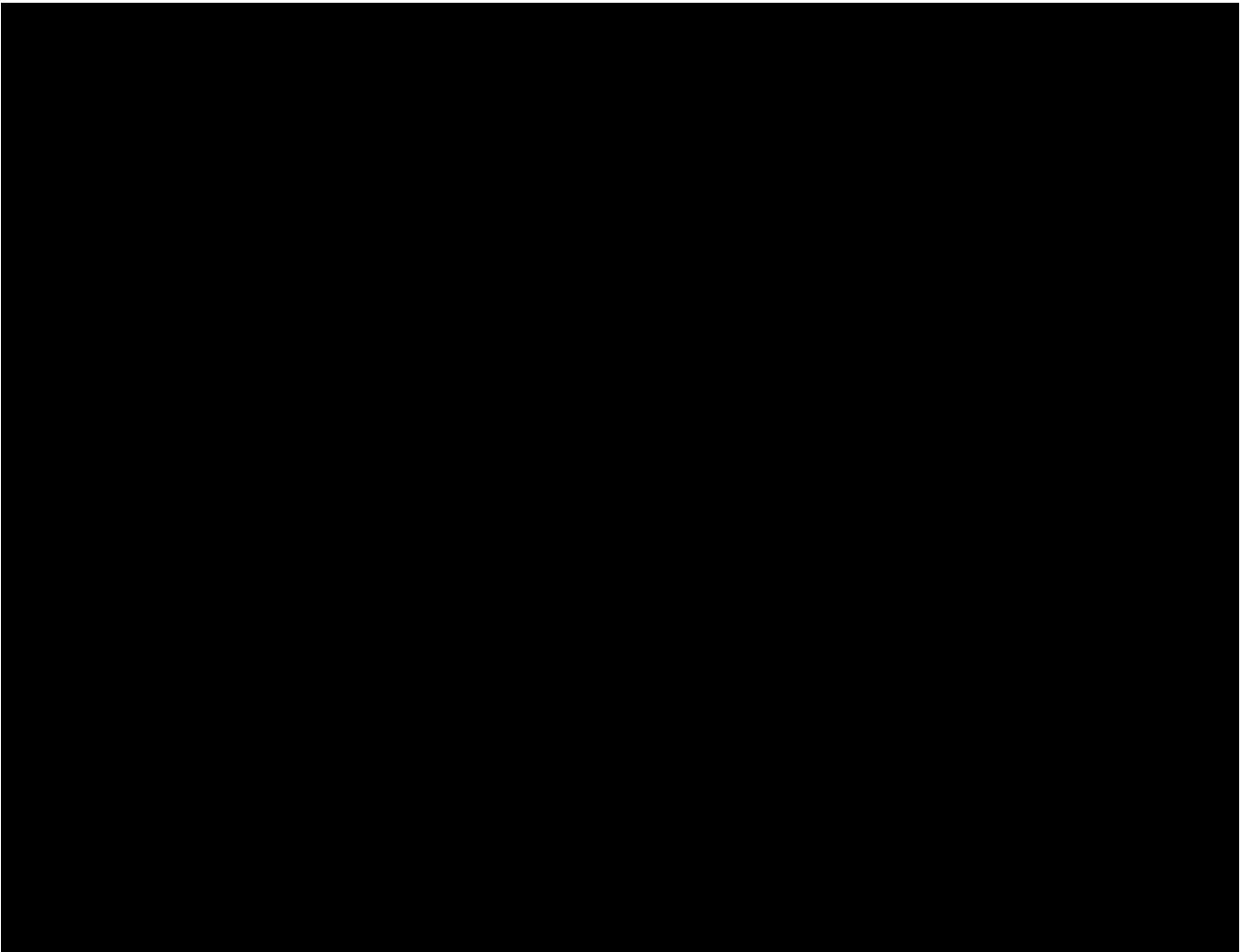
[REDACTED]

[REDACTED]











**Attachment 13.7-2: Supply Chain and Workforce Opportunity
Assessment**

REDACTED



Attachment 13.7-3:



REDACTED



Attachment 13.8-1: Redline - Form MOU with DOER and MassCEC

REDACTED



Attachment 13.9-1: Economic Development Summary Sheet

REDACTED



Attachment 14.1-1: Redline - National Grid Form PPA

REDACTED



Attachment 14.1-2: Redline - Eversource/Unitil Form PPA

REDACTED