COMMONWEALTH OF MASSACHUSETTS
ENERGY FACILITIES SITING BOARD

Petition of Park City Wind LLC pursuant to G.L. c. 164, § 69J for Approval to Construct Transmission Facilities in Massachusetts for the Delivery of Energy from an Offshore Wind Energy Facility Located in Federal Waters to an NSTAR Electric Company d/b/a Eversource Energy Switching Station Located in the Town of Barnstable, Massachusetts	)	EFSB 20-01

Petition of Park City Wind LLC pursuant to G.L. c. 40, § 3 for Exemptions from the Operation of the Zoning Ordinance of the Town of Barnstable for the Construction and Operation of Transmission Facilities in Massachusetts for the Delivery of Energy from an Offshore Wind Energy Facility Located in Federal Waters to an NSTAR Electric Company d/b/a Eversource Energy Switching Station Located in the Town of Barnstable, Massachusetts	)	D.P.U. 20-56

Petition of Park City Wind LLC pursuant to G.L. c. 164, § 72 for Approval to Construct and Use Transmission Facilities in Massachusetts for the Delivery of Energy from an Offshore Wind Energy Facility Located in Federal Waters to an NSTAR Electric Company d/b/a Eversource Energy Switching Station Located in the Town of Barnstable, Massachusetts	)	D.P.U. 20-57

TENTATIVE DECISION

Robert J. Shea
Presiding Officer
November 22, 2023

On the Decision:
Wayne Wang
Andrew Greene
Angelina Fung

APPEARANCES:

Adam P. Kahn, Esq.
Zachary Gerson, Esq.
Thaddeus Heuer, Esq.
Foley Hoag LLP
155 Seaport Boulevard
Boston, MA 02110
FOR: Park City Wind LLC
Petitioner

Victoria A. Dalmas, Esq
Christopher G. Senie, Esq.
Senie & Associates, P.C.
15 Cape Lane
Brewster, MA 02531
FOR: Jacqueline Johnson
86 Shootflying Hill Road
Centerville, MA 02632
Intervenor

Jeffrey D. Ugino, Esq.
Gellerman and Cabral, LLC
6 Beacon Street
Brewster, MA 02108
FOR: Mark Akselson
Trustee, Charles Akselrad
Revocable Trust
861 Craigville Beach Road
Centerville, MA 02632
Intervenor

David S. Rosenzweig, Esq.
Catherine J. Keuthen, Esq.
Keegan Werlin LLP
99 High Street Suite 2900
Boston, MA 02110
FOR: NSTAR Electric Company
d/b/a Eversource Energy
Intervenor

TABLE OF CONTENTS

ABBREVIATIONS

AC	alternating current
AIS	air-insulated switchgear
Andrew-Dewar	NSTAR Electric Company d/b/a Eversource Energy, EFSB 19-03/D.P.U. 19-15 (2021)
Barnstable	Town of Barnstable, Massachusetts
Berkshire Power	Berkshire Power Development, Inc., D.P.U. 96-104 (1997)
BOEM	U.S. Bureau of Ocean Energy Management
Box Pond	Box Pond Association v. Energy Facilities Siting Board, 435 Mass. 408 (2001)
Cape Wind 2005 Decision	Cape Wind Associates, LLC and Commonwealth Electric Company d/b/a NSTAR Electric, EFSB 02-2 (2005)
CBD district	Craigville Beach Zoning District
CVD district	Centerville Village Zoning District
CCC	Cape Cod Commission
CGWSA	Connecticut Global Warming Solutions Act
Chapter 91	G.L. c. 91
Company	Park City Wind LLC
CECP	Massachusetts Clean Energy and Climate Plan
Climate Roadmap Act	Chapter 8 of the Acts of 2021: "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy"
COP	construction and operations plan
CZM	Massachusetts Office of Coastal Zone Management
dBA	A-weighted decibels

DC	direct current
DEEP	Connecticut Department of Energy and Environmental Protection
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement (federal)
Department	Massachusetts Department of Public Utilities
DMF	Massachusetts Division of Marine Fisheries
DOER	Massachusetts Department of Energy Resources
DPW	Barnstable Department of Public Works
DRI	Development of Regional Impact
East Eagle	NSTAR Electric Company d/b/a Eversource Energy, EFSB 14-04/D.P.U. 14-153/14-154 (2017)
EDCs	electric distribution companies
EEA	Massachusetts Executive Office of Energy and Environmental Affairs
EEI Noise Guide	Electric Power Plant Environmental Noise Guide published by the Edison Electric Institute
EFSB	Energy Facilities Siting Board
EIS	Environmental Impact Statement (federal)
EJ	environmental justice
EJ Policy	2021 EEA Environmental Justice Policy
Energy Diversity Act	An Act to Promote Energy Diversity, St. 2016, c. 188
ENF	Environmental Notification Form
EPA	U.S. Environmental Protection Agency
Eversource	NSTAR Electric Company d/b/a Eversource Energy

Eversource Hopkinton	NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 15-02 (2015)
Exelon West Medway	Exelon West Medway LLC, EFSB 15-01/D.P.U. 15-25 (2016)
FAA	Federal Aviation Administration
FCA	Forward Capacity Auction
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
GHG	greenhouse gas
GIS	gas-insulated switchgear
G.L. c.	Massachusetts General Laws chapter
Grid Interconnection	A new approximately 0.7 mile, 345-kV underground transmission line linking the Onshore Substation and Eversource's West Barnstable Substation
GWSA	Global Warming Solutions Act, St. 2008, c. 298
Hampden County	New England Power Company d/b/a National Grid, EFSB 10-1/D.P.U. 10-107/10-108 (2012)
HCA	host community agreement
HDD	horizontal direction drill
HDPE	high-density polyethylene
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
ICNIRP	International Commission on Non-Ionizing Radiation Protection
Interim CECP	Interim Clean Energy and Climate Plan for 2030

IRP	New England Power Company d/b/a National Grid, EFSB 12-1/D.P.U. 12-46/12-47 (2014)
ISO-NE	ISO-New England
Km	Kilometers
km^2	square kilometers
kV	Kilovolts
L_{90}	A statistical description of a sound level exceeded 90 percent of the time over a measurement period
Lease Area	Lease Area OCS-A 0534
Lower SEMA	NSTAR Electric Company, EFSB 10-2/D.P.U. 10-131/10-132 (2012)
LSCSF	land subject to coastal storm flowage
MARPOL Treaty	International Convention for the Prevention of Pollution from Ships
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MBUAR	Massachusetts Bureau of Underwater Archeological Resources
MEPA	Massachusetts Environmental Policy Act
Mg	Milligauss
mg/L	Milligrams per liter
MHC	Massachusetts Historical Commission
Mid Cape Reliability Project	NSTAR Electric Company d/b/a Eversource Energy, EFSB 19-06/D.P.U. 19-142/19-143 (2022)
MTBM	Microtunnel Boring Machine
mm	Millimeters

MVC	Martha's Vineyard Commission
MVRP	New England Power Company d/b/a National Grid, D.P.U. 15-44/15-45 (2016)
MVA	Mega Volt Amp
MW	Megawatts
Needham-West Roxbury	NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77 (2018)
NEC	Northeast Energy Center LLC, EFSB 18-04/D.P.U. 18-96 (2021)
NEPA	National Environmental Policy Act
NY Central Railroad	New York Central Railroad v. Department of Public Utilities, 347 Mass. 586 (1964)
NHESP	Natural Heritage and Endangered Species Program
NMFS	U.S. National Marine Fisheries Service
Notice	Notice of Public Comment Hearing/Notice of Adjudication
NRG Canal	NRG Canal 3 Development LLC, EFSB 15-06/D.P.U. 15-180 (2017)
NSTAR Hopkinton	NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 15-02 (2015)
Oak Street Route	The Noticed Alternative Route for the Onshore Cables, it is approximately six miles long and would be located almost entirely within the Town of Barnstable public roadways
OCS	Outer Continental Shelf
OECC	Offshore Export Cable Corridor
Off Season	From Memorial Day to Labor Day
Offshore Export Cables	Two 275 kV offshore transmission cables in state waters

OGF	Offshore Generation Facility, consisting of the Project and the offshore cables in federal waters and the 800 MW wind generation facility located in federal waters
OMP	Massachusetts Ocean Management Plan
Onshore Cables	Two 275 kV underground transmission cables in Barnstable, running from landfall to the Onshore Substation
Onshore Substation	A new substation to be constructed in the Town of Barnstable on an approximately 6.7-acre parcel located southwest of the intersection between Routes 6 and 132
ODMF	Ocean Development Mitigation Fee
OOC	Order of Conditions
Ordinance	Barnstable Zoning Ordinance
OSHA	U.S. Occupational Safety and Health Administration
Petition to Construct	Petition to construct the Project pursuant to G.L. c. 164, § 69J
Petitions	Petition to Construct, Section 72 Petition, and Zoning Petition, collectively
PCH	Public Comment Hearing
PCW	Park City Wind LLC and its predecessor Vineyard Wind LLC
PPAs	Power Purchase Agreements
Preferred Route	Also known as the Shootflying Hill Route, it is approximately four miles long of the Onshore Cables, and lies almost entirely within the Town of Barnstable public roadways
Project	The proposed Offshore Export Cables, Onshore Cables, Onshore Substation, and Grid Interconnection located within Massachusetts and Massachusetts state waters

PSC	Public Service Corporation
PURA	Connecticut Public Utility Regulatory Authority
RC district	A residential zoning district in Barnstable
RD district	A residential zoning district in Barnstable
RFA	Riverfront Area
RF district	A residential zoning district in Barnstable
ROD	BOEM Record of Decision
ROW	right-of-way
Russell Biomass/WMECo	Russell Biomass, LLC, EFSB 07-4/D.P.U. 07-35/07-36 (2009)
Salem Cables	New England Power Company d/b/a National Grid, EFSB 13-2/D.P.U. 13-151/13-152 (2014)
Save the Bay	Save the Bay v. Department of Public Utilities, 366 Mass. 667 (1975)
Secretary	Massachusetts Secretary of the Executive Office of Energy and Environmental Affairs
Section 61 Findings	Findings required by MEPA describing the environmental impact of the Project and a finding that any and all feasible measures have been taken to avoid or minimize said impact
Section 72 Petition	PCW petition pursuant to G.L. c. 164, § 72
Section 83C	Section 83C of the Act Relative to Green Communities, St. 2008,c. 169, as amended
Sedimentation Study	PCW's hydrodynamic and sediment dispersion modeling study
SF_6	sulfur hexafluoride
Shootflying Hill Road Route	The Company's Preferred Route for the Onshore Cables, it is approximately four miles long and is located almost entirely within Barnstable public roadways

Siting Board	Massachusetts Energy Facilities Siting Board
Siting Board Petition	PCW petition to construct the Project pursuant to G.L. c. 164, § 69J
SMAST	UMass-Dartmouth School for Marine Sciences and Technology
SPCC plan	spill prevention, control, and countermeasures plan
SSU	special, sensitive, and unique (resources)
STATCOM	Static synchronous compensator
Stoughton-Boston	Boston Edison Company d/b/a NSTAR Electric, EFSB 04-1/ D.P.U. 04-5/04-6 (2005)
Sudbury-Hudson	NSTAR Electric Company d/b/a Eversource Energy, EFSB 17-02/D.P.U. 17-82/17-83 (2019)
TMP	Traffic Management Plan
Town	Town of Barnstable, Massachusetts
Town of Sudbury	Town of Sudbury v. Energy Facilities Siting Board, 487 Mass. 737 (2021).
TOY	time-of-year
TSA	Settlement Transmission Support Agreement
TSHD	trailing suction hopper dredge
TSS	total suspended solids
TTCP	temporary traffic control plans
Town of Truro	Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974)
ULSD	ultra-low sulfur diesel
USACE	U.S. Army Corps of Engineers

USCG	U.S. Coast Guard
USGen	USGen New England, Inc., D.T.E. 03-83 (2004)
PCW	Park City Wind LLC
Vineyard Wind	Vineyard Wind LLC, EFSB 17-05/D.P.U. 18-18/18-19 (2019)
Vineyard Wind Connector	The name of the Project that was the subject of the Siting Board Decision in Vineyard Wind LLC, EFSB 17-05/D.P.U. 18-18/18-19 (2019)
Vineyard Wind Connector 2	Project
Vineyard Wind HCA	The Host Community Agreement that was negotiated between PCW's predecessor, Vineyard Wind, and Barnstable, executed on October 3, 2018
WHO	World Health Organization
Walpole-Holbrook	NSTAR Electric Company, EFSB 14-2/D.P.U. 14-73/14-74 (2017)
Woburn-Wakefield	NSTAR Electric Company d/b/a Eversource Energy, EFSB 15-04/D.P.U. 15-140/15-141 (2018)
XLPE	cross-linked polyethylene (cable)
Zone I	The protective radius required around a public water supply well or Wellfield. 310 CMR 22.02.
Zone II	That area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated: i.e., 180 days of pumping at approved yield with no recharge from precipitation. 310 CMR 22.02
Zoning Petition	PCW petition for zoning exemptions pursuant to G.L. c. 40A § 3

SUMMARY

The Tentative Decision recommends approval with conditions for Park City Wind LLC's ("PCW" or "Company") proposed electric transmission lines and new substation (together, the "Project") to connect PCW's proposed 800-megawatt offshore windfarm (20 miles south of Martha's Vineyard) to the existing West Barnstable Substation. The Project's two 275-kilovolt ("kV") offshore cables follow a 63-mile route from the wind turbine array in federal waters to landfall beneath Craigville Beach in Barnstable, of which 23 miles are in Massachusetts waters ("Offshore Export Cables") subject to the Energy Facilities Siting Board's ("EFSB") jurisdiction. From landfall, the Project's two cables traverse four miles of Barnstable's roadways in an underground duct bank ("Onshore Cables"), crossing beneath the Centerville River, and reaching a 6.4-acre site where a new Onshore Substation would convert the power from 275 kV to 345 kV. From the Onshore Substation, Eversource would build, own and operate a 0.7-mile underground transmission line within its existing transmission line corridor ("Grid Interconnection"), eventually reaching and connecting with Eversource's West Barnstable Substation where the power will be transmitted to the New England electric grid.

Until recently, PCWs wind power was fully contracted under Purchase Power Agreements ("PPAs") with electric distribution companies ("EDCs") in Connecticut. In October 2023, citing significant cost increases and the inability to renegotiate PPA pricing, the Company and the Connecticut EDCs terminated the PPAs. The Company intends to re-bid its wind project in one or more of the upcoming offshore wind solicitations in Massachusetts, Connecticut, and Rhode Island. The Tentative Decision finds that the Project is still needed based on indicators of project progress, such as being likely to contribute to the regional energy supply, as well as the Project's consistency with the Commonwealth's energy and environmental policies. The Tentative Decision requires final issuance by the U.S. Bureau of Ocean Energy Management ("BOEM") of its Record of Decision before PCW can begin construction of the Project.

The Company considered several potential locations for the Project's landfall site, points of interconnection to the electric grid, onshore routes, and new Onshore Substation, and it evaluated the feasibility, environmental impacts, reliability and cost of these alternatives. Based on the extensive record in this proceeding, the Tentative Decision finds that the Company's proposed Project route and site locations best meet the identified need in a reliable manner, with a minimum environmental impact, at the lowest possible cost. The Tentative Decision adds several conditions that avoid or further mitigate environmental impacts.

The Tentative Decision also recommends that the Siting Board grant zoning exemptions required to construct the Onshore Substation on a parcel (now occupied by a motel) that is under agreement with PCW for purchase. The Tentative Decision finds that the zoning exemption is necessary for the Project and would serve the public convenience or welfare.

The Tentative Decision notes and welcomes a Host Community Agreement ("HCA") between the Company and the Town of Barnstable and references several of its provisions in various findings on environmental impact mitigation, community engagement, and other jurisdictional matters. The HCA provisions have been, and will continue to be, reflected in ongoing project permitting activity occurring at the local and regional levels, as well as in additional state and federal permit reviews.

Pursuant to G.L. c. 164, § 69J, the Massachusetts Energy Facilities Siting Board ("Siting Board") hereby [approves], subject to the conditions set forth below, the Petition of Park City Wind LLC to construct an offshore and onshore electric transmission lines and substation. Pursuant to G.L. c. 164, § 72, the Siting Board hereby [approves], subject to the conditions set forth below, the Petition of Park City Wind LLC for a determination that the proposed transmission line is necessary, serves the public interest, and is consistent with the public interest. Pursuant to G.L. c. 40A, § 3, the Siting Board hereby [grants in part and denies in part the individual and comprehensive zoning exemptions.]

I. INTRODUCTION

A. Description of the Proposed Project

Park City Wind LLC ("PCW" or "Company"), f/k/a Vineyard Wind LLC[1], proposes to construct approximately 27 miles of subsea offshore and underground onshore 275 kilovolt ("kV") electric transmission cables (respectively, "Offshore Export Cables" and "Onshore Cables") from the boundary between Massachusetts state waters and federal waters south of Muskeget Channel, to a new substation in the Town of Barnstable to be constructed by PCW ("Onshore Substation") (Exhs. VW-3, at 1; EFSB-PA 5). NSTAR Electric Company d/b/a Eversource Energy ("Eversource") would construct a new approximately 0.7 mile, 345-kV underground onshore transmission line between the Onshore Substation and Eversource's West Barnstable Substation ("Grid Interconnection") (Exh. VW-3, at 1 & n.1). Together, the Offshore Export Cables, Onshore Cables, Onshore Substation, and Grid Interconnection constitute the "Project." The offshore portion of the Project would pass through state waters in the Towns of Barnstable, Edgartown, Mashpee, and Nantucket, Massachusetts, and would make landfall at Craigville Beach in Barnstable (or Covell's Beach in Barnstable as a variant) (Exh. VW-1, at 1-2, 1-3, 1-25). The onshore portion of the Project, including the landfall, would be located entirely in the Town of Barnstable ("Barnstable" or "Town") (Exh. VW-1, at 1-3). In the initial

[1] On November 19, 2021, PCW wrote to the Siting Board to advise that it had assumed the role of petitioner in this proceeding (Company Brief at 1 n.1; Letter from PCW to Presiding Officer (November 19, 2021). As used herein, "PCW" includes both Park City Wind LLC and its predecessor, Vineyard Wind LLC.

filing, the Project is referred to as the "Vineyard Wind Connector 2," but has been renamed the "New England Wind 1 Connector" by PCW (Exhs. VW-1, at 1-6; PCW-12, at 1, 23).[2]

PCW is in the process of permitting and developing an approximately 800-megawatt ("MW") wind turbine generation facility ("Offshore Generation Facility" or "OGF") in federal waters pursuant to a lease that PCW has obtained from the U.S. Bureau of Ocean Energy Management ("BOEM") (Exhs. VW-3, at 2; VW-1, at 1-1 to 1-8).[3] The Project will connect the OGF with the electric grid in Massachusetts at Eversource's West Barnstable Substation (Exh. VW-1, at 1-2; VW-3, at 1 n.1, 2). The OGF and the Project together will be referred to as the "PCW Energy Facility."

The Onshore Substation site is an approximately 6.7-acre parcel southwest of the intersection between Routes 6 and 132 and less than one mile east of Eversource's West Barnstable Substation (Exhs. VW-1, at 1-16; VW-3, at 1 n.1). This parcel is bordered to the north by Shootflying Hill Road, to the east by land owned by the Cape Cod Chamber of Commerce and the Massachusetts Department of Transportation ("MassDOT"), to the south by Eversource right-of-way ("ROW") 343, which leads to the West Barnstable Substation, and to the west by residential parcels (Exh. VW-1, at 1-16). The northern part of this parcel currently contains a motel building and parking lot (which would be removed), and the southern part consists of wooded land (Exh. VW-1, at 1-16). A wire mesh fence and/or concrete masonry unit wall will enclose the entire Onshore Substation, which will include two 275/345 kV step-up transformers, gas-insulated switchgear ("GIS"), a control room, shunt reactors, and other equipment (Exh. VW-1, at 1-17).

The Petition filed by the Company for permission to construct the Project presents both a Preferred Route (or "Shootflying Hill Road Route") and a Noticed Alternative Route (or "Oak

---

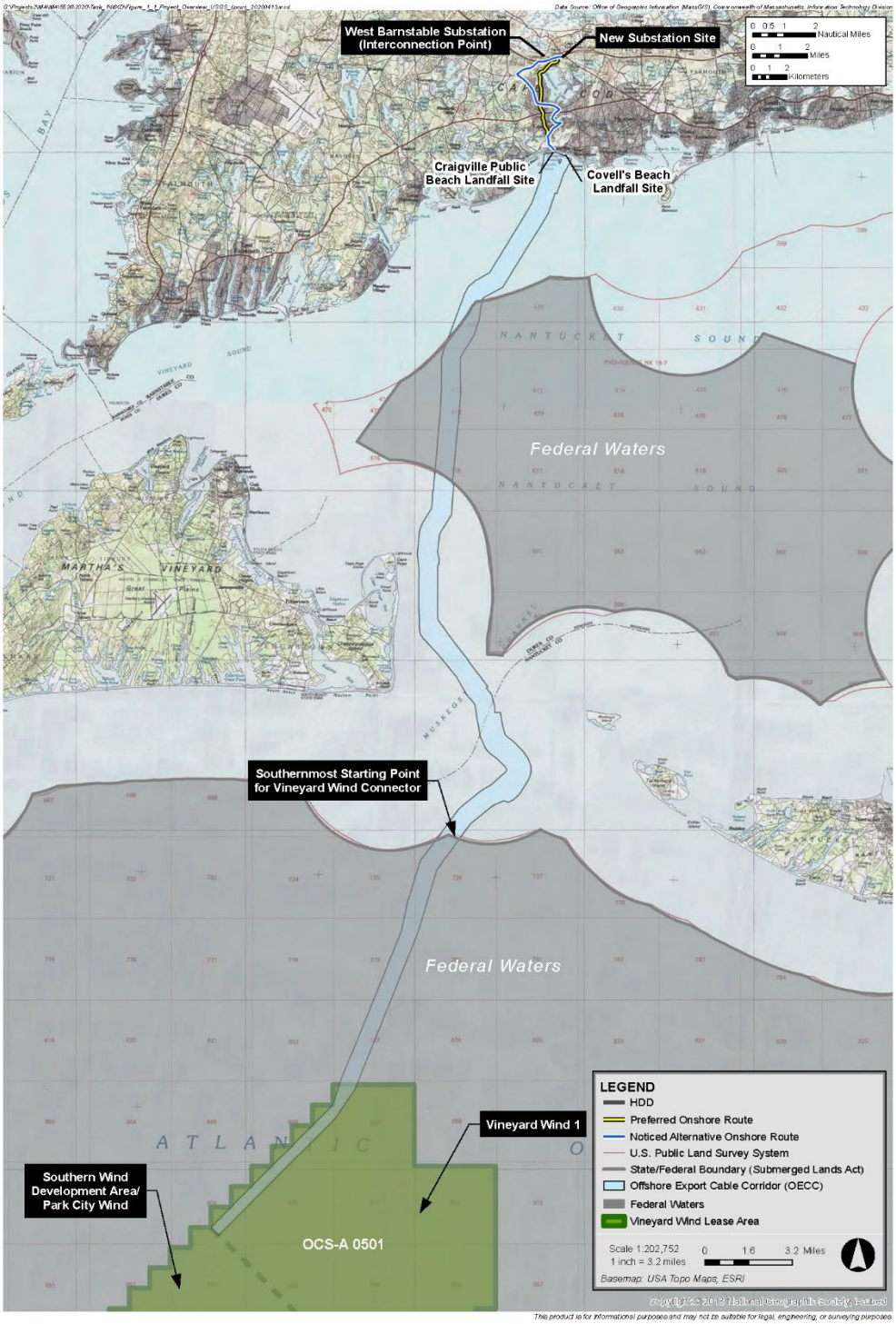
2 Because the name of the Petitioner was Vineyard Wind when the Petition was filed, the Company's exhibits are identified as "VW". Company responses to information requests propounded by the Siting Board are identified as "PCW".

3 The wind turbine array will be located in what was formerly known as the Southern Wind Development Area ("SWDA") of the OCS-A 0501 lease area and is now known as Lease Area OCS-A-0534 (Exh. PCW-12, at 2).

Street Route") from the two possible landfall sites to the Onshore Substation (Exhs. VW-1, at 5-1; VW-3, at 8). The Preferred Route is approximately four miles long, almost all within Barnstable public roadways (Exh. VW-3, at 8). The Noticed Alternative Route is approximately six miles long, almost all of which also would lie within Barnstable public roadways (Exh. VW-3, at 8-9). The Company proposes three variants to the Preferred Route and two variants to the Noticed Alternative Route (Exh. VW-3, at 9). The Grid Interconnection would be located almost entirely in Eversource's ROW (Eversource Brief at 2, citing RR-EFSB-52 (S) and RR-EFSB-52 (S), Att. 1).

The Company is also seeking multiple individual exemptions from the Barnstable Zoning Ordinance (Exh. VW-4, at 51-73). The Company asserts that these exemptions are required to construct the new Onshore Substation (Exh. VW-4, at 51-55), to use the parcel adjacent to the West Barnstable Substation (Exh. VW-4, at 55-58), and to lay the cable in either the Shootflying Hill Road Route, and its variants, or the Oak Street Route, and its variants (Exh. VW-4, at 58-73). In addition, the Company is seeking a comprehensive exemption from the Barnstable Zoning Ordinance (Exh. VW-4, at 73-79).

Figure 1: Project Overview



Source: (Exh. VW-2, Figure 1-1).

B. Related Actions

1. Settlement Transmission Support Agreement

On March 4, 2022, the Company and Eversource executed a "Settlement Transmission Support Agreement" ("TSA") (RR-EFSB-27 (S); RR-EFSB-27 (S 1); RR-EFSB-27 (S 2)). Pursuant to the TSA, Eversource will design, build, own, and operate the Grid Interconnection, while the Company will finance its construction and operation (RR-EFSB-27 (S); RR-EFSB-27 (S 1); RR-EFSB-27 (S 2)). On June 27, 2022, FERC issued an order approving the TSA (RR-EFSB-67 (S), Att. 1)). In the order, FERC concluded that "the Settlement TSA appears to be fair and reasonable, and in the public interest." (RR-EFSB-67 (S), Att.1, at 4).

2. MEPA and BOEM Environmental Review

Because the Project consists of components located within federal waters, as well as components located in Massachusetts and Massachusetts state waters, the Project has required environmental review by both BOEM (under the National Environmental Policy Act or "NEPA") and by the Massachusetts Environmental Policy Act ("MEPA") Office (Exhs. VW-1, at 1-1, 1-2, 6-3 to 6-5, 6-3 n.2; EFSB-G-4 (S 2)).[4] BOEM coordinates the federal agency reviews (Exh. VW-1, at 1-1). In addition to BOEM, the federal agencies involved in reviewing the Project include the U.S. Environmental Protection Agency ("EPA"), the U.S. Army Corps of Engineers ("USACE"), the U.S. National Marine Fisheries Service ("NMFS"), the U.S. Coast Guard ("USCG"), and the Federal Aviation Administration ("FAA") (Exhs. VW-1, at 6-3 to 6-5; EFSB-G-4 (S 2)).

BOEM has jurisdiction over the OGF pursuant the Outer Continental Shelf Lands Act ("OCSLA"), 43. U.S.C. sections1131 et seq. (authorizing the Secretary of the Interior to enter into leases for submerged land in the Outer Continental Shelf) (Exh. PCW-15, at ES-3). Although BOEM's authority under the OCSLA only extends to activities on the Outer Continental Shelf, nevertheless alternative approaches that address nearshore and onshore elements and offshore elements of the Project, are also analyzed in the Environmental Impact

[4] PCW was awarded its lease area from BOEM as a result of a competitive auction (Exh. VW-1, at 1-8).

Statement ("EIS") drafted by BOEM (Exh. PCW-15, at 2-1). BOEM considered a range of alternative approaches during the EIS development process. The alternatives and the reasons for not choosing them are explained in the Draft EIS (Exh. PCW-15, at 2-1 to 2-27).

BOEM's regulations at 30 CFR § 585.620 require that the Construction and Operation Plan ("COP") describe all planned facilities that the Company would construct and use for the proposed Project, including onshore and support facilities and all anticipated proposed Project easements (Exh. PCW-15, at 2-1).

PCW filed a COP with BOEM on July 2, 2020 (Exh. EFSB-G-4 (S 2)). In June 2021, BOEM published a Notice of Intent to prepare an EIS for the Project (Company Brief at 10, citing 86 Fed. Reg. 34782). On December 23, 2022, BOEM issued a draft EIS (Exhs. EFSB-G-4 (S 2); PCW-15). The issuance of this notice opened a 60-day comment period that ended on February 21, 2023[5] (Exh. PCW-15, at ES-10). During the comment period, BOEM held three virtual public meetings (Exh. PCW-15, at 1-8). Pursuant to NEPA, BOEM may prepare a Final Environmental Impact Statement thereafter (Exh. PCW-15, at 1-8). 42 U.S.C. § 4321 et seq.[6] As of the date of this Decision, BOEM has not issued its FEIS.[7]

Federal and state environmental reviews have proceeded concurrently with the Siting Board's review in this proceeding (Exh. VW-1, at 2-6). The Environmental Notification Form ("ENF") was submitted to MEPA in May of 2020 (Exh. VW-1, at 1-51), the same month as the filing of the Petitions commencing the present proceeding (Exhs. VW-3; VW-4; VW-5). MEPA review concluded with the issuance of the Secretary of Energy and Environmental Affairs' Certificate on the FEIR for the Project on April 1, 2022 (Exh. PCW-12). The Secretary's

---

5 www.boem.gov/renewable-energy/state-activities/new-england-wind-formerly-vineyard-wind-south.

6 An overview of the NEPA process may be found on a United States Environmental Protection Agency website: www.epa.gov/nepa/national-environmental-policy-act-review-process.

7 According to the Federal Infrastructure Projects Permitting Dashboard, the most recent targeted issuance date of the ROD on the COP is March 2024. See https://www.permits.performance.gov/permitting-project/fast-41-covered-projects/new-england-wind.

Certificate finds that "the Final Environmental Impact Report (FEIR) for the project . . . adequately and properly complies with MEPA and its implementing regulations" (Exh. PCW-12, at 1).

In addition to the Siting Board, the Department, and MEPA, the Massachusetts agencies involved in reviewing the Project include the Massachusetts Department of Environmental Protection ("MassDEP"), MassDOT, the Massachusetts Board of Underwater Archaeological Resources ("MBUAR"), the Natural Heritage and Endangered Species Program ("NHESP"), the Massachusetts Historical Commission ("MHC"), the Massachusetts Division of Marine Fisheries ("DMF"), and the Massachusetts Office of Coastal Zone Management ("CZM") (Exhs. VW-1, at 6-3 to 6-5; EFSB-G-4 (S 2)). Local and regional regulatory authorities would also be involved in Project review and permitting: the Cape Cod Commission ("CCC"), the Martha's Vineyard Commission ("MVC"), the Barnstable Conservation Commission, the Barnstable Department of Public Works ("DPW") or Town Council, the Barnstable Planning or Zoning Boards, the Edgartown Conservation Commission, and the Nantucket Conservation Commission (Exhs. VW-1, at 6-3 to 6-5; EFSB-G-4 (S 2)).[8]

3. Power Purchase Agreements

PCW developed the Project in response to solicitations from the Connecticut Department of Energy and Environmental Protection ("DEEP") (Exh. VW-1 at 1-4). DEEP announced that it had selected PCW to develop the 800 MW Project on December 5, 2019 (Exh. VW-1 at 1-4). DEEP solicited the Project to obtain carbon-free renewable energy that would provide economical bulk power in accordance with Connecticut's Act Concerning Global Warming Solutions, Public Act No. 08-98 ("Connecticut Global Warming Solutions Act" or "CGWSA") (Exh. VW-1, at 1-5). The Connecticut Global Warming Solutions Act, like the Massachusetts

[8] PCW received an Order of Conditions ("OOC") from the Nantucket Conservation Commission on May 16, 2022, and a Superseding OOC for Edgartown from MassDEP on May 16, 2023 (Exh. EFSB-G-4 (S 2)). The Edgartown Conservation Commission rescinded its denial of order of conditions and issued a permit under Edgartown Wetlands Bylaw on September 29, 2023 (Exh. PCW-19).

Global Warming Solutions Act, sets greenhouse gas ("GHG") emission reduction requirements (Exh. VW-1, at 1-5 n.12; see also, CGWSA at §2(a) codified at Conn. Gen. Stat. § 22a-200a).

Consequently, PCW's predecessor finalized power purchase agreements ("PPAs") with Connecticut's electric distribution companies ("EDCs"); the Connecticut Public Utility Regulatory Authority ("PURA") approved these PPAs on August 19, 2020 (Exh. EFSB-N-2; Tr. 1, at 144). Due to the increased costs of construction and related factors, however, the Company and the Connecticut EDCs subsequently agreed to terminate the PPAs (RR-EFSB-90 (S); see also, RR-EFSB-92). On October 2, 2023, the Connecticut utilities filed amendments to terminate the PPAs for approval by PURA. (RR-EFSB-90 (S)). The parties were given an opportunity to file supplemental briefs regarding this issue, and PCW filed such a brief on October 13, 2023. We address PCW's arguments regarding PPA termination in Sections III.B and III.C below.

C. Procedural History of the Siting Board Proceeding

On May 28, 2020, the predecessor of PCW, Vineyard Wind LLC, filed three petitions with the Siting Board and the Department of Public Utilities ("Department"), each of which related to the Project. Vineyard Wind LLC was jointly owned by Avangrid Renewables, LLC and Copenhagen Infrastructure Partners (Company Brief at 1 n.1). These two parties entered into a corporate restructuring agreement in September 2021 (Company Brief at 1 n.1, citing Letter from PCW to Presiding Officer (November 19, 2021)). As a result, a new entity, Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, acquired 100 percent ownership rights to the Project (Company Brief at 1 n.1, citing Letter from PCW to Presiding Officer (November 19, 2021)). On November 19, 2021, PCW wrote to the Siting Board to advise that it had assumed the role of petitioner in this proceeding (Company Brief at 1 n.1). As used herein, "PCW" includes both Park City Wind LLC and its predecessor, Vineyard Wind LLC.

Pursuant to G.L. c, 164, § 69J, PCW filed with the Siting Board a petition for approval to construct the proposed Project ("Petition to Construct"), which was docketed as EFSB 20-01. The Company filed a petition pursuant to G.L. c. 164, § 72 with the Department seeking approval to construct the Onshore Cables and the Offshore Export Cables ("Section 72

Petition"), which was docketed as D.P.U. 20-57. In addition, the Company filed a petition with the Department pursuant to G.L. c. 40A, § 3 seeking certain individual zoning exemptions and a comprehensive zoning exemption from the Barnstable Zoning Ordinance ("Zoning Petition"), which was docketed as D.P.U. 20-56. All three petitions together are referred to as the "Petitions." Also on May 28, 2020, the Company filed a motion to consolidate the Petitions for review and decision by the Siting Board. Pursuant to G.L. c. 164, § 69H(2), on June 16, 2020, the Chairman of the Department issued a Referral and Consolidation Order referring the Section 72 Petition and the Zoning Petition to the Siting Board for review and decision together with the Petition to Construct. The Siting Board accordingly conducted a single adjudicatory proceeding and developed a single evidentiary record with respect to the Petitions, docketed as EFSB 20-01/D.P.U. 20-56/20-57.

The Siting Board directed the Company to comply with a number of notice requirements in advance of the public comment hearing. The Siting Board directed the Company to publish the Notice of Public Comment Hearing/Notice of Adjudication ("Notice") for the public comment hearing for a minimum of two consecutive weeks in the Cape Cod Times and the Barnstable Patriot. The Company was also required to translate the Notice into Portuguese and serve a copy of the Notice in both Portuguese and English on abutters to the Shootflying Hill Road Route and the Oak Street Route, abutters to the abutters within 300 feet of the transmission ROW, and property owners within a quarter-mile of PCW's proposed Onshore Substation and the existing Eversource West Barnstable Substation. The Notice as published in the newspapers directed the reader to a URL that contained the Portuguese version of the Notice. The Company was required to mail a copy of both the English and Portuguese versions of the Notice to the Planning Boards of the Towns of Barnstable, Edgartown, Mashpee, and Nantucket. The Company also served a copy of the Notice on the Planning Boards of the abutting Towns of Sandwich, Falmouth, Yarmouth, Oak Bluffs, Tisbury, and West Tisbury. After the public

comment hearing, the Company documented its compliance with the Siting Board's notice requirements. See Return of Service, Affidavit of Aaron Lang, Esq. (October 7, 2020).[9]

The Siting Board conducted a virtual public comment hearing on October 7, 2020, to receive comments from the public on the proposed Project. At the public comment hearing ("PCH"), residents raised questions regarding whether the Project could have been permitted and constructed at the same time as the first Vineyard Wind Project (PCH Tr. at 42). Residents also raised concerns about noise impacts (PCH Tr. at 53). Several elected officials voiced support for the Project (PCH Tr. at 29-32). The Siting Board also solicited written comments on the Project after the public comment hearing. In total, the Siting Board received five comment letters. While four of these commenters supported the Project, one raised concern regarding the vehicle emissions from construction workers commuting to jobs at the Project. In September 2022, the Centerville Civic Association hosted a community meeting for the purpose of discussing and voting on the residents' preferred onshore route (Centerville Civic Association October 3, 2022, Comment Letter).[10] Seven residents submitted additional comment letters to the Siting Board around this time as well. The original Centerville Civic Associate comment letter and

---

9 While the Project is within one mile of an EJ population designated as "minority," it does not exceed any ENF thresholds for air, solid and hazardous waste, or wastewater and sewage sludge treatment and disposal (Exhs. VW-1, at 6-8; PCW-12, at 17). Therefore, the Project did not trigger either the enhanced public participation or enhanced analysis requirements of the Executive Office of Energy and Environmental Affairs ("EEA") 2017 Environmental Justice Policy (revised June 24, 2021) (Exhs. VW-1, at 6-8; PCW-12, at 17).

The Siting Board staff's analysis of relevant language demographic data, however, revealed that more than ten percent of the residents of Census Tract 153 spoke Portuguese and more than five percent of those residents spoke English "less than very well." Portions of Census Tract 153 lie within one quarter mile of the proposed site for the Onshore Substation. Therefore, Siting Board staff required that PCW translate the Notice and Please Read documents into Portuguese. See Language Access Policy and Implementation Guidelines, Office of Access and Opportunity, A&F Administrative Bulletin #16, issued March 2015.

10 Centerville is one of seven villages in the Town of Barnstable, Massachusetts and is located on the south side of the town https://en.wikipedia.org/wiki/Centerville,_Massachusetts.

subsequent commenters raised concerns regarding: the relative advantages of using Shootflying Hill Road Variant 1 or Variant 2 (the residents were divided on this issue) and adequacy of notice of the PCH. Within this Decision, the Siting Board describes its review of route selection in Section V.[11]

The Siting Board received three timely petitions to intervene. On February 5, 2021, the Presiding Officer issued a ruling granting all three intervention petitions to: Eversource; Mark Akselson, Trustee of the Charles Akselrad Revocable Trust (a landowner abutting the alternative landing site at Covell's Beach); and Jacqueline Johnson (a homeowner whose property abuts the western edge of the proposed Onshore Substation in Barnstable). On November 20, 2023, the Town of Barnstable submitted a late-filed petition to intervene.

In advance of hearings, the Company filed the written direct testimony of 15 witnesses, and it presented each of the witnesses for cross-examination during hearings. The Company's witnesses included: Jack Arruda, technical development manager, Vineyard Wind; Chris Rodstrom, technical design and permitting manager, Vineyard Wind; Theodore A. Barten, P.E., principal, Epsilon Associates, Inc.; Holly Carlson Johnson, senior consultant, Epsilon Associates, Inc.; Marc Bergeron, principal, Epsilon Associates; Robert D. O'Neal, managing principal, Epsilon Associates, Inc.; A.J. Jablonowski, principal, Epsilon Associates, Inc.; Maria B. Hartnett, associate, Epsilon Associates, Inc.; Clinton Cyr, senior engineer in acoustics, Epsilon Associates, Inc.; Kenneth Fitzgerald, senior principal, Stantec Consulting Services, Inc.; Mark S. Bartlett, senior associate, Stantec Consulting Services, Inc; Peter A. Valberg, Ph.D., principal, Gradient; and Christopher Long, Sc.D., principal scientist, Gradient; Hans van Lingen, state permitting manager for Park City Wind Project, Avangrid Renewables, LLC; and Douglas Czarnomski, onshore package manager for Park City Wind Project, Avangrid Renewables, LLC.

---

[11] The Siting Board has received numerous written public comments since the conclusion of the noticed comment period, which are included in the official docket of the proceeding. Concerns expressed in these comments include: Project need, the location and environmental impacts of the Project landfall and Onshore Substation, impacts relating to routing in Barnstable roadways and the crossing beneath the Centerville River, and the cumulative impacts of multiple offshore wind projects interconnecting in Barnstable. The decision addresses these comments in the appropriate sections.

Eversource produced four witnesses at the evidentiary hearings for cross-examination: Vandan Divitia, vice-president of transmission policy and compliance; Christopher Soderman, director of transmission line engineering; John Zicko, director of capital projects engineering; and Denise Bartone, manager of environmental licensing and permitting. Each of these witnesses had responded to information requests and/or record requests.

On February 26, 2021, the Siting Board issued its first set of Information Requests to the Company. The Siting Board issued a second set to the Company on April 23, 2021, and a third set on June 11, 2021. Mr. Akselson issued a set of information requests to the Company on April 30, 2021.

The Barnstable Town Council voted on October 21, 2021, to authorize the Town Manager of Barnstable to execute a Host Community Agreement ("HCA") with the Company (RR-EFSB-72). PCW and the Town of Barnstable entered into an HCA on May 6, 2022 (See Exh. EFSB-G-14 (S); EFSB-G-14 (S), Att. 1). Section 8 of the Agreement is entitled "Town Support" (Exh. EFSB-G-14(S), Att. 1, at 7-9). In this section, the Town commits to publicly supporting the issuance of zoning exemptions for the Project under G. L. c. 40A, § 3, and supporting approvals before other Town boards and departments, to the extent required, including before the Conservation Commission (EFSB-G-14 (S), Att. 1, at 7-9). The Town also commits to assisting the Company in obtaining Article 97 legislation approving the grant of easements and other rights for the Project; and the Town commits generally to publicly supporting the Project in its permitting, construction, operation, and maintenance (Exh. EFSB-G-14 (S), Att.1, at 7-9).

The Siting Board conducted eight days of evidentiary hearings during July – August 2021. The Siting Board continued hearings until June 2022 to allow the Company to conclude and file its TSA with Eversource. During this time, the Company also filed its HCA with the Town of Barnstable. The Siting Board conducted two additional days of evidentiary hearings in June 2022.

Nearly 600 exhibits were entered into evidence, including the Company's Petitions and attachments, various submissions pursuant to the Massachusetts Environmental Policy Act ("MEPA") including the Draft and Final Environmental Impact Reports ("DEIR" and "FEIR"),

the Certificates of the Secretary of Energy and Environmental Affairs ("Secretary") for the DEIR and the FEIR, the Company's responses to information requests and record requests issued by the Siting Board, the Company's responses to Mr. Akselson's information requests and record requests, Eversource's responses to the Siting Board's information requests and record requests, exhibits submitted into evidence by intervenor Jacqueline Johnson, and the Company's responses to Ms. Johnson's record requests.

PCW, Eversource, Mr. Akselson, and Ms. Johnson each filed an Initial Brief on July 1, 2022. On July 22, 2022, PCW, and Ms. Johnson each filed a Reply Brief. On October 13, 2023, PCW filed a supplemental brief.

After the conclusion of evidentiary hearings and the filing of briefs, Siting Board staff reviewed the record and drafted a Tentative Decision based on said record. On November 22, 2023, staff served a copy of the Tentative Decision on the Siting Board and all parties for review and comment. The parties were given until December 5, 2023 to file written comments. The Siting Board received timely written comments from _____, _____, and _____. On November 22, 2023, Siting Board staff issued a copy of the Tentative Decision in this matter and a Notice of Siting Board Meeting to all persons and entities on the service list, to community-based organizations, and to state legislators for the area in which the Project would be located. The Siting Board conducted a public meeting to consider the Tentative Decision on _____ __, 2023. After deliberation, the Board directed staff to prepare a Final Decision [approving] the Petitions, subject to conditions, as set forth below.

II. JURISDICTION AND STANDARD OF REVIEW UNDER G.L. C. 164, § 69J

A. Standard of Review

G.L. c. 164, § 69J provides that the Siting Board should approve a petition to construct a facility if the Siting Board determines that the petition meets certain requirements, including that the plans for the construction of the applicant's facility are consistent with the policies stated in G.L. c. 164, § 69H, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. Pursuant to G.L. c. 164, § 69J, a project applicant must obtain Siting Board approval for the construction of proposed energy facilities

before any construction permits may be issued by another state agency. See Town of Sudbury v. Energy Facilities Siting Board, 487 Mass. 737, 746-747 (2021) ("Town of Sudbury").

G.L. c. 164, § 69G defines a "facility" to include, among other things, "a new electric transmission line having a design rating of 69 kilovolts or more and which is one mile or more in length on a new transmission corridor." A Section 69G transmission facility also includes "an ancillary structure which is an integral part of the operation of any transmission line which is a facility." G.L. c. 164, §69G. The Company's proposed high-voltage Offshore Export Cables and Onshore Cables would be greater than 69 kV, greater than a mile in length, and would run along new transmission corridors (Exh. VW-1, at 1-2, 4-17, 4-18). Therefore, the Offshore Export Cables and Onshore Cables constitute a "facility" that is subject to Siting Board review pursuant to Section 69J. Furthermore, the Company's proposed Onshore Substation and the Grid Interconnection are ancillary structures which are integral parts of the operation of the transmission line facilities proposed. Therefore, the Onshore Substation and the Grid Interconnection are also subject to Siting Board review with respect to Section 69J.

The Siting Board requires that an applicant demonstrate that its proposal meets the following requirements: (1) that additional energy resources are needed (see Section III, *infra*); (2) that, on balance, the proposed project is superior to alternative approaches in terms of reliability, cost, and environmental impact, and in its ability to address the identified need (see Section IV, *infra*); (3) that the applicant has considered a reasonable range of practical facility siting alternatives and that the proposed facilities are sited in locations that minimize costs and environmental impacts while ensuring a reliable energy supply (see Section V, *infra*); (4) that environmental impacts of the project are minimized and the project achieves an appropriate balance among conflicting environmental concerns as well as among environmental impacts, cost, and reliability (see Section VI, infra*);* and (5) that plans for construction of the proposed facilities are consistent with the current health, environmental protection, and resource use and development policies of the Commonwealth (see Section VII, *infra*).

B. Jurisdiction Over the Grid Interconnection Pursuant to G.L. c. 164, §§ 69J, 72

PCW has requested that the Siting Board approve construction and operation of the Grid Interconnection pursuant to G.L. c. 164, §§ 69J, 72.[12] Pursuant to the TSA, Eversource would design, build, own, and operate the Grid Interconnection, while the Company would finance its construction and operation (RR-EFSB-27 (S); RR-EFSB-27 (S), Att.1; RR-EFSB-27 (S 2)). Consequently, a portion of the Project would be constructed by Eversource.

General Laws c. 164, §69J provides: "[n]o applicant shall commence construction of a facility at a site unless a petition for approval of that facility has been approved by the board." An "applicant" is defined as "a person or persons who submits to the department or board . . . a petition to construct a facility." G.L. c. 164, § 69G. A "facility" is defined to include transmission lines such as PCW proposes to install as part of the Project. See G.L. c. 164, § 69G. Eversource did not submit the Section 69J petition, or any other petition in this matter; and, consequently, it is not an applicant in this proceeding. Eversource admits as much: "Eversource is an intervenor, not an applicant in this proceeding" (RR-EFSB-56).

The language of G.L. c. 164, § 72, resembles that of Section 69J: "Any electric company, distribution company, generation company, or transmission company or any other entity providing or seeking to provide transmission service may petition the department for authority to construct and use . . . a line for the transmission of electricity." Eversource, however, did not submit the Section 72 petition in this matter.

1. Positions of the Parties

Eversource argues that the Grid Interconnection is jurisdictional to the Siting Board pursuant to the Petitions filed in this proceeding by PCW under G.L. c. 164, §§ 69J and 72 (Eversource Brief at 4). Eversource has not become a co-petitioner in this case pursuant to G.L. c. 164, § 69J, nor has it submitted its own petition to construct a transmission line pursuant to G.L. c. 164, § 72 (RR-EFSB-52 (S)). Eversource asserts that it does not need to do either of these things for the Siting Board to approve its construction of the Grid Interconnection (RR-

[12] The Siting Board addresses PCW's zoning exemption request for the Grid Interconnection in Section VIII, below.

EFSB-52(S)). Eversource asserts that the Siting Board may approve construction of the Grid Interconnection in this proceeding regardless of the entity that takes responsibility for construction of the Grid Interconnection (RR-EFSB-52 (S)). Eversource argues that the Siting Board has jurisdiction to approve the Grid Interconnection in this proceeding: (1) the Siting Board's jurisdiction is tied to the facilities to be approved and not to the applicant submitting the request; (2) Eversource would be responsible for compliance with Siting Board conditions issued in this proceeding; and (3) adequate notice was provided, and a full evidentiary record has been developed regarding the Grid Interconnection(Eversource Brief at 4-6).

Eversource argues that the Siting Board's jurisdiction is tied to the jurisdictional facilities themselves, and not to the identity of the applicant (Eversource Brief at 5; RR-EFSB-53). In support, it quotes from a Supreme Judicial Court ("SJC") opinion: "approval of the [Siting Board] is required prior to commencement of construction of any '**facility**' . . . in the Commonwealth, and no State agency may issue a construction permit for **any such facility** unless the petition to construct **the facility** has already received approval from the [Siting Board]" (RR-EFSB-53, citing Town of Sudbury (emphasis added in the response to the record request)); see also Alliance to Protect Nantucket Sound, Inc., v. Energy Facilities Siting Board, 448 Mass. 45, 48 (2006) (In the "1997 Restructuring Act, the Legislature . . . added a new provision to G.L. c. 164 to govern the board's review of proposed generating **facilities"**) (emphasis added).

Eversource maintains that the identity of the applicant is not a determinative factor in the Siting Board's statutory mandate (RR-EFSB-53). In support of this argument, Eversource states that: "all of the findings that the Siting Board must make in accordance with G.L. c. 164, § 69J, relate to the jurisdictional facility . . . and not the identity of the applicant" (RR-EFSB-53). Eversource notes that entities other than the petitioner – such as contractors – frequently play a role in the construction of facilities (RR-EFSB-53). Although contractors also are not applicants, Eversource argues, they are nonetheless subject to the restrictions that the Siting Board imposes in its final decision (RR-EFSB-53). Furthermore, Eversource argues, in many instances the applicant is not the entity that ends up constructing, owning, or operating the facility (RR-EFSB-53). Nevertheless, Eversource argues, whatever entity does end up owning the facility, that

entity is still bound by the conditions imposed by the Siting Board in its final decision (RR-EFSB-53). In support of this assertion, Eversource cites to NSTAR Electric Company d/b/a Eversource Energy, EFSB 17-02/D.P.U. 17-82/17-83, at 237 (2019) ("Sudbury-Hudson"); Vineyard Wind, EFSB 17-05/D.P.U. 18-18/18-19, at 164-165 (2019) ("Vineyard Wind"); NRG Canal 3 Development LLC, EFSB 15-06/D.P.U. 15-180, at 161 (2017) ("NRG Canal").

Additionally, Eversource argues that this position – that Siting Board jurisdiction adheres to the facilities and not the applicants – is consistent with the language included in all final decisions of the Siting Board (Eversource Brief at 5). The specific language to which Eversource refers is the condition in final decisions that the Company, and its successors in interest, must notify the Siting Board of any changes to the facility other than minor variations (Eversource Brief at 5, citing Vineyard Wind at 164-165). This provision, Eversource argues, recognizes that entities other than the applicant – such as successors in interest – may construct or operate the approved jurisdictional facility and that any such entities are bound by the conditions in the Siting Board's final decision (Company Brief at 6).

Eversource represents that it would be responsible for compliance with any conditions issued by the Siting Board in this docket to the extent that said conditions apply to the Grid Interconnection (Eversource Brief at 4, citing RR-EFSB-52, RR-EFSB-57, RR-EFSB-60, Exh. EFSB-ES-14).[13]

Finally, Eversource asserts the Siting Board can approve the Grid Interconnection as it was fully described by PCW in the Petitions submitted to the Siting Board and Department and said Petitions specifically noted the possibility that Eversource might construct and own the Grid Interconnection (Eversource Brief at 4, citing Exhs. EFSB-G-30; EFSB-LU-27). In addition, Eversource argues, the Grid Interconnection was identified in the public notice that was issued in this proceeding (Eversource Brief at 4). Furthermore, the Grid Interconnection, Eversource

---

[13] Eversource argues that the Siting Board would gain something through said approval: "In the event that the Siting Board approves the Project with Eversource as the party that will construct, own, and operate the Grid Interconnection, then Park City Wind would . . . no longer seek zoning exemptions for the Grid Interconnection" (Eversource Brief at 6, citing RR-EFSB-66).

asserts, has been fully and thoroughly described and reviewed by the Siting Board in this proceeding, including through the testimony of witnesses from both Eversource and PCW who have been available and subject to cross examination during evidentiary hearings (Eversource Brief at 4, citing Tr. 9). Therefore, Eversource argues, a complete evidentiary record has been developed during the proceeding upon which the Siting Board can make all necessary statutory findings regarding the Grid Interconnection (Eversource Brief at 4).

In both its initial brief and its reply brief, the Company reiterates the arguments made by Eversource (Company Brief at 23-26; Company Reply Brief at 3). PCW urges the Siting Board to approve the Grid Interconnection, as constructed and owned by Eversource, in this proceeding (Company Brief at 90). No other party addressed this issue.

2. Analysis and Findings

General Laws c. 164, §69J provides: "[n]o applicant shall commence construction of a facility at a site unless a petition for approval of that facility has been approved by the board." The Siting Board's jurisdiction is defined by specific types of facilities. See Cranberry Point Energy Storage, LLC, EFSB 21-02, D.P.U. 22-59, at 14 (2023) (the Legislature has delegated authority to the Board, inter alia, to approve or reject petitions for construction of "facilities").[14] The Board's governing statutes define the types of energy infrastructure that constitute a "facility." G.L. c. 164, § 69G. A "facility" is defined to include transmission lines such as those PCW proposes to install as part of the Project. See G.L. c. 164, § 69G; 980 CMR 1.01.

Included in the definition of "facility" is "an ancillary structure which is an integral part of the operation of any transmission line which is a facility." G.L. c. 164, § 69G. The Siting Board notes that the Grid Interconnection, at 4,000 feet in length, would not be a "facility" on its own. G.L. c. 164, § 69G; see RR-EFSB-61. However, the Grid Interconnection is not presented

[14] This jurisdiction may be analogous to in rem jurisdiction. In rem jurisdiction addresses the rights of all persons and entities, whether or not named as a party to the action, as to a specific property. 46 Am. Jur. 2d Judgments § 163. ("Judgments in rem are binding and conclusive not only on the immediate parties to the litigation but also upon all persons who may be interested in the res.") As the Supreme Court has held: "A judgment in rem binds all the world." Becher v. Contoure Laboratories, 279 U.S. 388, 391, 49 S. Ct. 356, 73 L. Ed. 752 (1929).

as a stand-alone project but an important part of the PCW Project. Eversource argues that the Grid Interconnection is a "facility" because it is ancillary and an integral part of PCW's Project (RR-EFSB-55). The PCW Project cannot provide energy to the New England electric grid without interconnection to that grid, which will be provided by the Grid Interconnection. Therefore, the Siting Board finds that the Grid Interconnection, is ancillary to the PCW Project and therefore jurisdictional to the Siting Board.[15]

In addition, the Siting Board has jurisdiction over the applicant's construction and operation of the Project. An "applicant" is defined as "a person or persons who submits to the department or board . . . a petition to construct a facility." G.L. c. 164, § 69G; 980 CMR 1.01. Section 69J prohibits construction *by the applicant* of a facility without approval of the Siting Board. Approval by the Siting Board allows *the applicant* to construct the facility. G.L. c. 164, § 69J. The Siting Board conditions its approval on specific actions to be taken *by the applicant*. See e.g., NSTAR Electric Company, EFSB 19-06/D.P.U. 19-142/19-143, at 116-11(2022) ("Mid Cape Reliability Project"). The Siting Board's regulations identify the applicant as a party to the proceeding, recognizing the applicant's interest in the project and rights in the proceeding which will adjudicate its "legal rights, duties, or privileges." 980 CMR 1.01; G.L. c. 30A, § 1. By filing a petition with the Siting Board, the applicant asks the Board to act and submits to the Siting Board's jurisdiction in relation to its Project.

For this Project, PCW asks the Siting Board to approve the Project including the Grid Interconnection. The Siting Board has jurisdiction to do so and to impose conditions on that

---

15 PCW also requests approval for the Grid Interconnection under G.L. 164, § 72. Section 72 is similar to Section 69J for purposes of jurisdiction. Section 72 specifies that "Any electric company, distribution company, generation company, or transmission company or any other entity providing or seeking to provide transmission service may petition the department for authority to construct and use … a line for the transmission of electricity …" Under the statute, the Department may approve a Section 72 petition after making findings related to the transmission line "The department, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest."

approval. [16] The Siting Board's approval of the Grid Interconnection portion of the Project is expressly conditioned on compliance with any directives that apply to the Grid Interconnection. Compliance with conditions applies to PCW, and "runs with" the Project, including PCWs successors in interest, if any. See Vineyard Wind at 164-165; Milford Power, LLC, EFSB 17-04, at 2 (2018).

However, Eversource will construct, operate, and own the Grid Interconnection, and has not filed a petition asking for Board approval. Therefore, Eversource has not submitted to the Siting Board's jurisdiction by filing a petition to construct. Eversource, in multiple representations in this proceeding, has committed to complying with any conditions imposed by the Siting Board as relates to the Grid Interconnection.[17] (See e.g., RR-EFSB-57; Eversource Brief at 4-5). In addition to Eversource's voluntary commitments, the Siting Board considers it appropriate to request a compliance mechanism for Eversource compliance. Therefore, as a condition of approval of the Project, we direct the Company to present to the Siting Board a legally binding attestation, in a form acceptable to the Siting Board, executed by Eversource, by which Eversource submits itself and its successors in interest, to the ongoing direct jurisdiction of the Siting Board with respect to all matters involving the Grid Interconnection for the present and the future.

III. NEED FOR THE PROPOSED PROJECT

A. Standard of Review

In accordance with G.L. c. 164, § 69H, the Siting Board is charged with the responsibility for implementing energy policies to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. In carrying out this

---

16 For the Grid Interconnection in this proceeding, the Siting Board agrees that the Grid Interconnection has been properly noticed and investigated. The Siting Board below addresses the need for the Project (including the Grid Interconnection), Project alternatives, and conducts an extensive review of environmental impacts of the Project, including the Grid Interconnection.

17 Eversource also has obligations under the TSA (RR-EFSB-27 (S); RR-EFSB-27 (S), Att.1; RR-EFSB-27 (S 2); RR-EFSB-57).

statutory mandate with respect to proposals to construct electrical transmission facilities in the Commonwealth, the Siting Board is required to evaluate whether there is a need for additional transmission resources. The Siting Board reviews the need for proposed transmission facilities to meet reliability, economic efficiency, or environmental objectives. G.L. c. 164, §§ 69H, 69J.

The Siting Board in 2005 established the standard of review governing the proposed construction of in-state transmission facilities that would interconnect to the regional electric grid a new or expanded generating facility. See Cape Wind Associates, LLC, and Commonwealth Electric Company d/b/a NSTAR Electric, EFSB 02-2, at 16-17 (2005) ("Cape Wind 2005 Decision").[18] The Siting Board requires an applicant seeking to construct such a transmission facility to show: (1) that the existing transmission system is inadequate to interconnect the new or expanded generator; and (2) that the new or expanded generator is likely to be available to contribute to the regional energy supply. Id. To show that the new or expanded generator is "likely to be available," the Siting Board has developed standards that vary according to the status of the generator:

> If the new or expanded generator exists, or is under construction, the availability showing will be deemed to have been made. If the generator is planned, and is subject to the Siting Board's jurisdiction, that showing may be made by obtaining the Siting Board's approval of the generating facility. If the generator is planned, and not subject to the Siting Board's jurisdiction, the showing may be made on a case-by-case basis based on indicators of project progress (e.g., progress in permitting or in obtaining project financing).

Cape Wind 2005 Decision at 16-17. See also Vineyard Wind at 12.

B. Company Position

PCW maintains that the Project's transmission facilities are needed. PCW asserts that it has satisfied the Siting Board's requirement to show that the existing transmission system is

---

[18] The Siting Board expressly stated that "in order to avoid any confusion about the standard to be applied in future cases, the Siting Board takes this opportunity to articulate a single standard of review for need to be applied in all cases where a transmission line is proposed to interconnect new or expanded generation. This new standard must be broad enough to encompass both transmission lines serving generators subject to the Siting Board's jurisdiction, and transmission lines serving generators that are too small to be subject to our jurisdiction, generators that are located in another state, or generators that are located *in federal territory"* (emphasis added). Cape Wind 2005 Decision at 16.

inadequate to interconnect the OGF (Company Brief at 38). The Company stated that the nearest point of the proposed OGF is approximately 19 miles from Martha's Vineyard, 23 miles from Nantucket, and about 41 miles from Cape Cod (Exh. VW-1, at 1-1). According to the Company, there are no existing transmission facilities in the area that would be able to deliver the capacity of up to approximately 800 MW of energy from the proposed OGF to the regional transmission grid (Company Brief at 38). Therefore, PCW argues that a new transmission facility is required, to interconnect the OGF (Company Brief at 37-38, citing Exhs. VW-1, at 1-1, 1-16; VW-7, at 2-20).

With respect to the Siting Board's requirement that PCW's proposed OGF would likely be available to contribute to the regional energy supply, the Company asserts that it has already achieved several permitting milestones and indicators of progress that demonstrate that this facility would become available (Company Brief at 38-40; Company Supplemental Brief at 2). PCW contends that the Siting Board has previously found these factors to be "strong indicators" that an offshore wind energy generation resource will "reach commercial operations" (Company Brief at 40). The factors listed by the Company are as follows (Exh. VW-1, at 2-5 to 2-7; Company Brief at 38-40):

- The Company argues that it has support at the federal and state levels for the development of its OGF and the Project. See also section VII.D.2 for a description of the Project's compliance with state policies. At the federal level, PCW asserts that the Company's right to develop Lease Area OCS-A 0534 ("Lease Area") obligates it to make several submissions periodically to BOEM to demonstrate that it is developing the OGF in the Lease Area (RR-EFSB-9; Tr. 1, at 101-106, 144-145).[19] The Company asserts that the New England region's commitment to procuring and deploying offshore wind energy projects is another strong indicator that the Project is likely to be built (Company Supplemental Brief at 10).[20]

---

19 The Company reported that the PCW and Vineyard Wind's proposed offshore windfarms were initially located in the same lease area (Lease Area OCS-A 0501) but are now in adjacent lease areas after being segmented into two lease areas by BOEM (Exhs. VW-1, at 1-1; VW-11, at 1-1). The Company explained that it had always intended to segment each project into its own lease area (Tr. 1, at 144-145).

20 In Mid Cape Reliability Project at 25-26, the Siting Board approved a Noticed Variation that would allow the petitioner, Eversource, to install a new 345 kV line in the future, when additional capacity is needed to interconnect the PCW Project.

- PCW states that it holds the rights to develop its offshore wind lease area to accommodate its Project (Company Supplemental Brief at 9)

- The Company reported that the Lease Area for its offshore wind energy generation project has favorable characteristics for such a facility – i.e., high wind speeds, optimal seafloor conditions and moderate water depth – and is close to grid interconnection locations in an area of high electrical load (Exh. VW-1, at 2-5). PCW contends that these factors contribute to a high-capacity factor for the energy output from offshore wind energy generation projects and thus, high commercial viability and likelihood of being built (Exh. VW-1, at 1-38; Tr. 1, at 63-64, 108-112).

- PCW has been advancing through the federal BOEM permitting process, filing its COP with BOEM in July 2020 with an expected issuance of the record of decision ("ROD") in 2024 (Company Supplemental Brief at 9).[21] See also section I.B.6, above for a description of the BOEM review process.

- In Connecticut's solicitation for commercial-scale offshore wind energy generation projects, Connecticut DEEP selected PCW's 800 MW offshore wind energy generation project to advance (Exh. VW-1, at 1-4; RR-EFSB-90). PCW's predecessor finalized power purchase agreements ("PPAs") with Connecticut's EDCs and received approval from the Connecticut Public Utility Regulatory Authority ("PURA") on August 19, 2020 (Exh. EFSB-N-2; Tr. 1, at 144). Avangrid reached an agreement with Connecticut EDCs to terminate the PPAs, and

[21] According to the Federal Infrastructure Projects Permitting Dashboard, the most recent targeted issuance date of the ROD on the COOP is March 2024. See https://www.permits.performance.gov/permitting-project/fast-41-covered-projects/new-england-wind.

on October 2, 2023, filed amendments to terminate the PPA's for approval with PURA.(RR-EFSB-90 (S)).[22,23]

- PCW states that it has completed the following reviews and obtained the following permits (Company Supplemental Brief at 9-10):
    - As part of the state MEPA process, PCW has obtained a Certificate from the Secretary regarding the Project's FEIR, determining that the Project adequately and properly complies with MEPA and its implementing regulations, and may proceed to permitting (Exh. VW-11, at 1; Company Supplemental Brief at 9, citing Exh. PCW-12).
    - Development of Regional Impact Decision by the Cape Cod Commission on May 11, 2023 (Company Supplemental Brief at 9, citing Exh. PCW-17).
    - Decision by the Martha's Vineyard Wind Commission on September 15, 2020 (Company Supplemental Brief at 10, citing Exh. PCW-18).
    - 401 Water Quality Certification issued by MassDEP on May 12, 2023 (Company Supplemental Brief at 10, citing Exh. PCW-16).
    - Order of Conditions by Nantucket Conservation Commission on May 16, 2023 (Company Supplemental Brief at 10, citing Exh. PCW-19).
    - Edgartown Wetlands Bylaw Permit by the Edgartown Conservation Commission on September 29, 2023 (Company Supplemental Brief at 10, citing Exh. PCW-19).
    - Article 97 approval for Craigville Beach and Aaron S. Crosby Parcel in Chapter 135 of the Acts of 2022 (Company Supplemental Brief at 10, citing Exh. EFSB-G-5 (S 1)).

---

22 PCW explained that the long-term PPAs "are intended to enable project developers to finance and construct offshore wind projects" (Exh. VW-1, at 2-2). The Company argues that as a result of significantly increased costs of construction the Project, it was necessary to amend or replace the PPAs (RR-EFSB-90). The Company also stated that it intended to re-bid the Project into one or more of the upcoming solicitations in Massachusetts, Connecticut, and Rhode Island (Company Supplemental Brief at 3-4, citing RR-EFSB-90 (S)). The Company referenced the recent "Offshore Wind Multi-State Coordination Memorandum of Understanding By and Among the States of Connecticut, and Rhode Island and the Commonwealth of Massachusetts," as another indication of regional commitment to "push ahead with large procurements" (Company Supplemental Brief at 3 & n.2). The Company asserts that, as one of the most advanced projects in terms of permitting and development, its Project would be highly competitive in these solicitations (Company Supplemental Brief at 4).

23 At the time, DEEP also found that the Company "possesses the financial capability to finance, build and operate the proposed PCW Project" (Exh. EFSB-N-2, Att. 1, at 14).

- PCW stated that its HCA with the Town of Barnstable includes a statement of the Town's support of the Project (Exh. EFSB-G-14 (S), Att.1, at 7-9).
- PCW indicated that it has conducted extensive outreach with stakeholders to address concerns in the Project's early stages of development (Company Brief at 39, citing Exh. VW-1, at 2-6).
- PCW stated that it is allowed to participate in the ISO-NE Forward Capacity Auction ("FCA") through FCA 18 (schedule capacity commitment period 2027-2028), and that it intends to participate (Exhs. EFSB-N-3; EFSB-N-6).[24]

PCW maintains that offshore wind energy is supported by state and federal policies.PCW argues that the Project is critical to advancing policies of the Commonwealth and New England (Exh. EFSB-G-29 (S); Company Supplemental Brief at 10). Specifically, Chapter 8 of the Acts of 2021, "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy" ("Climate Roadmap Act"), which expanded the state's commitments to reduce GHG emission (Exh. EFSB-G-29 (S)). The Company indicated that the Climate Roadmap Act "makes it clear that developing offshore wind facilities in the region is critical to achieving the Commonwealth's statutory commitments and policy goals" (Exh. EFSB-G-29 (S)). The Company also refers to the Interim Clean Energy and Climate Plan for 2030 which describes offshore wind as anchoring Massachusetts's "clean energy portfolio" for the next decade (Exh. EFSB-G-29 (S), citing Exh. VW-7, at 2-58 to 2-59).[25]

The Climate Roadmap Act also expanded the Commonwealth's commitment to procure offshore wind energy, up to 5,600 MW; 4,000 MW under Section 83C of the Green Communities Act, and 1,600 MW under Section 21 of "An Act to Advance Clean Energy," Chapter 227 of the Acts of 2018 (Exh. EFSB-G-29 (S)).[26] The Company indicates that this

---

24 It appears that FCA18 bidding will commence in February 2024. See https://www.iso-ne.com/static-assets/documents/2021/02/fca-18-market-timeline-02-10-2021.pdf.

25 On June 30, 2022, the Secretary of EEA released the Clean Energy and Climate Plan for 2025 and 2030. See https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download.

26 On May 2, 2023, DOER in coordination with Massachusetts EDCs filed an initial petition jointly requesting that the Department approve a proposed timetable and method for

commitment creates a direct statutory requirement and need for deployment of offshore wind in the next five years (Company Supplemental Brief at 10). Furthermore, the Decarbonization Roadmap identified a need for 15-20 GW of offshore wind interconnected in Massachusetts over the next 30 years, and 30 GW interconnected, overall, for all of New England (Exh. EFSB-G-29 (S)). The Company argues that, despite the termination of the PPAs, the Project "remains essential" to New England states' clean energy and climate policies and procurement goals, which prioritize deploying large-scale offshore wind energy projects (Company Supplemental Brief at 3).

The Company argues that federal support for the Vineyard Wind OGF indicates that "utility-scale offshore wind projects, like the . . . [PCW Project], are likely to be built" (Company Brief at 41). The Company notes parallels between the Project and the Vineyard Wind OGF (Company Brief at 40). Both OGFs are similarly sized and would be located near each other (Company Brief at 40). The federal government, the Company argues, has strongly supported the Vineyard Wind OGF (Company Brief at 40). For example, after BOEM issued the ROD for the Vineyard Wind OGF in May 2021, the U.S. Department of Interior issued a press release signaling support for future offshore wind energy projects (Exh. EFSB-G-29 (S 2); Company Brief at 40). The White House released two Fact Sheets highlighting the contribution of future wind energy projects to the administration's goal of developing 30 GW of offshore energy by 2030 (Exh. EFSB-G-29 (S 2), citing RR-EFSB-G-29 (S 2), Att. 1, Att. 2, Att. 3).

The Company addressed possible conditions relating to commencing construction of the Project if it were approved by the Siting Board. During the proceeding, Siting Board staff asked PCW whether the Board should adopt a standard for determining need for the Project different

---

solicitation for long-term contracts for offshore wind energy generation, up to the maximum amount remaining of the statutory requirement of 5,600 MW, and in any event, not to exceed 3,600 MW. See the Initial Filing by DOER and the EDCs at https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/17396142. This matter was docketed as D.P.U. 23-42. The Department approved the proposed timetable and method for the solicitation and execution of long-term contracts, consistent with the requirements of Section 83C of An Act Relative to Green Communities, St. 2008, c. 169, as amended. D.P.U. 23-42 (2023).

from the one it had used in Cape Wind and Vineyard Wind (Company Brief at 41, citing RR-EFSB-10). The Company replied that it was not advocating for a departure from the Cape Wind/Vineyard Wind standard, which it also refers to as the "current need standard" (RR-EFSB-10). Nevertheless, the Company asserted that said standard is "flexible" and examines situations on a "case-by-case basis" (RR-EFSB-10; Company Supplemental Brief at 6). The Company further maintains that the current need standard gives the Siting Board the flexibility to authorize certain construction work prior to BOEM issuing a ROD (RR-EFSB-10; Company Brief at 42).

In Vineyard Wind, the Siting Board set a condition that Vineyard Wind should not commence construction prior to issuance of the BOEM ROD. Vineyard Wind at 15-16. Nevertheless, the Company argues that the Board was flexible in administering this condition (RR-EFSB-10, citing Director's Waiver Letter of June 10, 2020, granting a limited waiver from a condition requiring submission of a ROD prior to construction). The Company asserts that this flexibility was "critical to achieving substantial public benefits" (RR-EFSB-10, citing Vineyard Wind). PCW contends that if the Board sets the same condition for this proceeding, having the flexibility to petition the Siting Board to begin certain activities before the ROD issues would allow the Company to schedule and implement preparatory activities with long lead times (RR-EFSB-10).

Staff also asked the Company whether the out-of-state location of the customers contracted for the Project should affect the Siting Board's assessment of project need (RR-EFBS-12). The Company replied that the Siting Board should apply the same standard for assessing project need regardless of the location of the customers ultimately buying the energy (RR-EFSB-12). PCW contends that the Siting Board's standard does not require the ultimate purchasers of energy live or reside in the Commonwealth, with the standard explicitly referring to projects that contribute to the "regional energy supply" (RR-EFSB-12). The Company added that, because New England is part of an integrated regional transmission system, providing energy to that system benefits the entire system (Exh. EFSB-Z-14; RR-EFSB-12).

As stated above, the Company has agreed to terminate its PPAs with Connecticut EDCs (RR-EFSB-90 (S)). The Company asserts that there is no applicable Siting Board standard or

precedent that requires PPAs be in place to find that the Project is needed (Company Supplemental Brief at 2, 6, citing Vineyard Wind at 11-12; Cape Wind at 16-17).[27] The Company reiterates its position that no one indicator is "dispositive of need" and that the record demonstrates that the Project is needed regardless of the PPAs having been terminated (Company Supplemental Brief at 2, 6-8). PCW adds that it continues to "invest significantly" in the development of the Project and "has not slowed its advancement of the Project through permitting" (Company Supplemental Brief at 2). The Company contends that the termination of the PPAs did not mean that no offshore wind projects will be built in New England, and that it "continues to become more clear as states, including Massachusetts, push ahead with large procurements" (Company Supplemental Brief at 3).

Additionally, according to the Company, the termination of the PPAs "does not diminish the need" for the Project (Company Supplemental Brief at 2). Specifically, the Project continues to meet the first prong for the Siting Board to find need – that the existing transmission system is inadequate to interconnect the new or expanded generator (Company Supplemental Brief at 8).

C. Analysis and Findings on Need

As noted above, the Cape Wind-Vineyard Wind two-part test applies to petitions to construct transmission facilities connecting new generating facilities located beyond Commonwealth jurisdiction to the regional grid. Cape Wind at 16-17; Vineyard Wind at 11-12. The first prong of the Siting Board's standard establishes whether the generating facility would be able to interconnect to the grid absent new transmission facilities. The record shows that, at its closest point, PCW's proposed OGF is approximately 41 miles offshore from the Cape Cod mainland, approximately 19 miles from Martha's Vineyard and 23 miles from Nantucket. There is no existing electric infrastructure in the waters between the proposed OGF and the regional grid to which PCW has access and can use to provide wind energy. Accordingly, the Siting

---

[27] PCW notes that the Cape Wind decision made no mention of PPAs and that the Department did not approve PPAs for that project until five years after the decision was issued (Company Supplemental Brief 7). PCW states that, in Vineyard Wind, the Siting Board focused on permitting milestones instead of finding PPAs were a prerequisite to approval (Company Supplemental Brief at 7).

Board finds that the existing transmission system is inadequate to interconnect the Company's proposed OGF.

The second prong of the Siting Board's standard attempts to ensure that the extra-jurisdictional generating facility is likely to be available to contribute to the regional energy supply. PCW has provided evidence of several critical milestones/indicators relating to the development of its offshore windfarm. In Vineyard Wind, the Siting Board viewed the OGF's projected participation in the February 2019 Forward Capacity Auction and the Department's selection of Vineyard Wind as the winning bidder in the Commonwealth's Section 83C solicitation as strong indicators that that offshore windfarm would reach commercial operation. Vineyard Wind at 15. PCW has similarly been allowed to participate in the Forward Capacity Market. Additional indicators provided by the Company include federal and state level support; support from the Town in the HCA; favorable characteristics for offshore wind energy generation in the Lease Area; early and extensive outreach to address stakeholder concerns; advancement of the OGF through the BOEM process; and the receipt of a MEPA Secretary's Certificate on the Project's FEIR.

As in Vineyard Wind, PCW had successfully negotiated long-term contracts with state EDCs; and the state regulatory authority had approved those long-term contracts. However, as described above, the Company and the Connecticut EDCs have agreed to terminate the current PPAs. Other PPAs in New England, specifically those signed during the most recent rounds of Section 83C solicitations in Massachusetts, have also been terminated recently. The Company acknowledges that PPAs "enable project developers to finance and construct offshore wind projects." In its supplemental brief, the Company argues that the termination of the PPA does not negate the first prong of the Siting Board's standard and that projects like its own are still essential to New England states meeting their climate related goals. The Company also adds that the Siting Board has not required PPAs in its previously issued decisions in Cape Wind or Vineyard Wind.

While PPAs are an important indicator of progress, as listed above, there are numerous other project indicators that provide varying degrees of assurance that the OGF would be built and operational, and that the Project remains necessary to interconnect the OGF. The record

shows that there is both demand and strong state and federal policy and regulatory impetus behind offshore wind energy in New England, which additionally bolsters the case that an OGF is likely to be available, and transmission interconnection facilities also necessary. The Company asserts that not only does it intend to bid in future New England solicitations for offshore wind, but it is also in a competitive position to win a bid given its stage in development and permitting. Given the acknowledged importance of PPAs for financing the Project, it is most unlikely that PCW would construct the Project (assuming regulatory approvals) without such agreements. We note that, despite recent terminations of offshore wind energy PPAs in Massachusetts and other states, Massachusetts, Connecticut, and Rhode Island, individually, and together under a recently executed Memorandum of Understanding, are pressing forward with additional procurement solicitations for offshore wind energy resources.

PCW provided similar indicators to the ones on which the Siting Board based its Vineyard Wind decision. While the ultimate purchasers, in whole or part, of the energy from the PCW project may be other states in New England, the Siting Board views its previously established standard for approving transmission facilities for new and expanded generator facilities as applicable. The Siting Board's standard for establishing need explicitly requires that the Project be likely to contribute to the regional energy supply. The record shows that by PCW connecting its OGF to the regional transmission grid the Commonwealth is also likely to experience various direct and indirect benefits, such as regional carbon emissions reductions, more abundant regional energy supplies, and diminished use of fossil fuels and the associated emissions in the region, which also benefit regional air quality (Exh. EFSB-Z-14).

In Vineyard Wind, the Siting Board required that Vineyard Wind submit, prior to commencing construction, a copy of the BOEM ROD approving the Vineyard Wind project to establish that the energy facility was likely to be available to contribute to the regional energy supply.[28] Vineyard Wind at 161. Due to delays in federal BOEM approval of the project,

[28] In Cape Wind, the first offshore wind facility reviewed by the Siting Board, the Siting Board required the Company to submit to the Siting Board all permits required for Cape Wind to begin installation of wind farm equipment in Nantucket Sound prior to commencement of construction. Cape Wind at 133.

Vineyard Wind requested a limited waiver to begin certain construction activities before the BOEM approval. Vineyard Wind, Company Letter of March 31, 2020, to Presiding Officer. The Siting Board granted this limited waiver. Vineyard Wind, Director's Waiver Letter of June 10, 2020.

In the current proceeding, the Siting Board has the option of requiring the same condition for its approval of the Project. While the Company does not oppose an identical condition, it requests similar "flexibility" to ask to begin certain construction activities prior to BOEM approval. While the Siting Board does not see a need to reformulate the condition used in Vineyard Wind, and will adopt the same condition used previously, we concur with PCW that requests for flexibility in its application may be warranted and the Siting Board will review any such requests on a case-by-case basis.

PCW shall submit to the Siting Board, prior to commencing construction, a copy of the BOEM ROD approving the PCW offshore facility. PCW may not commence construction of the proposed transmission Project until it has complied with this condition. The Siting Board finds that, subject to compliance with the above condition, PCW has demonstrated that there is a need for additional transmission resources to interconnect its OGF to the regional transmission grid.

IV. ALTERNATIVE APPROACHES TO MEETING THE IDENTIFIED NEED

A. Standard of Review

G.L. c. 164, § 69J requires a project proponent to present alternatives to the proposed facility, which may include: (1) other methods of transmitting or storing energy; (2) other sources of electrical power; or (3) a reduction of requirements through load management.[29] In implementing its statutory mandate, the Siting Board requires a petitioner to show that, on balance, its proposed project is superior to such alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that the proposed project is superior to alternative project approaches. NSTAR Electric Company d/b/a

[29] G.L. c. 164, § 69J also requires an applicant to present "other site locations." Compliance with the requirement is evaluated in Section V, *infra*.

Eversource Energy, EFSB 19-03/D.P.U. 19-15, at 24 (2021) ("Andrew-Dewar"); Sudbury-Hudson at 27; Mid Cape Reliability Project, at 88 .

B. Identification of Alternative Approaches for Analysis

In addition to the Project, PCW described several alternative approaches and outcomes, including: (1) no-build and non-transmission alternatives; (2) alternative cable technologies; (3) alternative interconnection locations and transmission routes (see Section V, *infra*); and (4) a shared transmission alternative (Exh. VW-1, at 3-1 to 3-12). PCW asserts that not building the Project would prevent 800 MW of energy from interconnecting with the regional electric grid (Exh. VW-1, at 3-2). In addition, the Company argues that non-transmission alternatives would prevent PCW from fulfilling Project-related environmental and economic benefits (Company Brief at 44-45; Exh. VW-1, at 3-2).[30]

PCW proposes to use 275 kV alternating current ("HVAC"), cross-linked polyethylene ("XLPE") insulated transmission cables for the Offshore Export and Onshore Cables (Exh VW-1, at 3-3 to 3-4). The Company contends that HVAC cables are highly reliable, cost effective, and consistent with the cables approved by the Siting Board in Vineyard Wind ("Vineyard Wind Connector") (Exh. VW-1, at 3-4). The alternative, high-voltage direct current ("HVDC") cables, require large converter stations at both ends of the cable system (Exh. VW-1, at 3-4). These stations convert the output from the OGF to direct current and then back to alternating current; it is the alternating current that interconnects to the regional grid (Exh. VW-1, at 3-4; Tr. 2, at 233). The Company also indicated that each converter station would require more land than a typical step-up/down substation (Tr. 2, at 238). Nevertheless, the Company explained that HVDC lines have been used successfully in long-distance power transmission projects overseas and are being proposed for some longer-distance projects in the U.S. (Exh. VW-1, at 3-4). The Company asserts that the relatively short length of the Project (i.e., less than

30 The Company also contends that the alternatives would not allow the Connecticut's offshore wind energy legislative mandate to be effected (Company Brief at 44; Exhs. VW-1, at 3-1; EFSB-N-1, Att. 1). But see RR-EFSB-90 (S).

75 miles long) does not justify the increased cost and complexity of using HVDC (Company Brief at 46, citing Exhs. VW-1, at 3-4; VW-7, at 3-5; Tr. 2, at 235-236).

The Company initially presented both 220 kV and 275 kV transmission cables as options for the Project, but ultimately chose 275 kV cables for reduced energy losses, and easier installation due to their smaller cross-sectional areas (Exhs. VW-1, at 3-4; EFSB-PA-2; EFSB-PA-5).[31] PCW stated that XLPE insulated cables are considered state-of-the-art technology for offshore transmission globally (Exh. VW-1, at 3-5). Additionally, the Company stated that because XLPE cables contain no fluids, they would not cause environmental impacts from spills or leaks (Exh. VW-1, at 1-13).

PCW also considered whether the Project should connect to the regional electric grid at a single interconnection point or multiple interconnection points (Exh. VW-1, at 3-5). The Company selected a single interconnection point because that option eliminated the need for additional onshore cables and substations in multiple locations (Exh. VW-1, at 3-5). PCW described a transmission alternative where multiple offshore generators could share a single set of offshore export cables, instead of the current generator lead line approach (Exh. VW-1, at 3-6, 3-8).[32] The Company asserts that the generator lead line approach is preferable for this Project because the shared transmission approach: (1) cannot be implemented within the timeline required for the Project to commence commercial operations;[33] (2) introduces significant coordination challenges with respect to project development, permitting and stakeholder engagement; and (3) has been unsuccessful to date in state procurements (Exh. VW-1, at 3-6 to

---

31 The Grid Interconnection will operate at 345 kV (Exh. VW-1, at 1-14).

32 According to the Company, in a generator lead line approach, a single party is responsible for the generation and transmission component of an offshore wind project (Exh. VW-1, at 3-7).

33 The August 30, 2023, Massachusetts RFP for offshore wind generation requires bidders to provide a scheduled commercial operation date before January 1, 2032 (RR-EFSB-90 (S)).

3-9; RR-EFSB-89; Company Brief at 48).[34] The Company further asserts that shared transmission cables may result in more construction if routes to the shared transmission facility are less direct (Exh. VW-1, at 3-7).

C. Mr. Akselson's Position

Mr. Akselson alleges that the generator lead line approach proposed by the Company increases the scale of both onshore and offshore construction exponentially (Akselson Brief at 3). Mr. Akselson further asserts that shared transmission cables are a better way to bring wind energy ashore, pointing to Brayton Point as an "excellent" candidate for a shared onshore landfall point (Akselson Brief at 4). Mr. Akselson contends that the generator lead line option is at "cross-purposes" to the stated environmental goals of local, state, and federal governments as it necessitates more materials, construction, and produces more environmental impacts (Akselson Brief at 4). Finally, Mr. Akselson suggests that developers are avoiding shared transmission projects for cost reasons (Akselson Brief at 4).

D. Company Response

PCW disagrees with Mr. Akselson and contends that he did not provide support for his assertion that a shared transmission alternative is preferable for the Project (Company Reply Brief at 22). The Company argues that the record shows that shared transmission is infeasible and would not reduce Project impacts relative to the generator lead line approach proposed by the Company (Company Reply Brief at 3).

---

[34] The Company stated that in November 2019, Anbaric LLC filed an "Unsolicited Right-of-Way/Right-of-Use & Easement Grant Application" with BOEM for non-exclusive rights-of-way to develop a "Southern New England Ocean Grid" to connect up to 16,000 MW of offshore wind to Massachusetts, Rhode Island, and Connecticut, with an anticipated build-out over 20 years (Exh. VW-1, at 3-10). According to the Company, as of 2020, Anbaric had filed just three interconnection requests with ISO-NE, each for 1,200 MW (Exh. VW-1, at 3-10). The Company estimates that at 1,200 MW for each interconnection, Anbaric would require at least 14 interconnection points and cables to interconnect 16,000 MW (Exh. VW-1, at 3-10). PCW indicates that at this "conceptual level of design," the permitting and construction timelines would not accommodate the schedule for delivering the zero-carbon energy and benefits promised by the Project (Exh. VW-1, at 3-10).

E. Analysis and Findings on Alternative Approaches

The Company presented several alternative approaches to the Project. As described in section III above, new transmission facilities are needed to connect PCW's proposed OGF to the New England electric grid. As such, no-build and non-transmission alternatives would not address the identified need. The Company proposes to use 275 kV HVAC XLPE transmission lines, instead of lower voltage lines or HVDC technology. Based on specific factors of this Project, the Company's cable technology choice is reasonable, given the length of the required transmission, and the specific characteristics of this Project.

The Company considered alternative approaches to interconnect the proposed windfarm to the regional grid. These included using multiple interconnection points or building a shared transmission line for use with multiple offshore wind projects. The record shows that given the near-term development timeframe of PCW, these alternatives to the Project would pose added complexity and project development risk. Mr. Akselson argues in favor of the shared transmission line approach based on a perceived lower overall footprint and environmental impacts across multiple offshore wind projects, but there is no evidence in the record to support this contention. The Company rejects Mr. Akselson's argument noting that the record shows that a transmission interconnection dedicated to the Company's use would facilitate more timely connection of its offshore windfarm to the regional electrical grid than a shared transmission approach. The Company also points out that a shared transmission approach has yet to be developed. While an option for future development, creating a plan for shared transmission requires extensive multi-party coordination and time.

The Siting Board also notes that state offshore wind energy solicitations to date have not required shared transmission facilities. In addition, the most recent Section 83C offshore wind energy solicitation, approved by the Department in D.P.U. 23-42, continues to specify a direct method of grid interconnection, rather than a shared-transmission approach (D.P.U. 23-42, at 12).[35] While the Company acknowledges that shared transmission for off-shore wind energy

[35] In D.P.U. 23-42, the Department noted comments from stakeholders on the value of a "mesh-ready" transmission requirement that could support regional transmission initiatives and shared transmission solutions for offshore wind facilities. D.P.U. 23-42, at

projects is conceivable in the future, the Company argues that a "generator lead-line approach is really the only strategy viable for [PCW] on the timeline required" (Tr. 1, at 88). The Siting Board concurs with the Company.

Accordingly, for the reasons cited above, the Siting Board finds that the Project is superior to the other alternatives evaluated with respect to meeting the identified need and providing a reliable energy supply for the Commonwealth with minimum impact on the environment at the lowest possible cost.

V. ROUTE SELECTION

A. Standard of Review

G.L. c. 164, § 69J requires a petition to construct to include a description of alternatives to the facility, including "other site locations." Thus, the Siting Board requires an applicant to demonstrate that it has considered a reasonable range of practical siting alternatives and that its proposed facilities are sited in locations that minimize cost and environmental impacts while ensuring a reliable supply. To do so, an applicant must meet a two-pronged test. First, the applicant must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that, on balance, are clearly superior to the proposed route. Second, the applicant generally must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. Mid Cape Reliability Project at 39; Beverly-Salem at 38-39; Sudbury-

---

89 & n.2. However, the utilities did not include such a requirement in their proposed method of solicitation, nor did the Department impose such a requirement when it approved the proposed method of solicitation and RFP. Id. In June 2023, the Healey administration issued a press release touting a "Northeast States Collaborative on Interregional Transmission" supported by U.S. Department of Energy ("DOE"). See https://www.mass.gov/news/healey-driscoll-administration-leads-multi-state-request-for-federal-support-to-establish-interregional-transmission-planning-collaborative. In October 2023, the DOE released "An Action Plan for Offshore Transmission Development in the U.S. Atlantic Region," which recommends reliability studies on four "interregional high-voltage direct interlinks" that have been designed to "take advantage of opportunities to maximize production cost savings while attempting to minimize overall cable distances." See https://www.energy.gov/sites/default/files/2023-10/Atlantic-Offshore-Wind-Transmission-Plan-Report_October-2023.pdf.

Hudson at 71. But see Colonial Gas Company d/b/a National Grid, EFSB 16-01, at 28-29 (2016) ("Colonial 2016"); Colonial Gas Company d/b/a National Grid, EFSB 18-01/D.P.U. 18-30, at 40-42 (2019) ("Colonial 2019"), where the Siting Board found the company's decision not to notice an alternative route to be reasonable.

B. Company's Approach to Route Selection

1. Routing Options

PCW started with a project study area encompassing southeastern Massachusetts and eastern Rhode Island (Exhs. VW-1, at 4-2; VW-2, Fig. 4-1). The Company considered five components in its analysis: (1) offshore export cable route; (2) landfall site; (3) onshore cables route; (4) substation site; and (5) interconnection location (Exh. VW-1, at 4-1). PCW identified 13 general routing options connecting its Lease Area to 11 potential grid interconnection points in the study area (Exh. VW-1, at 4-2 to 4-3; see Table 1, *infra*). The Company considered routes through Narragansett Bay, Buzzards Bay, Nantucket Sound, and Cape Cod Bay (Exh. VW-1, at 4-2 to 4-3). The Company used similar screening criteria for determining routes for the Vineyard Wind Connector (Tr. 2, at 261, 281).

Table 1: Universe of Routing Option (all lengths approximate).

Route #	*Interconnection Point*	*Approximate Export Cable Length*					
		Offshore[1]		*Onshore*		*Total*	
		miles	**km**	**miles**	***km***	***miles***	***km***
1	Kent County Substation (National Grid), RI	87	140	3	*5*	*90*	*145*
2	Brayton Point	75	121	<1	*<1.6*	*76*	*122*
3	Pine Street Substation, New Bedford	71	114	<1	*<1.6*	*72*	*115*
4	Canal Station, via Cape Cod Canal	86	138	<1	*<1.6*	*87*	*140*
5	Canal Station, via onshore	80	129	7	*11*	*87*	*140*
6	Falmouth Tap Switching Station, via Buzzards Bay	67	108	4	*6*	*71*	*114*
7	Bourne Substation, via Buzzards Bay	74	119	10	*16*	*84*	*135*
8	Falmouth Substation/Falmouth Tap	53	85	2	*3*	*55*	*88*
9	Mashpee Substation or Hatchville Substation	51	82	14	*23*	*65*	*105*
10/10 A	West Barnstable Substation or Barnstable Switching Station	58	93	5	*8*	*63*	*101*
11	Barnstable, via east end of Nantucket	72	116	6	*10*	*78*	*126*
12	Canal Station, via ocean route	144	232	<1	*<1.6*	*145*	*233*
13	Pilgrim Station, via ocean route	136	219	<1	*<1.6*	*137*	*220*

Source: (Exh. VW-1, at 4-3, Table 4-1).

The Company then eliminated seven routing options that were longer than 71 miles, including the Canal Station, explaining that longer lines could require additional transmission equipment offshore such as a mid-point reactor station and a corresponding offshore electrical platform (Exh. VW-1, at 4-3 to 4-4).[36] The Company explained that an additional reactor station would increase Project design complexities and result in substantial additional cost (Exhs. VW-1, at 4-4; VW-7, at 3-14).

Next, PCW considered the closest grid interconnection points of the remaining six routing options and eliminated those routes with interconnection points that would be unable to accommodate the Project's capacity (Exh. VW-1, at 4-4 to 4-7). The seven grid interconnection points are shown in Table 2 below. With the exception of West Barnstable Substation in the Town of Barnstable, the Company indicated that the other interconnection points would require substantial upgrades to the transmission system and improvements or longer route lengths (Exh. VW-1, at 4-4 to 4-7).[37] Table 2 depicts the Company's conclusion that West Barnstable Substation is the only interconnection point with sufficient capacity and acceptable cable route length (Exh. VW-1, at 4-7).

---

[36] PCW stated that the maximum cable of length of 71 miles was an approximation and would ultimately depend on several factors related to the characteristics of the 275 kV cables and other electrical considerations (Company Brief at 56 & n. 26). It is worth noting that the Company eliminated route 11, which is 72 miles long, from consideration; but it did not eliminate from consideration route 2, Brayton Point, which is 75 miles long (Company Brief at 57). The Company did not address this apparent inconsistency, and we do not find that it is material.

[37] While Brayton Point is the site of a recently retired 1,600 MW power plant, the Company explained that there were two projects already in the ISO-NE queue ahead of PCW for the site, and thus Brayton Point would not have capacity to accommodate PCW's Project (Exh. VW-1, at 4-6).

Table 2. Summary of Seven Routing Options and Their Corresponding Interconnection Points

	Falmouth	*Mashpee*	*Hatchville*	*Barnstable Switch*	*West Barnstable*	*Pine Street*	*Brayton Point*
Sufficient capacity	No	No	No	No	Yes	No	No
Cable route of acceptable length?	Yes	Yes	Yes	Yes	Yes	Yes	No
Retained for routing analysis?	No	No	No	No	**YES**	No	No

Source: (Exh. VW-1, at 4-7, Table 4-2).

2. Evaluation of Potential Landfall Sites

Initially, PCW assessed 51 potential landfall sites along the southern coast of Cape Cod and eastern coast of Buzzards Bay, between Falmouth and Yarmouth (Exhs. VW-1, at 4-7 to 4-14; VW-2, Fig. 4-3). See Figure 2, below. The Company explained that it used the following criteria to identify potential landfall sites:

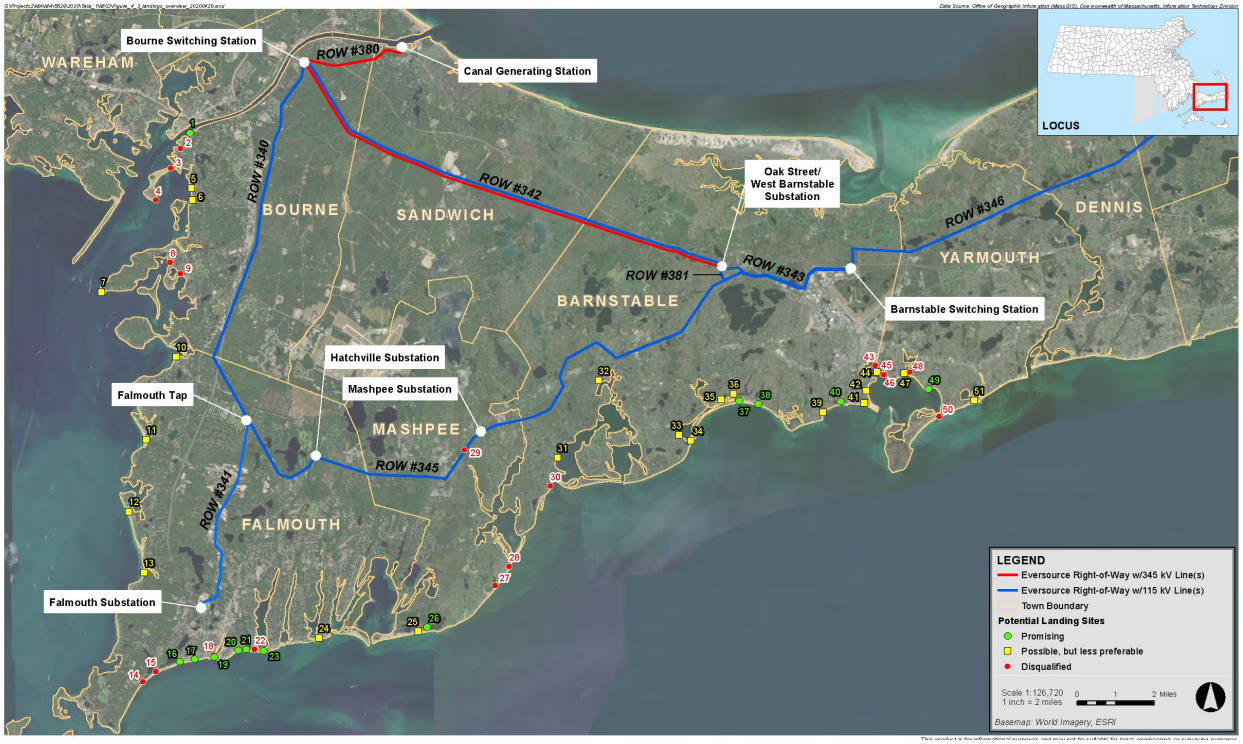
- Land able to accommodate the offshore-to-onshore transition and necessary transition vault(s), such as a beach-front public parking area or similar;
- Clear egress onto a road of sufficient width to accommodate the duct bank;
- Enough space to accommodate the entry pit and drilling equipment associated with HDD;
- Sufficient water depths (of 10 to 20 feet) within approximately 3,000 feet offshore to accommodate support barges at the HDD exit location;
- Surrounding land uses, if residential, characterized as seasonal rather than year-round, to avoid and minimize construction-period impacts to the public;
- Avoided and minimized impacts to wetland resource areas and mapped eelgrass habitat to the extent practicable
- Minimized onshore route length.

(Exh. VW-1, at 4-7 to 4-8).

The Company evaluated the 51 landfall sites for availability of workspace, adjacent environmental resources, and proximity to suitable interconnection points (Exh. VW-1, at 4-7 to 4-8). The Company eliminated 19 landfall sites due to lack of workspace and designated another

19 as "less preferable" because of potential impacts to adjacent environmental resources and poor accessibility (Exh. VW-1, at 4-7 to 4-8).[38] The Company further narrowed its landfall site analysis to five options in Barnstable after determining West Barnstable Substation to be the only feasible interconnection point (Exh. VW-1, at 4-10 to 4-15). The Company then held initial discussions with Town of Barnstable officials, who provided guidance on potential landfall sites and onshore routes (Exh. VW-1, at 4-10).

Figure 2: Initial Landfall Sites Considered by the Company.



Source: (Exh. VW-2, Fig. 4-3).

PCW compared the remaining five landfall options, Covell's Beach, Craigville Beach, Easy Bay Boat Ramp, McCarthy's Landing, and Centerville River Bridge, against seven screening criteria (Exh. VW-1, at 4-11 to 4-13, Table 4-4). Table 3 below summarizes the results of the Company's comparison.

38 The Company graded each landfall site as "promising", "less preferable" or "disqualified" (Exhs. VW-1, at 4-8 to 4-10, Table 4-3; VW-2, Fig. 4-3).

Table 3. Comparison of Five Landfall Sites Against Screening Criteria.

	Covell's Beach	*Craigville Public Beach*	*East Bay Boat Ramp*	*McCarthy's Landing*	*Centerville River Bridge*
Adequate space for HDD setup[3]	Yes	Yes	No	No	Yes
Clear egress on public roads	Yes	Yes	Yes	No	Yes
Adequate water depth	Yes	Yes	Yes	No	No
Seasonal residential occupancy	Yes	Yes	Yes	Yes	Yes
Environmental sensitivity	Low	Low	Moderate	Moderate	Moderate
Conflicts with boating interests	No	No	Yes	Yes	Yes
Retained for routing analysis?	**Yes**	**Yes**	No	No	No

Source: (Exh. VW-1, at 4-11, Table 4-4).

Based on the results, the Company chose Craigville Beach option as its preferred landfall site for the Project and Covell's Beach as a variant landfall site (Exh. VW-1, at 4-11 to 4-13, Table 4-4). Both of these sites are public beaches owned by the Town of Barnstable (Exh. VW-1, at 1-22, 4-11). As shown in Table 3, the other three landfall sites were eliminated for a variety of reasons such as lack of space for HDD staging, conflict with existing boat ramp users, and cable routing challenges (Exh. VW-1, at 4-12). As stated previously, the Company has executed an HCA with Barnstable, and the Town supports the Company's use of Craigville Beach and the Company's pursuit of Article 97 approval (Exhs. EFSB-G-14 (S) & Att. 1). See Section I.B.2, *supra*. The Commonwealth granted Article 97 approval for use of the Craigville Beach parcel for the Project in Chapter 135 of the Acts of 2022 (Exh. EFSB-G-5 (S) & Att. 1).

3. Evaluation of Potential Substation Sites

PCW identified and evaluated four potential Onshore Substation sites near the West Barnstable Substation (Exh. VW-1, at 4-13 to 4-15). The Company's site assessment criteria included whether the site had a buildable area of at least five acres, suitability of surrounding land uses, suitability of site topography and existing conditions, availability of the real estate, and site access (Exh. VW-1, at 4-13).

a. Clay Hill Parcel (off Oak Street)

This site consists of two separate parcels in private ownership with a total area of approximately 14.7 acres located in a remote area approximately one-quarter mile west of the West Barnstable Substation (Exh. VW-1, at 4-13). The site has frontage on an unnamed private

way that provides access to a Fire Tower, and also has direct on-site access to utility ROW 342 (Exh. VW-1, at 4-13). The Company assessed that the site has sufficient acreage for the Onshore Substation, but access to the site by way of the unnamed private way is uncertain (Exh. VW-1, at 4-13). In addition, the site's hilly topography would require significant grading that may further reduce the ability to provide an effective buffer for an abutting residential property (Exh. VW-1, at 4-13). For these reasons, the Company eliminated the site from further consideration (Exh. VW-1, at 4-13).

b. Eversource Parcel (661 Oak Street)

This site is an undeveloped wooded parcel owned by Eversource at 661 Oak Street, directly west of the West Barnstable Substation (Exh. VW-1, at 4-14). The site has a total area of approximately 5.3 acres with direct frontage on Oak Street and on-site access to Eversource ROW 342 and the West Barnstable Substation property (Exh. VW-1, at 4-14). At this size, the Company stated the site could potentially accommodate an approximately 800 MW GIS substation (Exh. VW-1, at 4-14).

The site's topography is favorable for development, and the location adjacent to an existing substation is considered an advantage in terms of land use consistency (Exh. VW-1, at 4-14). However, two private residences are direct abutters to the west, and there is very limited space to provide adequate buffering/screening from a new substation (Exh. VW-1, at 4-14).[39] As a result, the two adjacent properties, in addition to the Eversource property, would need to be acquired (Exh. VW-1, at 4-14). Due to this level of complexity and risk, the Company deemed this site inferior to other potential options and it was eliminated from further consideration (Exh. VW-1, at 4-14).

c. MassDOT Parcel (15 Shootflying Hill Road)

This site consists of approximately eight acres of undeveloped wooded land owned by MassDOT at 15 Shootflying Hill Road and is located just south of the Route 6/Route132

[39] From a map provided by the Company, the residences in question have structures located directly less than ten feet from the Eversource Oak Street Parcel (Exh. EFSB-RS-29, Att. 3).

interchange and is approximately one mile east of the West Barnstable Substation as measured along the utility ROW (Exh. VW-1, at 4-14). The site also has direct frontage on both Shootflying Hill Road and utility ROW 343 (Exh. VW-1, at 4-14). There are no residential abutters to the site according to the Company (Exh. EFSB-RS-14). However, the Company indicated that the process of acquiring property from a state agency is complex, and the timeline for establishing ownership is uncertain (Exh. VW-1, at 4-14). PCW recounted that it had contacted MassDOT to inquire about the process for purchasing the parcel (Exh. EFSB-RS-26). The Company claimed that the parcel would have to proceed through the MassDOT disposition process since it was not listed as a surplus property for possible sale at the time, which would include a "public offerings format" (e.g., a "Request for Proposal" or auction) (Exh. EFSB-RS-26).

The Company regards the MassDOT site as a good location for the Onshore Substation but inferior to its preferred site (Exh. VW-1, at 4-14). The Company considered the fact that an "adjacent previously developed and privately owned parcel at 8 Shootflying Hill Road" could be obtained made the MassDOT parcel less desirable (Exh. EFSB-RS-14).[40] As with the Onshore Substation site, the MassDOT parcel is within a Zone II Wellhead Protection Area and the Barnstable Groundwater Protection Overlay District (Exh. VW-2, Figure 5-9). The MassDOT parcel is also adjacent to Protected and Recreational Open Space (Exh. VW-2, Figure 5-18).

d. Previously Developed Commercial Property (8 Shootflying Hill Road) (Company's Preferred Site)

This 6.7-acre commercial property is located approximately 0.7 miles east of the West Barnstable Substation (Exh. VW-1, at 4-14). The site has approximately 400 feet of frontage on Shootflying Hill Road and on-site access to Eversource ROW 343, which leads to the West Barnstable Substation (Exh. VW-1, at 4-14). The northern portion of the site is occupied by an existing motel, and the southern portion is undeveloped wooded upland except for that portion that is located within the utility ROW (Exh. VW-1, at 4-14). According to the Company, site

[40] The Siting Board notes that the 15 Shootflying Hill Road parcel and 8 Shootflying Hill Road parcel are immediately adjacent to each other (Exh. EFSB-RS-29, Att. 1 & Att. 2).

topography is favorable for siting the Onshore Substation with minimal visual impact (Exh. VW-1, at 4-14). Although two residences are located directly west of the site, in all other directions the adjacent land is undeveloped (Exh. VW-1, at 4-14).

In the summer of 2019, the Company engaged the owners of the commercial property at 8 Shootflying Hill Road, who expressed interest in transferring ownership to PCW (Exh. VW-1, at 4-15). The Company has secured an option to purchase the site, and thus has site control (Exh. VW-1, at 4-14 to 15).[41] The Company favors this site given the favorable characteristics of the parcel, including its size, previous use as a developed commercial property, surrounding land uses, its relatively remote location, ease of access to and from major roadways, and the favorable reaction of the current landowner and its willingness to provide the Company with a purchase option (Exh. VW-1, at 4-15). As a result, the Company chose 8 Shootflying Hill Road as its preferred Substation site (Exh. VW-1, at 4-14 to 4-15).

4. Evaluation of Potential Offshore Export Cables Routes

PCW conducted an analysis of potential offshore routes for the Project, leading it to conclude that the OECC initially developed for the Vineyard Wind Connector was preferable because of similarities between the Project and the Vineyard Wind Connector in terms of the locations of the offshore windfarms and landfall sites (Exh. VW-1, at 4-41 to 4-47). The Company built upon previous analyses for the Vineyard Wind Connector and conducted further studies to determine whether an approximately 985 feet wider version of the OECC could accommodate the addition of the Project's Offshore Export Cables (Exh. VW-1, at 4-41; Company Brief at 53). Vineyard Wind had previously conducted marine surveys of the OECC in 2017 and 2018, including vibracore sampling, cone-penetration tests, benthic grab samples, underground video transects, and geophysical profiling (Exh. VW-1, at 4-42 to 4-45). See also Vineyard Wind, at 28-30. The OECC is described in more detail in Section VI.B, *infra*.

---

41 The Company has secured an option to purchase 6 Shootflying Hill Road to be used together with 8 Shootflying Hill Road for the Onshore Substation site (Exh. VW-11, at 1-4; RR-EFSB-1 (S)).

PCW conducted marine surveys in 2019 and 2020 to confirm that a widened OECC could accommodate both the Vineyard Wind Connector and the Offshore Export Cables for the Project (Exh. VW-1, at 4-45). The Company stated that the 2019 survey focused on the Craigville Beach landfall site in addition to the OECC (Exh. VW-1, at 4-45). The Company included 39 nautical miles of geophysical data, five vibracores, eight benthic grab samples and five underwater video transects (Exh. VW-7, at 2-9). The 2020 marine survey focused on the widened areas of the OECC and covered 680 nautical miles of geophysical data, eight vibracores, six cone-penetration tests, 44 benthic grab samples and 39 underwater video transects (Exh. VW-7, at 2-9).

The Company determined that the additional width would allow the OECC to accommodate both the Vineyard Wind Connector and the Project with sufficient distance between the cables (Exh. VW-7, at 2-9). PCW chose the widened version of the OECC in part because the Siting Board had already approved the previous version of the OECC for Vineyard Wind Connector (Company Brief at 75, citing Vineyard Wind at 43). The Company observed that the OECC has the added benefit of already having been reviewed and approved as part of federal, state, regional, and local permitting processes for the Vineyard Wind Connector (Company Brief at 75, citing Exh. EFSB-RS-22; Tr. 2, at 265).

5. Evaluation of Potential Onshore Cables Routes

Once the Company chose its landfall site and interconnection point, the Company's onshore routing comprised two distinct components: (1) an onshore transmission route that connects the landfall site to the Onshore Substation site; and (2) a grid interconnection route that connects the Onshore Substation site to Eversource's West Barnstable Substation (Exh. VW-1, at 4-15). The Company evaluated the two components independently for environmental impacts and technical feasibility (Exh. VW-1, at 4-15 to 4-16).

PCW asserted that it applied a set of initial screening criteria to identify several potential onshore routes between the landfall site and the West Barnstable Substation interconnection point via the Onshore Substation site, specifically a dozen Onshore Cables routes and six Grid Interconnection routes (Exh. VW-1, at 4-15 to 4-16). The Company then evaluated a set of approximately a dozen potential Onshore Cables routes and six Grid Interconnection routes

(Exh. VW-1, at 4-16). Most of these routes were not chosen because there were clearly superior alternatives (Exh. VW-1, at 4-16). Specifically, routes were eliminated due to issues with constructing in the same roadway segments as duct bank for the Vineyard Wind project and narrow streets, as well as potential impacts to dense commercial and residential areas, including tree clearing (Exh. VW-1, at 4-16). PCW then identified two Onshore Cables routes (with five corresponding route variants) and two primary Grid Interconnection routes (with three variants) for further evaluation (Exh. VW-1, at 4-17 to 4-21). The Company explained that each route variant acted either as a workaround or offered a unique benefit to routing (Exh. VW-1, at 4-36 to 4-38). These routes and their variants are described in detail in Section VI.C, *infra*.

PCW evaluated the routes using a set of eleven evaluation criteria related to both the developed and natural environments (Exh. VW-1, at 4-21). The Company indicated that it developed the criteria to reflect defined routing objectives, feedback from state agencies and municipalities, and environmental (developed and natural) considerations (Exh. VW-1, at 4-21). The Company's eleven scoring criteria are as follows:

Developed Environment Criteria

- Number of residential units with parcels directly abutting the route;
- Number of parcels with sensitive receptors abutting the route (namely hospitals, schools, police stations, fire stations, elder care facilities, daycare facilities, district courts, religious facilities and cemeteries);
- Potential for traffic congestion;
- Number of historic resource sites directly abutting the route;
- Length (in miles) of potential archaeological resource areas along ROW sections of a route; and
- Number of sites within 300 feet of the route that have documented release of oil and/or hazardous materials, or past land uses that could potentially result in contamination.

Natural Environment Criteria

- Total length of route that passes through state and local jurisdictional wetland resource areas;
- Acres of each route within a state-listed rare species habitat;
- Length of route that passes through public water supply resource areas;

- Number of distinct areas subject to Article 97 jurisdiction; and
- Length of route requiring clearing of trees.

(Exh. VW-1, at 4-23 to 4-24, Table 4-5).

After calculating a raw "score" for each criterion, the Company calculated a ratio score to arrive at a relative score for each criterion on each route (Exh. VW-1, at 4-22). The Company then assigned weights to all criteria based on an assessment of the potential for temporary and permanent impacts, as well as the magnitude of disruption from those impacts and regulatory importance for permitting (Exh. VW-1, at 4-22). The weighting scale ranges from 1 to 3, with 1 being the lowest weight and 3 being the highest weight that could be applied to a particular criterion (Exh. VW-1, at 4-22). PCW's weighted scores for each onshore route and variant are shown in Table 4 below. The Company stated that a lower score indicated a lower impact potential for a route option (Exh. VW-1, at 4-27). The Company represented that the scores showed that the onshore routes and variants were similar in overall impacts (Exh. VW-1, at 4-36 & Table 4-8; 4-39 & Table 4-10). Nevertheless, the Company indicated that its preferred route (the Shootflying Hill Road Route) scored best (Exh. VW-1, at 4-34, Table 4-7). The Company explained that the Shootflying Hill Road Route is more direct than the Noticed Alternative Route (Oak Street Route), and it passes by fewer residential units and sensitive receptors (Exh. VW-1, at 4-35). The Company added that the Oak Street Route is longer than any of the variants for the Shootflying Hill Road Route (Exh. EFSB-RS-21).

Table 4. PCW's Comparison of Weight Scores Between Candidate Transmission Routes

Route	*Weighted Score*
Preferred Route (Shootflying Hill Road Route)	**10.8**
Variant 1 (Covell's Beach Landfall Site)	12.3
Variant 2 (South Main Street)	11.8
Variant 3 (ROW #345)	10.8
Noticed Alternative (Oak Street Route)	**11.4**
Variant 1 (Covell's Beach Landfall Site)	12.8
Variant 2 (ROW #345)	15.1

Source: (Exh. VW-1, at 4-36, Table 4-8). Note: A lower score is better (lower impacts).

PCW also scored two Grid Interconnection routes that would connect the Company's Onshore Substation to Eversource's West Barnstable Substation according to the same scoring criteria (Exh. VW-1, at 4-39). As described above, the Company has reached an agreement with Eversource for construction of this section of the Grid Interconnection. See Section I.B.4, *supra*. Eversource has selected the route that traverses Eversource ROWs 345 and 381 as its preferred route for the Grid Interconnection (Exh. EFSB-ES-4; Eversource Brief at 2). Eversource stated that it is not pursuing PCW's alternative in-road route or variants to the Grid Interconnection (Exh. VW-1 at 1-37; Tr. 9, at 1266). The Company agrees that Eversource's selected route is preferable over other route variants regarding the ease of crossing Route 6 and because it avoids a subsurface gas line along Service Road located between the Onshore Substation and West Barnstable Substation (Exhs. VW-1, at 4-39; Exh. EFSB-G-9 (S)). The proposed Grid Interconnection would require additional upgrades at West Barnstable Substation and Eversource will separately seek necessary approvals for these upgrades (Tr. 9, at 1256).[42]

According to the Company, the Preferred Grid Interconnection Route also offers several benefits that are not necessarily reflected in the numerical scoring. Among those benefits is a better location for crossing Route 6 that would minimize construction-related impacts to nearby residences using a Park City Wind-owned parcel (Parcel 214-001) to the east of Eversource's West Barnstable Substation as the terminus of the Grid Interconnection facilities (Exh. VW-1 at 4-39). The benefits also include co-locating the Project with utility infrastructure along Service Road, thus avoiding traffic, noise, and other construction-related impacts to residences with driveways on Service Road (Exh. VW-1 at 4-39).

6. Geographic Diversity

PCW asserts that its various Onshore Cables routes and variants are geographically distinct (Company Brief at 11, 14, 54). The Company argues that it selected alternatives with a "good degree" of geographic diversity (Exh. VW-1, at 4-76). As stated above, Eversource has

---

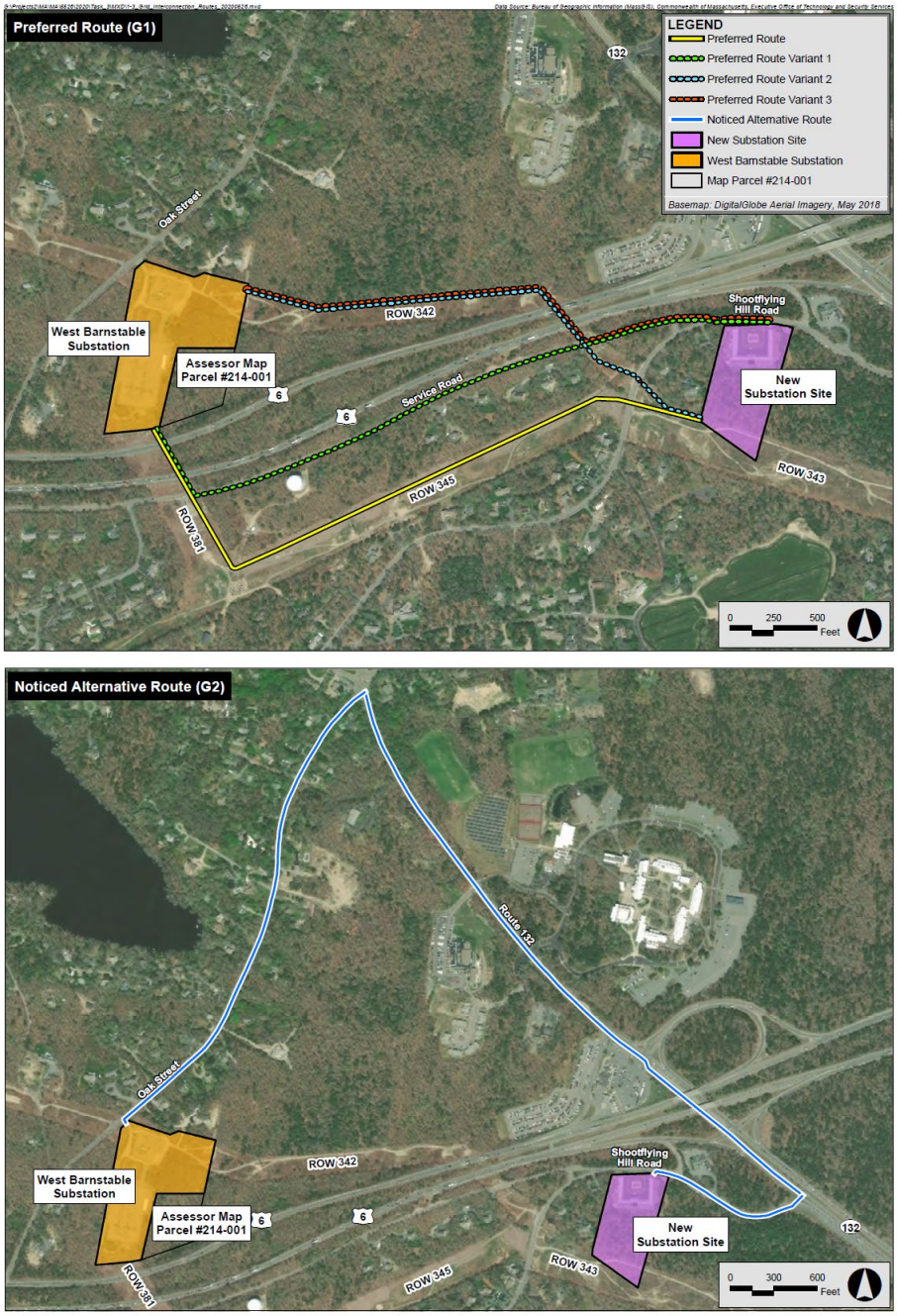
42 On February 28, 2023, Eversource filed a zoning exemption petition with the Department in D.P.U. 23-22 in connection with the proposed modifications of its West Barnstable Substation. The proposed modifications would establish new 345 kV transmission capabilities at the West Barnstable Substation.

selected a cable route between the Onshore Substation and the West Barnstable Substation. Figure 3 below shows a side-by-side comparison of the Company's preferred Onshore Cables route and three variants (Shootflying Hill Road Route) and its corresponding noticed alternative (Oak Street Route) and two variants.

Figure 3: Shootflying Hill Road Route (Preferred Route) and Oak Street Route (Noticed Alternative Route) and Variants

Source: Exh. VW-2, Figure 1-2.

Figure 4: Preferred Grid Interconnection Route, Noticed Alternative Grid Interconnection Route and Variants



Source: (Exh. VW-2, Figure 1-3).

C. Positions of the Parties

1. Mr. Akselson

Mr. Akselson's property and residence directly abuts the Noticed Alternative landfall at Covell's Beach (Akselson Brief at 1). Mr. Akselson states that Vineyard Wind has already begun constructing the Vineyard Wind Connector, which will make landfall at Covell's Beach (Akselson Brief at 2; see also Vineyard Wind at 77). Mr. Akselson asserts that there was a lack of transparency when Barnstable negotiated the Vineyard Wind Connector cables going ashore in Barnstable (Akselson Brief at 3). Mr. Akselson alleges that there was a "tacit transaction" of state and municipal regulatory approvals in exchange for an HCA (Akselson Brief at 2-3, citing Tr. 1, at 185). Specifically, Mr. Akselson contends that the Town provided land acquisition rights, and "presumed acquiescence as to regulatory approvals" in exchange for a "generous" HCA (Akselson Brief at 3). Mr. Akselson questions how the Town of Barnstable could act as an "impartial decision maker" regarding granting easements for use of its public spaces (Akselson Brief at 3). Mr. Akselson concludes that if regulatory agencies had compelled PCW to find a private landfall site away from "high concentrations of people," the process would have been "much fairer, and much less wasteful" (Akselson Brief at 4-5). Mr. Akselson also expresses concerns about the potential for PCW to bring another set of cables onshore in Barnstable (Akselson Brief at 3-4).

2. Ms. Johnson

Ms. Johnson acknowledges that the Onshore Substation is needed to transform the electricity generated offshore, but questions why the proposed Onshore Substation site was chosen by the Company (Johnson Brief at 32). Ms. Johnson faults the Company's preferred location for the Onshore Substation as lacking sufficient separation distance with its residential neighbors, and lacking sufficient size, which in turn resulted in the need to use more compact, gas-insulated switchgear technology – at substantially higher cost (Johnson Brief at 32). Without specifying a particular location, she argues that PCW could avail itself of an alternative Onshore Substation site somewhere else along the southern coast of Cape Cod that would be properly sized and a better location than the Company's preferred location (Johnson Brief at 32).

3. Company Response

PCW asserts that the Siting Board should reject Mr. Akselson's assertion that Barnstable had a conflict of interest in executing the HCA with PCW (Company Reply Brief at 2-3). The Company argues that Mr. Akselson offers no support for this claim (Company Reply Brief at 21). The Company asserts that it negotiated the HCA with the Town at "arm's length" over an extended period of time (Company Reply Brief at 21).

The Company contests Ms. Johnson's "drastic step" that the Onshore Substation should be re-located to another site somewhere else on Cape Cod (Company Reply Brief at 18). The Company defends its site selection process as reflecting a rigorous analysis of siting and routing options, amply explained in the record, as resulting in the most feasible Onshore Substation site (Company Reply Brief at 18). The Company contends that the Onshore Substation site is not too small, nor are there other feasible sites where the Company could relocate the Onshore Substation this late in the development of the Project (Company Reply Brief at 18-19).

D. Analysis and Findings on Route Selection

The Siting Board requires that applicants consider a reasonable range of practical siting alternatives, and that proposed facilities be sited in locations that minimize cost and environmental impacts. In past decisions, the Siting Board has found various criteria to be appropriate for identifying and evaluating route options for transmission lines and related facilities. These criteria include natural resource impacts, land use impacts, community impacts, cost, and reliability. NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77, at 30 (2018) ("Needham-West Roxbury") citing NSTAR Electric Company d/b/a Eversource Energy, EFSB 15-04/D.P.U. 15-140/15-141, at 65 (2018) ("Woburn-Wakefield"); Boston Edison Company d/b/a NSTAR Electric, EFSB 04-1/D.P.U. 04-5/04-6, at 43-44 (2005) ("Stoughton-Boston"). The Siting Board has also found the specific design of scoring and weighting methods for chosen criteria to be an important part of an appropriate route selection process. Needham-West Roxbury at 30, citing Woburn-Wakefield at 65; Stoughton-Boston at 43-44.

The record shows that PCW undertook a systematic approach to identify potential offshore and onshore routes to connect its proposed offshore windfarm to the New England

electric grid. The Company's route selection process involved a number of interrelated steps including the identification and evaluation of: (1) initial routing options between the Company's offshore lease area and onshore interconnection points; (2) potential landfall and substation sites; and (3) offshore and onshore transmission cable routes.

The Company's assessment identified 13 general routes from its offshore lease area to eleven onshore interconnection points. The Company applied initial screening criteria to eliminate route options that were excessively long or interconnection points that lacked the necessary interconnection capacity. The Company selected Eversource's West Barnstable Substation as the interconnection point for its Project based on the capacity available and other favorable factors there for interconnecting the proposed offshore windfarm. The Siting Board finds the Company interconnection point selection process to be appropriate and reasonable.

Next, the Company undertook a review of potential landfall sites. After selecting the West Barnstable Substation as the interconnection point, the Company narrowed down the list of potential landfall sites to five. The record shows that, through the application of screening criteria, the Company reasonably selected Craigville Beach and Covell's Beach as its preferred and noticed alternative landfall sites, respectively.

To identify a preferred Onshore Substation site, the Company evaluated four properties in the vicinity of the West Barnstable Substation based on factors such as site access, land availability, site topography, and surrounding land uses. An important characteristic of each candidate Onshore Substation site is the ability to interconnect with the West Barnstable Substation, which had previously been selected as the Company's preferred point of interconnection to the grid after an extensive evaluation process of numerous other locations, described above.

The Company's evaluation of the four Onshore Substation site candidates showed that all appear to viable locations, but that the proposed site at (8 Shootflying Hill Road) is advantageous. The record shows that the Clay Hill Parcel has hilly topography that would require significant grading, and therefore reduces the area needed to provide an effective buffer for an abutting residential property. In addition, site access via an unnamed private way posed an additional impediment. With regard to 661 Oak Street, this site has two private residences ten

feet from the property line and there is very limited space to provide adequate buffering/screening, and the record shows that these properties would probably need to be acquired by the Company. For the MassDOT Parcel, the Company regards it as a good location for the Onshore Substation, but PCW was deterred by the complexities of acquiring property from a state agency, and the uncertainties of such a process to the Project development timeline. Given these factors, the Company ultimately determined that the proposed Onshore Substation Site at 8 Shootflying Hill was its preferred location, based on such factors as size, site access, land availability, site topography, and surrounding land uses. Importantly, the Company found a willing landowner to make the 8 Shootflying Hill site available for purchase, and it has executed an option agreement to do so.

Ms. Johnson's concerns with noise from the proposed Onshore Substation Site are addressed in detail in Section VI.E.4.ii, *infra*. With regard to site selection, Ms. Johnson identifies some perceived defects in the Company's choice of site and recommends that the Company choose another site, at an unspecified location somewhere else on the south shore of Cape Cod. Despite her objection to the proposed Onshore Substation Site, Ms. Johnson failed to address whether any of the other candidate locations presented by the Company were even suitable, much less "clearly superior" to the location it proposed. Nor does Ms. Johnson suggest any other specific locations that she believes the Company ought to have considered. In addition, the Company explained why the Preferred site did not suffer from the defects identified by Ms. Johnson. Therefore, we find Ms. Johnson's argument lacking in sufficient detail, nor persuasive in establishing that the Company overlooked a "clearly superior" location for the Onshore Substation.

Rather, we find that screening criteria applied by the Company are generally consistent with the types of criteria the Siting Board has previously found to be acceptable. Mid Cape Reliability Project at 48; Beverly-Salem at 93; Stoughton-Boston, at 43-44. The record shows that the Company eliminated the three other Onshore Substation sites based on significant negative factors impeding the use of such locations. Accordingly, the Siting Board concludes that the record provides no indication of a clearly superior alternative site for the Onshore Substation that should have been evaluated further. In the subsequent analysis of Project impacts

in Section VI, the Siting Board evaluates the environmental impacts of only the 8 Shootflying Hill Road site.

PCW then proceeded to establish a set of potential routes for the Offshore Export Cables and Onshore Cables. PCW's proposed Offshore Export Cable route follows the same route but widened as OECC approved by the Siting Board in Vineyard Wind. The record shows that PCW's proposed offshore windfarm would be in a neighboring lease area to the Vineyard Wind offshore windfarm, and that it would make landfall in the same town (Barnstable). Thus, the Company built upon the analyses already carried out for the original OECC, and it carried out additional marine surveys in 2019 and 2020 to assess the suitability of the OECC to accommodate cables for both projects. Based on the Company's offshore route selection reasoning and process, the Siting Board concludes that PCW has chosen a reasonable Offshore Export Cable route and has not overlooked superior alternatives. In the subsequent analysis of Project impacts in Section VI, the Siting Board evaluates the environmental impacts of only the expanded OECC.

To aid in its selection of Onshore Cables routes, the Company considered routes (1) between the landfall site and the Onshore Substation site, and (2) between the Onshore Substation site and the interconnection point at West Barnstable Substation. The Company applied a set of screening criteria to narrow down the routes for each section of the Onshore Cables. The Company then used a weighted-scoring methodology on this narrowed down list to decide on its preferred and noticed alternative routes (and variants).[43] The weighted-scoring approach included consideration of impacts to the developed and natural environments of alternative routes. This is a type of evaluation approach that the Siting Board has previously found to be acceptable for transmission projects. New England Power Company d/b/a National Grid, EFSB 13-2/D.P.U. 13-151/13-152, at 38-39 (2014) ("Salem Cables"); New England Power Company d/b/a National Grid, EFSB 12-1/D.P.U. 12-46/12-47, at 45 (2012) ("IRP"); Stoughton-Boston at 43-45.

---

43 The Siting Board notes that the Company elected to carry forward all of the potential Onshore Cables routes it scored for further review, as did its predecessor in Vineyard Wind. While such an approach maintains numerous options for the proponent, it also adds complexity to the subsequent siting review process.

PCW presented its preferred and noticed alternative routes for the Grid Interconnection. As a result of the TSA between the Company and Eversource, Eversource has selected a cable route, initially presented by PCW as its Preferred Route, that utilizes Eversource's existing ROWs 345 and 381; Eversource is not seeking to use any variants to this route or PCW's Noticed Alternative Route for the Grid Interconnection. Given the competitive scoring of the Grid Interconnection route favored by PCW and Eversource, and the ease of using Eversource ROWs in this manner, the Siting Board finds it reasonable to focus solely on reviewing and minimizing the impacts of the proposed Grid Interconnection route in section VI below.

Finally, the record shows that PCW identified transmission line routes that would use different roadways to reach the Onshore Substation site. The Siting Board therefore concludes that the Shootflying Hill Road Route and the Oak Street Route encompass a measure of geographic diversity.

Accordingly, based on the route selection process described above, the Siting Board finds that the Company has: (1) developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are clearly superior to the proposed project; and (2) identified a range of practical transmission line routes with some measure of geographic diversity. Therefore, the Siting Board finds that the Company has demonstrated that it examined a reasonable range of practical siting alternatives while seeking to minimize cost and environmental impacts.

VI. ANALYSIS OF PROJECT IMPACTS

In Sections VI.B through VI.E, *infra*, the Siting Board addresses the environmental and safety related impacts of the Project in the following sequence: (1) the Offshore Export Cables; (2) the landfall site; (3) the Onshore Cables consisting of two segments: (a) the Onshore Route from the Landfall to the Onshore Substation; and (b) the Grid Interconnection (from the Onshore Substation to the Point of Interconnection at the West Barnstable Substation); and (4) the Onshore Substation.

A. Standard of Review

In implementing its statutory mandate under G.L. c. 164, §§ 69H and 69J, the Siting Board requires a petitioner to show that its proposed facility minimizes costs and environmental impacts while ensuring a reliable energy supply. Beverly-Salem at 41-42; Andrew-Dewar at 44-45; New England Power Company d/b/a National Grid, EFSB 10-1/D.P.U. 10-107/10-108, at 39 (2012) ("Hampden County"). To evaluate the proposed facility, the Siting Board first determines whether the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures to enable the Siting Board to make such a determination. The Siting Board then examines the environmental impacts of the proposed facilities and determines: (1) whether environmental impacts would be minimized; and (2) whether an appropriate balance would be achieved among conflicting environmental impacts as well as among environmental impacts, cost, and reliability. Mid Cape Reliability Project at 50-51; Beverly-Salem at 41-42; Sudbury-Hudson at 78.

B. Description of Project Elements

1. Description of Offshore Export Cable Routes and Landfall Sites

The Company stated that the Project would require two Offshore Export Cables to provide sufficient redundancy (Exh. VW-1, at 1-13). PCW explained that each cable would be a separate circuit that is electrically independent, and that each cable would be dedicated to one group of turbines with a generating capacity of 400 MW (Tr. 1, at 95-97). The OECC in which the two Offshore Export Cables would be located has a typically width of approximately 3,800 feet (Exh. VW-1, at 1-37).[44] As noted above, the OECC was originally proposed by Vineyard Wind for the Vineyard Wind Connector (Exh. VW-1, at 1-37). As part of this Project, PCW proposes to widen the OECC by approximately 985 feet to accommodate both sets of cables for both projects (Exhs. VW-7, at 1-37; EFSB-RS-23).[45]

---

[44] The Company explained that the width would range between 3,100 to 5,100 feet (Exh. VW-1, at 1-37).

[45] The Company stated that it would widen the OECC to the west except for a stretch of the corridor through the Muskeget Channel area, for which the Company will widen the

The Offshore Export Cables would generally be located to the west of the Vineyard Wind Connector; however, the Company requests permission to place the cables at any location within the expanded OECC (Exh. EFSB-MC-4; Company Brief at 13). The Company proposes a minimum separation distance of 165 feet between its two Offshore Export Cables, and a minimum spacing of 330 feet between the Project cable and the Vineyard Wind Connector cables (Tr. 2, at 283-284). The Company asserts that these separation distances are enough to facilitate installation and repair of one cable without disturbing the other cables (Tr. 2, at 284).[46]

The OECC traverses 22 miles of state waters and approximately 39 miles of federal waters and would terminate at the Craigville Beach (or Covell's Beach) landfall site (Exh. VW-1, at 4-48). The Offshore Export Cables would run from the northern part of PCW's Lease Area in federal waters, cross into state waters, and then pass through federal waters again in Nantucket Sound before re-entering state waters to make landfall in the Town of Barnstable (Exh. VW-7, at 2-1, Fig. 2-2). The Company would install the Offshore Export Cables by trenching up to approximately 1,000 feet from shore, where the Company would use HDD to reach the landfall site (Exh. PCW-12, at 4).

PCW's preferred landfall site, Craigville Beach, is located in the central part of the Centerville Harbor bight[47] in Barnstable (Exh. VW-1, at 4-11). The Company would route the Project cables underneath the recreational beach area, to a 3.5-acre Town-owned paved parking area (Exh. VW-1, at 1-14, 4-11). The Company's proposed alternative landfall site is Covell's Beach, which was previously approved by the Siting Board for the landfall of the Vineyard Wind Connector. See Vineyard Wind at 58. At Covell's Beach, the Company would also install the Project cables under the beach, leading to a paved parking lot owned by the Town of Barnstable

---

corridor to the east (Exhs. VW-1, at 1-37; see Exh. VW-7, Fig. 1-4). PCW also indicated that the expanded OECC would have sufficient space cables for a third set of offshore export cables (Exhs. VW-7, at 2-5; EFSB-RS-22; Company Brief at 12 n.15).

46 PCW asserts that, because of the cable spacing, it is unlikely that any single event could affect multiple cables (Tr. 2, at 286-287).

47 A "bight" is a curve or recess in a coastline, river, or other geographical feature. http://oxforddictionaries.com/definition/english/bight.

(Exh. VW-1, at 4-11, 5-57). The Company proposes to use the Craigville Beach landfall site for either of the onshore routes described below, with the Covell's Beach landfall as a variant (Exh. VW-1, at 1-23). The Covell's Beach landfall would add approximately 0.4 miles of additional length to either onshore route (Exhs. VW-1, at 1-23; VW-7, at 2-23).

2. Description of Onshore Cables Routes

a. Shootflying Hill Road Route and Proposed Variations

The Shootflying Hill Road Route starts at the Craigville Beach landfall site and travels northward, mostly within existing roadway layouts, except for a portion that crosses beneath the Centerville River, and an approximately 0.2-mile underground portion along Eversource ROW 343 where the cables would enter the Onshore Substation site (Exhs. VW-1, at 1-22 to 1-23; VW-2, Fig. 1-2). Centerville River is a tidal waterbody that ebbs to the west and drains into Nantucket Sound from Easy Bay in Barnstable (Exh. VW-1, at 1-27). The roads traversed by the route include Craigville Beach Road, Main Street (in the Centerville Historic District), Old Stage Road, and Shootflying Hill Road (Exh. VW-1, at 1-22). The route would also cross Route 28 (Exh. VW-1, at 1-22). See Figure 3 in Section V.B.6, *supra*, for an overview of the route.

PCW proposed three variants for the Shootflying Hill Road Route (Exh. VW-1, at 4-17 to 4-18). Variant 1 would use the Covell's Beach landfall site instead of Craigville Beach, adding 0.4 miles to the length of the route (Exh. VW-1, at 1-23, 4-17 to 4-18). Variant 2 would avoid the Centerville Historic District by diverging at the intersection of Craigville Beach Road and South Main Street (Exh. VW-1, at 1-24, 4-18). The detour would then follow South Main Street eastward to Main Street, then northward along Phinneys Lane and northwest along Great Marsh Road, adding 1.2 miles to the route (Exh. VW-1, at 1-24, 4-18). This variant also comprises several sharp bends that could complicate engineering and construction activities (Exh. VW-1, at 1-24, 4-18). Variant 3 would approach the Onshore Substation site from the north off of Shootflying Hill Road instead of south from Eversource ROW 343 by continuing along Shootflying Hill Road for an additional 0.3 miles (Exhs. VW-1, at 1-24, 4-18; VW-2, Fig. 1-2).

b. Oak Street Route and Proposed Variations

The Oak Street Route begins at the Craigville Beach landfall site and proceeds northward on Craigville Beach Road before crossing beneath the Centerville River (Exhs. VW-1, at 1-25, 4-18 to 4-19; VW-2, Fig. 1-2). At the intersection of Craigville Beach Road and South Main Street, the Oak Street Route follows the same route as Variant 2 of the Shootflying Hill Road Route, continuing northeasterly on South Main Street for approximately 0.7 miles, turning sharply west on Main Street for approximately 0.4 miles to Mothers Park Road where it turns briefly to the north for approximately 0.1 miles to join Phinneys Lane, and then continuing northeast on Phinneys Lane for approximately 0.4 miles, crossing Route 28 and turning west on Great Marsh Road (Exh. VW-1, at 1-25, 4-18 to 4-19). The Oak Street Route then follows Great Marsh Road for approximately 0.9 miles, crosses Shootflying Hill Road, turns northward onto Old State Road, then northeasterly onto Oak Street to Service Road, before continuing onto Shootflying Hill Road (Exh. VW-1, at 1-25, 4-18 to 4-19). See Figure 3 in Section V.B.6 for an overview of the route.

PCW presented two variants for the Oak Street Route (Exhs. VW-1, at 1-25, 4-19; VW-2, Fig. 1-2). Similar to the variant above for the Shootflying Hill Road Route, Variant 1 of the Oak Street Route would use the Covell's Beach landfall site instead of Craigville Beach (Exh. VW-1, at 1-25 to 1-26, 4-19). Variant 2 of the Oak Street Route would diverge from the route for about 1.6 miles to use Eversource's ROWs 345 and 343 between Old Stage Road and the Onshore Substation (Exh. VW-1, at 1-26, 4-19; VW-2, Fig. 1-2). This variant would be only 5.4 miles long, but 3.8 miles of it would be within roadway layouts (Exhs. VW-1, at 1-26, 4-19; VW-2, Fig. 1-2).

c. Grid Interconnection Route

As described in Section I.B.4, *supra*, PCW has executed a TSA with Eversource, under which Eversource will design, build, own, and operate the Grid Interconnection between PCW's Onshore Substation and Eversource's West Barnstable Substation, regardless of which route is used by PCW to reach its Onshore Substation (RR-EFSB-27 (S); RR-EFSB-27 (S 1); RR-EFSB-27 (S 2)). As stated above, the Siting Board finds it reasonable to review in detail only the Company Preferred Grid Interconnection. See Section V.D. The Grid Interconnection is located

entirely within existing Eversource ROWs and a parcel located southeast of West Barnstable Substation, namely Parcel 214-001 (Exh. VW-1, at 1-32; RR-EFSB-52 (S)).[48] The Grid Interconnection would consist of two approximately 4,000 foot-long (0.7 mile) 345 kV cables constructed underground (RR-EFSB-52 (S)). Eversource stated that it would install two splice vaults along the route (RR-EFSB-52 (S)). The Grid Interconnection would exit PCW's Onshore Substation in a duct bank on the south side of Onshore Substation site in a westerly direction, occupying the north side of Eversource's ROW 345, for approximately 0.5 miles (more than 3,000 feet) before turning north near Martha's Way site (Exh. VW-11, Fig. 1-10; RR-EFSB-52 (S), Att. 1)).[49] Along the final stretch of the route, the cables would transition from the duct bank to a trenchless configuration to cross Route 6 to reach Parcel 214-001 (RR-EFSB-52 (S); Exh. EFSB-ES-6). The cables would enter West Barnstable Substation from the east (RR-EFSB-52 (S)).

The Grid Interconnection route would cross Route 6 to reach Eversource's West Barnstable Substation (Exh. VW-1, at 1-32; RR-EFSB-52 (S)). Eversource proposes to cross Route 6 by "pipe jacking" and would not use HDD (RR-EFSB-52 (S); Eversource Brief at 3; Tr. 9, at 1273, 1275). Eversource indicated that it will conduct a "more detailed geotechnical investigation" to finalize the construction technique (Tr. 9, at 1273-1275). The Company stated

---

48 Parcel 214-001 is a 2.8-acre wooded parcel owned by PCW (Exh. EFSB-G-9 (S); RR-EFSB-50). The Company intends to remain the owner of the parcel and will work with Eversource on an agreement regarding utility's use of the parcel for Grid Interconnection facilities, potentially by granting an easement to Eversource (Company Brief at 25-26; Tr. 9, at 1270; RR-EFSB-68). Eversource is committed to obtaining the necessary easement rights from PCW (Eversource Brief at 3, citing Exh. EFSB-ES-6; Tr. 9, at 1269-1270).

49 On October 6, 2023, Eversource filed RR-EFSB-52 (S 2), which states that there have been "certain adjustments [made] to the alignment of the duct bank" in order to reduce the potential for "taking line outages during construction activities" among other things. Eversource provided a map that shows the adjustments (RR-EFSB-52 (S 2), Att. 1). We have reviewed the map as well as the text of the supplemental response, and we find that the changes in alignment are minor in scope. Therefore, we find that these changes do not alter in any way the analysis or findings made in this decision.

that MassDOT District 5 engineers and Route 6 construction documents both indicate that boulders would likely be encountered at the Route 6 crossing (Exh. VW-7, at 2-35).

C. Offshore Export Cable and Landfall Impacts

1. Offshore Export Cable Construction

The Company proposes to install two 10-inch diameter Offshore Export Cables, each of which will include a three-core 275-kV alternating current cable and a fiber optic cable (Exh. PCW-12, at 3). The Company would install the Offshore Export Cables primarily in soft sediments using a trenching tool to create a 3.3-ft wide trench in which the cable will be buried to a depth of five to eight feet and covered with sediment (Exh. PCW-12, at 3). The Offshore Export Cables will be typically installed at a rate of 328 to 656 feet per hour, 24 hours per day (approximately 1.5 miles to 3.0 miles per day) (Exh. PCW-12, at 3). Each cable will be separated from others by a minimum of 165 feet, and at least 330 feet west of the nearest Vineyard Wind offshore export cable – a distance that may be even greater in deeper waters (Exh. PCW-12, at 3).[50]

The Company anticipates the Offshore Export Cables will be installed primarily through use of a technique that simultaneously lays and buries the cable, such as a jet plow or mechanical plow (Exh. PCW-12, at 3). These trenching tools move along the seafloor on skids or tracks that are up to five feet wide (Exh. PCW-12, at 3). Cable installation will be done using vessels that pull the trenching tool and maintain position along the route by repositioning anchors (Exh. PCW-12, at 3). A nine-point anchor spread will be used to move the barge, which means that nine anchors will be used to reposition the barge each time it is moved (Exh. PCW-12, at 3). The

---

[50] According to the Company, the proposed distances between cables and cable pairs are necessary to provide flexibility for routing and installation and for spacing for maintenance and repairs (Exh. PCW-12, at 3). In addition, the minimum spacings are necessary to minimize the risk of cable damage from anchors, ensure redundancy in the event that one of the cables is damaged, and to provide adequate space for vessels to position for repairs and cable splices (Exh. PCW-12, at 3). If a cable were to fail, it would be uncovered, cut and brought onto the deck of a repair vessel (Exh. PCW-12, at 3). A new section of cable would then be installed and connected to the original cable with two subsea repair joints (Exh. PCW-1, at 3).

Company noted that this will result in greater impacts to benthic habitat compared to the use of the five-point anchor spread proposed for the Vineyard Wind Connector, but it will provide greater force on the cable burial tool and increase the likelihood that the cable will be buried adequately (Exh. PCW-12, at 3). Because installation of the Offshore Export Cables requires a dedicated complement of construction vessels, one cable will be installed at a time (Exh. PCW-12, at 3). The Company stated that it considered the use of dynamic positioning vessels that would avoid anchoring, however, many portions of the OECC are too shallow for these types of vessels (Exh. VW-11, at 2-13). While the Company plans that the anchored vessels avoid sensitive seafloor habitat to the greatest extent possible, it stated that it could also use mid-line buoys to reduce impacts from anchor sweep (Exh. VW-7, at 4-5). The Company explained that mid-line buoys are placed along the anchor line and used to support the weight of the line, holding it above the seabed (Exh. VW-7, at 4-5).

The Company would conduct a pre-lay survey using a multibeam echosounder, sidescan sonar and magnetometer up to three months before cable installation to identify any new obstructions that were not previously observed within the cable route (Exh. PCW-12, at 3). The pre-lay survey will produce a set of coordinates detailing the final route in which the cable will be installed (Exh. PCW-12, at 3). Approximately two months prior to commencement of cable laying activities, the Company will conduct a grapnel run along the proposed cable route to clear obstructions, such as abandoned fishing gear and other marine debris (Exh. PCW-12, at 3).

In areas where mobile sand waves are present on the ocean floor, the trench will be dredged using either a trailing suction hopper dredge ("TSHD") or, for sand waves less than 6.6 feet high, jetting by controlled flow excavation (Exh. PCW-12, at 3). Sediment dredged using TSHD will be discharged onto a dredge barge, then released back into the water column in an area with sediments similar to the dredged material (Exh. PCW-12, at 3-4). To adequately bury the cables in areas with large sand waves, the trench for each cable may be dredged with 3:1 side slope and a bottom width of 50 feet (Exh. PCW-12, at 4).

Where subsurface conditions prevent burial of the cable, it will be placed on the seafloor and covered with protective armoring, which may include rocks, gabion rock bags, concrete mattresses or half-shell pipes (Exh. PCW-12, at 4). The Company does not anticipate that the

Offshore Export Cables will cross over any other cables along the route (Exh. PCW-12, at 4). However, some cable crossings may become necessary in the future with other projects proposed along the same cable corridor, and in such instances, cable protection would also be required if a crossing is necessary (Exh. PCW-12, at 4).

According to the Company, armoring that includes shells, gravel, cobbles, boulders would most closely resemble the hard-bottom habitat present along the cable route and provide high ecological value while protecting the cable (Exh. PCW-12, at 4). The Company estimated that rock armoring would cover a 30-foot-wide area over the cable to provide adequate protection due to sides slopes of the rock mound (Exh. PCW-12, at 4). Gabion rock bags are metal cages filled with rocks of a variety of sizes; according to the Company, gabion rock bags could also have high ecological value, especially if shells were incorporated (Exh. PCW-12, at 4). According to the Company, concrete mattresses are widely used for cable protection and provide a hard substrate for epifaunal attachment, but do not have the surface complexity that provides shelters and may become covered in sand over time (Exh. PCW-12, at 4). The Company estimated that concrete mattresses would cover only a 10-foot-wide area over the cable (Exh. PCW-12, at 4). Half-shell pipes have the most limited ecological value of all of the armoring options due to their lack of holes and crevices, smooth texture and low relief (Exh. PCW-12, at 4). According to the Company, half-shells would only be used at cable crossing, which are not anticipated for this Project, or to protect cable that must be laid on the surface of the seabed (Exh. PCW-12, at 4). The Company did not commit to a particular cable protection method; however, the 30-foot-wide impact associated with rock armoring was used to quantify potential impacts of the Project (Exh. PCW-12, at 4).

After all the cable segments have been laid, the Company would splice the cable ends together (Exh. VW-7, at 10-6; Tr. 3, at 537-538). The Company stated that it may use a jack-up vessel or an anchored vessel to conduct the cable splicing (Exh. EFSB-MC-20). According to PCW, a jack-up vessel has three to six legs that can extend to the seafloor, elevating the vessel hull above the water's surface to create a stable working platform (Exh. EFSB-MC-24). A splicing vessel would travel to the splice locations and retrieve the ends of the installed cable (Exh. VW-7, at 10-6). After that, the Company would lower the spliced cable to the seafloor and

bury it (Exh. VW-7, at 10-6). PCW predicts that this process may take several days per splice and is dependent on favorable weather conditions (Exh. VW-7, at 10-6).

The Company expects installation of the Offshore Export Cables to require construction over a two-year period (Tr. 3, at 538-540). PCW expects to install the Offshore Export Cables only from April to September because of sea conditions adversely affecting cable-laying vessels (Exh. VW-7, at 10-9; Tr. 3, at 533). Additionally, sections of the cable will cross a squid fishery in Nantucket Sound (from the landfall sites to a distance of 15-17 miles offshore); to mitigate the impacts to the fishery, PCW stated that it would avoid any construction in that area in April, May, and June (Exh. VW-11, at 1-34).

2. Landfall Construction

PCW stated that it would use HDD at the selected landfall site, whether it is the Craigville Beach or Covell's Beach site (Exh. VW-7, at 2-29). HDD is a surface-launched trenchless system widely used to install pipelines under rivers, roadways, or other sensitive surface features (Exh. VW-7, at 2-29). The Company decided on this method to minimize impacts to the beach, intertidal zone and nearshore areas, and because it would ensure cables are sufficiently buried at the shoreline (Exh. VW-7, at 10-12). The Company expects to require 15 weeks to complete HDD for both cables (Exhs. VW-1, at 5-75; VW-7, at 10-14 to 10-15).

The Company explained that it would begin HDD installation by digging a ten-foot by twenty-foot approach pit in the beach parking lot (Exhs. VW-7, at 10-12; EFSB-LF-2, Att. 1). This pit would serve as the onshore entry point for the HDD drill itself as well as a reservoir for drilling fluids (Exh. VW-7, at 10-12). PCW would use an inert, bentonite clay drilling fluid to cool and lubricate the drill bit and other HDD equipment as the pilot hole is excavated (Exh. VW-7, at 10-12). Before HDD drilling, the Company would install a conductor sleeve by ramming it into the soil using a pneumatic hammer powered by a compressor (Exh. VW-1, at 5-96).[51]

[51] The Company stated that this conductor sleeve drilling would be the loudest construction activity related to the HDD (Exh. VW-1, at 5-96). The Company stated it does not anticipate use of an impact pile driver, which would generate more noise than other methods (RR-EFSB-21; Tr. 4, at 627-628).

A small pilot hole would be drilled through the conductor sleeve path from the approach pit out to the seafloor exit of the HDD (Exhs. VW-1, at 5-96; VW-7, at 10-12). Following completion of the pilot hole, the Company would then dig a shallow ten-foot by ten-foot hole at the HDD exit point approximately 1,000 feet offshore (Exh. VW-7, at 10-11, 10-13). PCW would then replace the cutting head on the HDD drill shaft with a reaming device and the pilot borehole would be widened to the appropriate diameter as the drill is pulled back towards shore (Exh. VW-7 at 10-13).

The Company would then pull a continuous piece of high-density polyethylene ("HDPE") conduit through the borehole, completing the HDD process for the cables (Exh. VW-7 at 10-13). Scuba divers would insert the cables into the exposed end of the HDPE conduit and the cables would be pulled through to the onshore connection (Exh. VW-7, at 10-13). Divers would then bury cable at the seaward end of the HDD, likely by hand-jetting a small area of seafloor to allow the cable to the desired depth (Exh. VW-7, at 10-13).

The HDD path at either the Craigville Beach Landfall or the Covell's Beach Landfall would be 1,000 to 1,200 feet long (Exhs. VW-1, at 5-75; VW-7, at 10-11). The Company currently expects the HDD trajectory to pass 40 feet below the ground surface (at mean high water) (Exh. VW-11, at 5-4). The Company reported that the HDD activity would occur in the off season[52] and be staged within the Town-owned paved parking lots at either landfall site (Exhs. VW-1, at 5-73; VW-7, at 10-12; EFSB-T-33). The Company expects that HDD would be conducted during normal work hours (Monday through Friday, 7.00 a.m. to 6.00 p.m.) (Exh. VW-7, 10-27; Company Brief at 142, citing Exhs. VW-1, at 5-94; EFSB-NO-4).

3. Offshore Export Cables and Landfall Environmental Impacts

a. Land Use and Water Resources

PCW is proposing one Offshore Export Cables route within the expanded OECC previously approved for Vineyard Wind. PCW asserts that it has analyzed and minimized construction-related impacts to offshore resources (Exh. VW-1, at 4-50 to 4-65; Company Brief

---

[52] The Company defined the local "off season" as the period outside of Memorial Day to Labor Day (Exh. VW-1, at 5-75).

at 96). PCW stated that, under the Massachusetts Wetlands Protection Act, the entire OECC is located within Land Under the Ocean (310 CMR 10.25), and certain segments also pass through Land Containing Shellfish (310 CMR 10.34) (Exh. VW-1, at 4-60).[53] Offshore portions of the Project will be located within the Towns of Barnstable, Edgartown and Nantucket, and the Project requires Orders of Conditions under the Massachusetts Wetlands Protection Act from conservation commissions in these towns (Exh. PCW-12, at 2, 9). Additionally, while the OECC passes through a small portion of Mashpee state waters, the Company does not propose to locate the Offshore Export Cables in that portion of the OECC (Exh, VW-7, at 1-1; Company Brief at 10 n.13).

The Company stated that it minimized seafloor impacts primarily by avoiding special, sensitive and unique resources ("SSUs") in its selection of the OECC (Exh. VW-1, at 1-9 to 1-10). According to the Company, the majority of the offshore corridor consists of low-complexity bottom habitats, primarily classified as flat/sand mud, sand waves, or biogenic structures (Exh. VW-7, at 2-16). However, the Company stated that the OECC avoids the deepest parts of the Muskeget Channel, which contain areas of hard/complex bottom (Exh. VW-7 at 2-12). Table 5, *infra*, provides a summary of the calculated impacts for offshore construction in state and federal waters.

Table 5. Offshore Export Cables Corridor Characteristics and Impacts from Installation of Two Offshore Export Cables.

	State Waters Only	State & Federal Waters
Offshore Export Cable Corridor Characteristics		
Total Length (per cable, miles)[1]	23 (37 km)	63 (101 km)
Volume of sand wave dredging (nearest 1,000 m^3)[2]	84,000 (110,000 cy)	135,000 (177,000 cy)
Estimated length of dredging (miles)	4.2 (6.8 km)	10.1 (16.3 km)
Volume of sediment fluidized in trench (nearest 1,000 m^3)[3]	112,000	306,000
Impact Calculations		
Trench impact zone (acres)[4]	18	50
Disturbance zone from tool skids/tracks (acres)[5]	56	153
Direct dredging impacts (acres)[6]	26	52
Anchoring (acres)[7]	12.7	34.8
Cable Protection (acres)[8]	7.2-21.5	7.5-22.4
Hard Bottom, length & direct trenching impact area (MA OMP jurisdiction and definition)[9]	4.4 miles / 1.8 acres	N/A
Complex Bottom, length & direct trenching impact area (MA OMP jurisdiction and definition)[9]	14.7 miles / 5.9 acres	N/A

53 PCW stated that the offshore portion of the Project would be occur over flowed tidelands, and as such would be subject to MassDEP jurisdiction under G.L. c. 91 ("Chapter 91") (Exh. VW-7, at 2-74). PCW stated that the Project is a water-dependent use as defined by 310 CMR 9.12(2)(e) (id., at 2-74).

Source: (Exh. VW-11, at 2-11, Table 2-5).

PCW would route the Offshore Export Cables to avoid the one area of eelgrass identified by the Company (Exhs. VW-1 at 5-28; VW-7, at 2-66 to 2-67; EFSB-F-3; EFSB-F-4; Tr. 3, at 433-434).[54] The Company committed to working with MassDEP, DMF and CZM in developing mitigation strategies if it encounters unmapped eelgrass area (Exhs. VW-1, at 5-29; EFSB-F-3; Tr. 5, at 434-435). The Company does not anticipate any permanent impacts on eelgrass or potential future eelgrass beds (Company Brief at 110; EFSB-F-3).

PCW performed a marine archaeological assessment pursuant to BOEM's requirements (Exh. VW-11, at 4-1 to 4-2). The Company stated that there is a single potential shipwreck site within the federal waters portion of the OECC, which it will avoid (Exh. VW-11, at 4-2; RR-EFSB-82).[55] The Company added that, if it discovers historic or archaeological resources along the OECC corridor, it will work with relevant agencies to determine the best approach to address those resources (Exh. EFSB-ML-4). The Company will also develop an Unanticipated Discoveries Plan in consultation with federal and state agencies (Exhs. EFSB-ML-4; EFSB-LU-14).

The Company added that it further minimized seafloor impacts by selecting localized construction methods for cable burial (Exhs. VW-1, at 4-53, 5-65; EFSB-ML-5(a)). PCW's proposed methods of cable installation – jetting techniques and mechanical plowing – both create a temporary disturbance approximately 3.3 feet wide (Exhs. VW-1, at 4-53, 5-65; VW-7, at 4-4; EFSB-ML-5(a)). The Company added that both methods may move along the seafloor on skids or tracks around five feet wide, resulting in a cumulative ten-foot impact wide area for the two Offshore Export Cables (Exhs. VW-7, at 4-4; VW-11, at 2-11, Table 2-5). The Company expects impacts from skids or tracks to be minor however, as the tracks will not dig into the

---

54 The Company's 2018 marine survey showed a single patch of eelgrass along the Western OECC co-located with an area of hard bottom around Spindle Rock near the Covell's Beach landfall site (Exh. VW-7, at 2-63 to 2-65).

55 The Company stated that the any mitigation measures for the site would be developed and finalized through the NEPA process led by BOEM (RR-EFSB-82).

seabed (Exh. VW-7, at 4-4). The Company allows for contractors to "micro-site" cables to avoid areas of hard bottom or boulders (Exh. VW-7, at 10-5).

The Company noted that a 2017 BOEM study that observed a temporary 2.7-inch-high "overspill levee" on either side of the cable placed for the Block Island windfarm was only noticeable for a few days following construction and dissipated within one to two weeks (Exh. VW-7, at 4-4 to 4-5; Company Brief at 97; Tr. 3, at 488-490). The Company commits that it would use the least environmentally impactful cable installation method that is practicable for each segment of cable installation (Exh. VW-7, at 4-5; Company Brief at 97).

PCW asserts that it would minimize impacts from anchoring during offshore Project construction (Company Brief at 97). The Company will position vessel anchoring to try to avoid sensitive habitats and SSU areas, and contractors will be provided with maps showing areas of sensitive habitats to avoid (Exh. VW-1, at 4-54; see also Section VI.D.1.a). The Company will also ensure that anchoring would only occur within the surveyed areas of the OECC and not in areas of eelgrass (Exhs. VW-1, at 4-54; EFSB-M-8(a)). The Company contends that the anchor impacts would be temporary (Exh. VW-11, at 2-14; Tr. 9, at 1402).

PCW asserts that Project construction would only result in localized, temporary impacts to water quality, specifically temporary sediment disturbance causing increases in localized total suspended solids along the OECC (Exhs. VW-1, at 4-65; VW-7, at 8-5; VW-11, at 2-18 to 2-20). In order to gain a thorough understanding of the sediment dispersion resulting from construction of the Project, the Company completed a hydrodynamic and sediment dispersion modeling study for both sand wave dredging and cable installation ("Sedimentation Study") (Exh. VW-7, at 8-5 to 8-6). According to the Company, sand wave removal via TSHD showed total suspended solids ("TSS") concentrations greater than ten milligrams per liter ("mg/L") up to ten miles away but these concentrations persisted for no more than six hours (Exh. VW-7, at 8-7 to 8-8). For cable installation activities, the modeling showed that above-ambient TSS concentration would fully dissipate in four hours (Exh. VW-7, at 8-8). The Company asserts that the concentration and duration of TSS are below the levels that would cause sub-lethal or lethal effects to fish and benthic organisms (Company Brief at 103-104, citing Exh. EFSB-F-11).

In accordance with federal requirements, PCW will prepare an Oil Spill Response Plan that shows the Company can respond effectively in the event of an incident (Exhs. VW-1, at 4-67; VW-7, at 8-9). The Company will also conduct routine training and exercises based on the response plan and use secondary containment systems at operating areas more prone to spillage (Exhs. VW-1, at 4-67; VW-7, at 8-9). The Company argues that it has mitigated construction-related impacts to marine water quality along the offshore route (Company Brief at 104). The Company does not anticipate any permanent impacts on marine water quality (Company Brief at 110).

Regarding the Project's landfall sites, the HDD cable installation would cross under wetland resource areas such as barrier beach systems, coastal dunes, and coastal beaches at the preferred Craigville Beach landfall site (Exh. VW-7, at 4-2, 4-17). At the Covell's Beach landfall, Land Subject to Coastal Storm Flowage ("LSCSF") would also be impacted (Exh. VW-7, at 4-2, 4-17). The Company does not expect HDD activities to permanently impact coastal wetlands resource areas as the HDD activities would be confined to the paved parking lots and the underground HDD path from the chosen landfall site (Exhs. VW-1, at 5-11 to 5-14; VW-7, at 4-28 to 4-31). The Company also stated that the HDD installation alignment proposed for the Covell's Beach landfall site would entirely avoid impacts to eelgrass (Exh. VW-7, at 4-22 to 4-23). While HDD would use a portion of the paved parking lot for either landfall site, the Company stated that it will work with the Town of Barnstable to ensure reasonable access to beaches during HDD construction (Exhs. VW-1, at 5-73; VW-7, at 10-12). The Company stated that it would restore and repave the parking lot after completing construction (Exhs. VW-1, at 5-75; VW-7, at 10-14; EFSB-RS-7).

PCW also does not expect HDD activities to result in any permanent impacts related to erosion at either landfall site (Exh. VW-7, at 6-4; Company Brief at 121). During construction, the Company's contractor will employ and maintain standard erosion and sediment control methods as needed to prevent erosion and sediment-related impacts from Project construction (Exhs. VW-1, at 5-101 to 5-103; VW-7, at 10-59 to 10-60).

PCW stated that HDD poses a slight chance of drilling fluid leakage during construction (Exh. VW-7, at 10-52). To mitigate impacts relating to a drilling fluid leak, PCW would utilize

bentonite clay, an inert drilling fluid, which the Company maintains poses minimal environmental risk (Exh. VW-7, at 4-10; Company Brief at 115). PCW also stated that it will maintain adequate depth of cover to help prevent drilling fluid seepage during HDD activities (Exhs. VW-1, at 5-75; VW-7, at 10-15). The Company added that it would choose an HDD trajectory of smooth and gradual vertical curves to reduce the likelihood of pressure build-ups that could cause fluids to escape the drill path (Exhs. VW-1, at 5-76; VW-7, at 10-15; EFSB-LF-11(a); Tr. 4, at 630). The Company also anticipates that its contractor may use other controls such as silt curtains (Exh. VW-7, at 10-52). The drilling crew performing the HDD will monitor drilling fluid seepage (Exhs. VW-1, at 5-77; VW-7, at 10-16). The crew will notify the project manager and implement mitigation measures, including potentially stopping the rig pumps, if seepage has occurred (Exh. VW-1, at 5-77; VW-7, at 10-17).

The Company reported that the HDD process would produce a slurry of drill cuttings and excess drill fluids (Exh. VW-7, at 10-14). During the drilling, the Company would collect this slurry from the approach pit and process the slurry through a recycling system where the drill cuttings are separated from the reusable drill fluids (Exh. VW-7, at 10-14). PCW plans on trucking the non-reusable drill cuttings and excess drill fluids to an appropriate disposal site (Exh. VW-7, at 10-14). PCW contends that it has appropriately mitigated potential impacts associated with HDD drilling fluids (Company Brief at 117).

The Company stated that Craigville Beach and Covell's Beach are public recreational spaces subject to Article 97 (Company Brief at 121; Exhs. VW-1, at 5-51 to 5-52; EFSB-G-5). The Company contends that with the use of HDD, the Project would not affect the recreational value of the beaches protected by Article 97 (Company Brief at 121). Nonetheless, PCW will include measures in compliance with the Executive Office of Energy and Environmental Affairs ("EEA") interpretation of its Article 97 policy (Exhs. VW-1, at 4-33; VW-7, at 2-37 to 2-38, 2-42 to 2-45; EFSB-G-5; EFSB-G-14; EFSB-LU-2). The Company's HCA with the Town of Barnstable supports the Project's use of Craigville Beach landfall site and the Company's pursuit of Article 97 approval (Exh. EFSB-G-14 (S), Att. 1, at 3-4, 8). As stated in Section V.B.2, the Commonwealth granted Article 97 approval for use of the Craigville Beach parcel for the Project in Chapter 135 of the Acts of 2022.

The Company's predecessor previously secured Article 97 authorization for the Covell's Beach landfall site for the Vineyard Wind Connector (Exh. EFSB-LU-4; see also Vineyard Wind at 52). PCW stated that the HDD at the Covell's Beach variant would likely use the western portion of the parking lot, which could temporarily restrict access to the eastern portion of the lot during construction (Exhs. VW-1, at 5-73; VW-7, at 10-12). However, the Company indicated that it would not require further Article 97 authorization for Covell's Beach (Exh. EFSB-LU-4). Accordingly, the Company argues that it has avoided permanent impacts to open space, conservation, and recreation lands at either landfall site (Company Brief at 122).

i. Analysis and Findings on Land Use and Water Resources

PCW proposes to expand and share the OECC that Vineyard Wind Connector will use, and has no other offshore route under active consideration. See Section V.B.4.b, *supra*. The Company requests permission to install the Offshore Export Cables anywhere in the OECC (Exh. VW-1, at 1-3 to 1-4). The Company has conducted extensive marine surveys of the OECC to ascertain the seafloor characteristics. The record shows that the Company will avoid SSU resources and hard/complex bottoms on the seafloor through cable routing. The Company's cable route will also avoid eelgrass and archaeological sites, with contingency plans in place should the Company unexpectedly encounter these features. The record also shows that the cable construction methods proposed by the Company will only have localized impacts to the seafloor, and that those impacts would be temporary. The Siting Board finds that the land use and water resources impacts related to the construction of the Offshore Export Cables would be minimized.

With respect to water quality impacts associated with offshore construction, the record shows that sand wave dredging and cable installation would result in temporary increases in suspended sediment concentrations, but that these impacts would be of limited extent and duration. The record also shows that the concentrations and durations of the elevated TSS values would not affect fish and benthic organisms. The Siting Board finds that the impact of cable construction on water quality would be minimized.

PCW proposed to use HDD to transition the Offshore Export Cables to Onshore Cables at its selected landfall site. The record shows that the use of HDD allows the Company to avoid

wetland resources at either Craigville Beach or Covell's Beach landfall sites. The Company will also implement a number of mitigation measures to reduce the likelihood of erosion and drilling fluid leaks. The Siting Board finds that with the implementation of the Company's mitigation measures, the impacts to land use and water resources at either landfall site are roughly equivalent, and would be minimized.

With respect to onshore construction at the landfall sites, Article 97 approval would be required for the Craigville Beach and Covell's Beach landfall site. The Town of Barnstable supported the issuance of an easement over Craigville Beach, and the Commonwealth issued the Article 97 approval required for the Craigville Beach landfall site in 2022. Covell's Beach already received Article 97 approval as the landfall site for the Vineyard Wind Connector. See also Vineyard Wind at 52. According to the HCA, PCW also agreed to limit any staging on the landfall site to equipment and materials required for construction within the landfall site beach easement, with all other staging required to occur at another location (Exh. EFSB-G-14 (S), Att. 1, at 13). The Company will also repave the parking lot the Town's satisfaction (Exh. EFSB-G-14 (S), Att. 1, at 13).

While the impacts to land use and water resources at either landfall site are roughly equivalent, and would be minimized, the Siting Board notes that both PCW and the Town of Barnstable have expressed a preference for use of the Craigville Beach landfall site (Company Brief at 13; Exh. EFSB-G-14 (S), Att. 1 at 3). Regardless of which onshore route is selected, the use of the Covell's Beach landfall site would add approximately 0.4 miles (along Craigville Beach Road) to the overall length of either route, with additional impacts related thereto. The Siting Board shares the view that the Craigville Beach landfall is preferable and directs the Company to use the Craigville Beach landfall for the Project, absent extenuating circumstances.[56] Regardless of which landfall is ultimately used, the Siting Board directs the Company to discuss with the Town of Barnstable whether to place signage on Craigville Beach

[56] Additional impacts, such as magnetic fields, proximity of abutters, etc., are evaluated below, and do not decisively favor either landfall site.

informing the public that the Onshore Cables are located under the beach, and to submit the results of such discussions to the Siting Board.

b. Impacts to Shellfish, Fish, and Protected Marine Species

i. Company Description

PCW asserts that it assessed and minimized potential offshore construction-related impacts to rare, threatened, endangered, and other marine and coastal species, including marine birds, marine mammals, and other noise-sensitive species, shellfish, and squid mops (Company Brief at 99).[57] The Company does not anticipate any permanent impacts to marine and coastal life (Company Brief at 109-10, citing Exhs. VW-7, at 9-10 to 9-12; VW-11, at 3-8 to 3-10).

The Company stated that the Project would not be located in any Massachusetts Ocean Management Plan ("OMP")-mapped core habitat areas for whale species (including the North Atlantic Right Whale) (Exhs. VW-1, at 1-38, 4-42, 4-47, 5-1; VW-7, at 2-12, 2-67; EFSB-F-15).[58] PCW stated that Project construction vessels would likely be large and travel at relatively low speeds, which would reduce the likelihood of vessel strikes to marine mammals and turtles (Exhs. VW-1, at 4-71; VW-7, at 9-12).

PCW maintains that marine mammals and sea turtles in the outer continental shelf are regularly subject to noise from commercial shipping vessels and other vessel traffic and are habituated to noise from such vessels (Exhs. VW-1, at 5-99; VW-7, 9-12; Company Brief at 101). The Company indicated that the Project vessels are expected to emit noise similar to other vessels, and that the noise impacts would be temporary and limited to the specific location of Project construction activities (Exhs. VW-1, at 5-99; VW-7, at 9-12; EFSB-NO-1). Additionally, the Company indicated that monitoring for marine mammals and turtles and associated setbacks and speed-regulation procedures, would reduce vessel noise levels in the vicinity of these species, further mitigating noise exposure (Exh. VW-1, at 5-99). PCW stated

---

[57] PCW stated that it would also conduct a formal consultation with the NMFS for listed species as part of the BOEM review process (Tr. 3, at 426, 431).

[58] The OECC is east of an area mapped as North Atlantic Right Whale core habitat (Exh. VW-7, at 2-12).

that noise impacts to sensitive marine species would be minimized in coordination with federal regulators and with reference to National Oceanic and Atmospheric Administration guidance (Exh. VW-1, at 4-71).

The Company contends that while Project construction vessels may disturb certain marine birds, any disturbance or displacement would be temporary and limited to a small part of the installation corridor at any given time, specific to the location of cable installation (Exhs. VW-1, at 4-69, 5-22; VW-7, at 9-10; VW-11, at 3-8). The Company stated that NHESP mapped all state waters within Nantucket Sound and Muskeget Channel as priority habitat for state-listed rare species including birds (largely shorebirds such as piping plover, least tern, and roseate tern) that occupy coastal waters (Exhs. VW-1, at 4-67, 5-22).

According to the Company, NHESP has listed the Centerville Harbor shoreline, which includes the beach and some of the dunes adjacent to the Craigville Beach and Covell's Beach landfall sites, as "Priority Habitat" for piping plover (Exh. VW-7, at 9-7). The Company stated that it submitted a Massachusetts Endangered Species Act ("MESA") Checklist to NHESP and received a Determination on April 1, 2022 that the Project would not result in a "take" of any protected species, provided that the Company follows provisions in its Piping Plover Protection Plan (Exh. PCW-14). The Company has also developed a Piping Plover Protection Plan for either construction site, similar to the one previously used for the Vineyard Wind Connector (Exh. VW-11, at 3-7 to 3-8; Tr. 2, at 384).[59] The Company explained that its use of HDD would extend underneath the beach, avoiding disturbance to mapped piping plover habitat (Exh. VW-11, at 3-7). In consultation with NHESP, the Company committed to beginning HDD work at the landfall site prior to April 1, or after Labor Day, to minimize noise impacts to piping plover during the breeding season (Exhs. VW-7, at 9-8; VW-11, at 1-33 to 1-34). This time-of-year

[59] The Company submitted its draft Protection Plan as an exhibit to its Petitions. See Exh. VW-1, Att. K). The purpose of the Piping Plover Protection Plan is to avoid impacts to piping plovers and their habitats during nesting season, April 1 to August 31 (Exh. PCW-14, at 1). NHESP previously approved the Protection Plan for the Vineyard Wind Connector in May 2019 (Exh. VW-1, at 5-12).

restriction was incorporated into the Project's 401 Water Quality Certification issued May 12, 2023 (Exhs. PCW-16; VW-11, at 1-33 to 1-34).

The Company reported that it did not expect cable installation activities to adversely affect the terns' primary food source, sand lance, in shallower coastal areas (Exhs. VW-7, at 9-11; VW-11, at 3-9). As stated above, the Company's dispersion modeling showed that exposure levels of suspended sediment from cable installation would fully dissipate in four hours (Exhs. VW-7, at 9-11; VW-11, at 3-9; EFSB-F-11; see Section VI.D.2.i). The Company added that cable installation would occur primarily in the deeper waters instead of shallower areas, where roseate terns typically forage (Exhs. VW-7, at 9-11; VW-11, at 3-9).

The Company also identified the potential for collisions between birds and lighted vessels during construction in low-light and poor weather conditions (Exh. VW-11, at 3-8). The Company explained that given that it would only conduct activities in any given area for a short period of time, the possibility that birds could collide with the vessels is mitigated (Exhs. VW-1, at 4-69; VW-7, at 9-10; VW-11, at 3-8).[60] The Company stated that there may be temporary disruption to limited areas where birds forage (Exh. VW-7, at 9-10). PCW also stated that it would conduct an avian and bat post-construction monitoring program (Exh. VW-11, at 3-10).

The Company reported that the OECC would cross areas mapped for surf clam and blue mussel in Nantucket Sound, and for quahog at the Centerville River crossing (Exh. VW-7, at 4-23). As stated in Section VI.D.2.a, the Company expects that its construction methods would result in temporary elevation of TSS concentrations close to construction (Exh. VW-7, at 8-8). The Company asserts that the concentrations are below levels that would cause sub-lethal or lethal effects to fish and benthic organisms, including quahogs, oyster eggs, mollusk juveniles and eggs, and all life stages of crustaceans (Exhs. VW-7, at 9-11; EFSB-F-11). The Company also identified low numbers of bay scallops and squid egg mops, as well as areas of shell aggregate along the OECC in northern Nantucket Sound (Exh. VW-7, at 2-16, 9-3). The

60 Using modeling provided to BOEM and NHESP as part of the CZM Consistency Review process, the Company's Construction and Operations Plan shows a lack of significant avian collision risk (Exh. VW-11, at 3-10).

Company expects that impacts to the species listed above to be minimal due to the low numbers recorded (Exh. VW-7, at 9-3; Company Brief at 102).

The Company expects that benthic habitat disturbed by cable installation to recover and recolonize quickly (Exhs. VW-1, at 4-53; EFSB-ML-5; EFSB-ML-7). The Company explained that both the limited area impacted and the mobility of shellfish organisms affected would contribute to the expected quick recovery (Exhs. VW-1, at 4-63; VW-7, at 4-23). PCW likewise explained that marine mammals and sea turtles would be able to avoid the construction path disturbances areas while increased suspended sediment is present (Exh. VW-7, at 9-11).

The Company indicated that sand waves are always changing and do not allow for complex benthic communities, and it maintains that the use of TSHD will only lead to temporary impacts to the ecosystem (Exh. VW-7, at 4-21). PCW stated that, unlike other organisms, finfish may be attracted to sand waves (Exhs. VW-1, at 6-13; EFSB-F-8). The Company will employ dredging techniques that would minimize or avoid impacts to finfish during any required sand wave dredging along the Offshore Export Cables installation route (Exhs. VW-1, at 6-18; EFSB-F-8). For example, PCW will not deposit sand that is dredged on top of hard benthic habitat to prevent longer-term impacts to the ecosystem (Tr. 3, at 419).

The Company committed to implementing a benthic monitoring plan designed to assess and document the disturbance to, and the recovery of, the benthic community along the cable installation route (Exh. VW-11, att. K). The Company stated that it would further mitigate impacts through an Ocean Development Mitigation Fee determined under the OMP (Exhs. VW-1, at 1-44; VW-7, at 2-67 to 2-72; PCW-12, at 13-14).

PCW contends that it has minimized impacts to fish and fisheries by selecting an installation corridor and cable route that avoids sensitive fish habitats (Exh. VW-7, at 9-1 to 9-6; Company Brief at 106). The Company indicated that it has engaged in extensive outreach with fisheries stakeholders and is developing a Fisheries Communications Plan and appointing Fisheries Liaisons and a network of Fisheries representatives to engage with stakeholders (Exh.

VW-7, at 9-1 to 9-6).[61] The Company added that it was working with the Rhode Island Coastal Zone Management and the Massachusetts CZM on mitigation (Tr. 3, at 443).[62]

Finally, the Company argues that it has appropriately minimized construction-related impacts to navigation, fisheries and marine traffic (Company Brief at 108). PCW contends that the economic exposure from Offshore Export Cable installation to fisheries is *de minimis*, due to the small area affected by Project construction and the relatively brief timeframes for construction activities (Exhs. VW-7, at 9-5; VW-11, at 3-2 to 3-4; Tr. 2, at 376-381). According to the Company, any fishing activity diverted temporarily from the OECC to other areas during cable installation would likely still generate fishing revenues (Exh. VW-11, Att. G). The Company also stated its willingness to implement time-of-year restrictions for various fisheries-related purposes (Exh. VW-7, at 9-4). The Company reported that it was developing time-of-year restrictions with federal agencies such as BOEM, and state agencies including MassDEP, Division of Marine Fisheries, and CZM (Tr. 2, at 382).

ii. Analysis and Findings on Shellfish, Fish, and Protected Marine Species

PCW provided Project information with respect to impacts to marine life, including shellfish, fish, and protected marine species. Impacts to marine life include impacts from construction, sediment, and noise. With respect to minimizing impacts on protected marine species, including marine mammals and sea turtles, the Company would maintain minimum setbacks of vessels from marine mammals, use protected species observers to identify and prevent impacts, and limit the speed of cable-laying and other vessels. The Project's Offshore Export Cable corridors would avoid mapped North Atlantic right whale core habitat. The Company's mitigation measures would also reduce exposure of marine species to noise impacts

---

61 The Company indicated that fisheries stakeholders were mainly concerned with navigation with respect to the windfarms in federal waters (Tr. 2, at 376).

62 PCW stated that compensatory fisheries mitigation will be evaluated during the federal NEPA process (Exh. VW-11, at 3-5).

from vessel traffic. The Siting Board finds that the Company's proposed measures are adequate to minimize impacts of the Project on protected marine species.

Offshore routes would also pass through areas of Priority Habitat for a number of state-listed migratory birds. Regular exposure to vessel traffic, the limited duration of the Company's proposed construction activities in any particular location along the OECC, and the Company's commitment to limit vessel lighting all serve to minimize the potential for impacts to avian foraging behavior and for collisions between birds and Project vessels. Potential impacts to piping plover nesting habitat would also be minimized through the use of HDD (which avoids any direct impacts to the beach) and the Company's commitment to conduct HDD operations before April 1 or after August 31 to avoid the breeding season. The Company will develop a Piping Plover Protection Plan to be approved by NHESP.

The record shows that the OECC supports marine resources including surf clam, blue mussel, quahog, bay scallops and squid egg mops. Modeled suspended sediment concentrations are sufficiently low and short-term even near the route centerline to fall generally below harmful effect levels. The record also shows that the benthic habitat is likely to recolonize and recover quickly. The mobility of pelagic species will enable them to move away from sites of increased suspended sediment.

The record shows that areas of sand waves are not likely to have complex benthic habitats. However, the Company will try to avoid finfish habitats, which may be found in such ecosystems, during sand wave dredging. The Company will also place dredged sand on areas with existing sand waves to avoid impacting hard bottom ecosystems. PCW also committed to implementing a benthic monitoring plan to assess and document the disturbance to, and the recovery of, the benthic community along the cable installation route.

The Company is relying on the Fisheries Communication Plan it has established to facilitate discussions between the Company and fisheries stakeholders. The Company commits to implementing time-of-year restrictions for various fisheries-related purposes. The Siting Board directs the Company to consult with the Division of Marine Fisheries and UMass-Dartmouth School for Marine Sciences and Technology in planning and implementing fisheries monitoring for the Project and to comply with applicable permit, license, and approval

requirements that pertain to fisheries monitoring. Accordingly, given the Company's implementation of proposed mitigation measures and conditions described above, the Siting Board finds that impacts to marine life, including shellfish, fish, and protected marine species from the construction of the offshore and landfall portions of the Project would be minimized.

c. Construction Noise

i. Company Description

PCW reported that the primary source of noise generated during Offshore Export Cables installation would be from vessel engines and thrusters (Exh. EFSB-NO-1). As described above, the Company expects construction vessel noise to be similar to noise from other vessels, and also temporary and limited to the specific location of Project construction activities (Exh. EFSB-NO-1). See Section VI.D.2.b.i. Therefore, Company did not propose additional noise mitigation for Offshore Export Cables installation (Exh. EFSB-NO-1; Company Brief at 101).

The Company stated that HDD activities at the landfall site would result in some short-term construction-related noise impacts (Exhs. VW-1, at 5-97; VW-7, at 10-48; EFSB-NO-15). The Company stated that conductor sleeve drilling would be the loudest activity, with other noise sources being trucks, the HDD drill rig, excavator, front end loader, mobile crane, generator, slurry plant and pumps (Exh. VW-1, at 5-95 to 5-96). The Company contends there would not be a significant difference between the measured impacts between the two landfall sites as both are within a few hundred feet of several homes, many of which are seasonally occupied (Tr. 2, at 371-372).[63] For the Craigville Beach landfall site, the HDD work area would be approximately 116 feet away from the closest residential receptor (Exhs. EFSB-NO-14; VW-1,

[63] PCW asserts that most of the houses in the immediate vicinity of the Craigville Beach and Covell's Beach landfall sites are seasonally occupied because they are not classified as "owner occupied" in the Town of Barnstable Assessors database (Exh. EFSB-NO-14).

at 5-97). The closest residential receptor to the edge of the parking lot at the Covell's Beach landfall site is 90 feet (Exh. EFSB-NO-14, Att. 2).[64,65]

At a distance of 100 feet, noise levels associated with conductor sleeve drilling would be approximately 96 A-weighted decibels ("dBA") (VW-7, at 10-48, Table 10-5). The Company explained that it would only conduct conductor sleeve installation during daytime work hours, Mondays to Friday, from 7:.00 a.m. to 6:00 p.m. (Exhs. VW-7, at 10-48). The Company will only perform HDD during the off season, the period outside of Memorial Day to Labor Day, reducing impacts to nearby seasonal residences (Exhs. VW-1, at 5-97; VW-7, at 10-48; see also Section VI.D.1.b). The Company committed to maintaining targeted direct communication with abutters to the landfall site; it will communicate with owners of residences regarding construction activities as it finalizes its construction schedule (Tr. 4, at 625; Exhs. VW-7, at 10-48; EFSB-NO-14 (b)). PCW would also consider using sound-absorbing acoustical blankets to further minimize HDD-related construction noise, which could reduce noise by 5 to 10 dBA (Company Brief at 119; Exh. EFSB-NO-16).

ii. Analysis and Findings on Offshore Construction Noise

The record shows that the primary source of noise associated with installation of the Offshore Export Cables would be vessel engine use. Project-related engine noise would be temporary and of short duration at any given location and would be similar to existing background noise levels experienced along the OECC. The Siting Board finds that noise impacts from installation of the Offshore Export Cables would be minimized.

With respect to noise impacts from landfall site construction, the record shows that conductor sleeve drilling would be the loudest activity associated with HDD. Maximum sound pressure levels at the closest residential abutter to either landfall site would be approximately

---

64 The Company provided this distance in this manner because it had not designed the HDD work area for the Covell's Beach landfall site (Exh. EFSB-NO-14, Att. 2).

65 According to the Town of Barnstable Assessors database, the closest "owner occupied" residence is 287 feet from the Craigville Beach HDD work area (Exh. EFSB-NO-14). For the Covell's Beach landfall site, the Company reported that the nearest "owner occupied" residence is 251 feet away from the parcel (Exh. EFSB-NO-14).

96 dBA. Accordingly, the Siting Board finds that the two landfall sites are similar with respect to noise impacts from construction. Given sound levels associated with HDD construction and the duration of the work, the Siting Board directs the Company to use noise barriers, such as acoustical blankets, when performing HDD installation activities.

In light of the above mitigation measures, the Siting Board approves the Company's proposed HDD construction schedule of Monday through Friday between the hours of 7.00 a.m. and 6.00 p.m. Should the Company need to extend construction work beyond those hours and days, with the exception of emergency circumstances on a given day that necessitate extended hours, the Siting Board directs the Company to seek prior written permission from the Town of Barnstable before commencing work and to provide the Siting Board with a copy of such permission.

With the implementation of the above conditions, the Siting Board finds that noise impacts from Offshore Export Cables and landfall site construction would be minimized.

d. Magnetic Fields

i. Background

Magnetic fields are present whenever current flows in a conductor (Exh. VW-2, Att. I, at 5). At any point, the strength of the magnetic field depends on characteristics of the source; in the case of power lines, magnetic-field strength is dependent on the arrangement of conductors, the amount of current flow, and a receptor's distance from the conductors (Exh. VW-2 , Att. I, at 5). Magnetic fields from transmission lines generally decrease with distance from the conductors (Exh. VW-2, Att. I, at 5-6). According to the Company, typical baseline magnetic fields inside residences range from 0.5-5.0 mG, which arise from electrical appliances, indoor wiring, grounding currents on pipes and ground wires, and outdoor distribution or transmission circuits (Exh. VW-2, Att. I at 6).[66]

[66] Additionally, operating appliances such as can openers, mixers, blenders, refrigerators, fluorescent lamps, electric ranges, clothes washers, toasters, portable heaters, vacuum cleaners, and electric tools generate magnetic field levels in the range of 40-300 mG at distance of one feet away (Exh. VW-12, Att. I, at 6). Magnetic field levels from personal

Over the years, some epidemiology studies have reported statistical associations between power-frequency magnetic fields and diseases such as childhood leukemia (Exh. VW-1, app. I at 6). In 2020, the World Health Organization ("WHO") concluded that "[magnetic field] exposures below the limits recommended in the International Commission on Non-Ionizing Radiation Protection ("ICNIRP") international guidelines do not appear to have any known consequence on health" (Exh. VW-2, Att. I, at 6).[67] When reviewing magnetic fields in past proceedings, the Siting Board, in recognition of public concern about magnetic fields and in keeping with WHO guidance, has encouraged use of low-cost measures that would minimize magnetic fields along transmission ROWs. Andrew-Dewar at 88; Sudbury-Hudson at 154; Salem Cables at 88.

ii. Company Description

PCW reported that the maximum modeled magnetic field levels (i.e., both cables at full 400 MW load, directly above each, assuming a five-foot burial) would be 82.8 milliGauss ("mG") (Exhs. EFSB-MF-15 (c); VW-2, Att. I, at 2 & Att. F; see also Section VI.D.1.a). While the Company expects the Project to have an average annual capacity factor of about 50 percent, accounting for seasonal variability in wind, it stated that there would be periods when the windfarm would run at the full rated output (Exhs. EFSB-MF-13; EFSB-MF-15 (S 2) (c); VW-2, Att. I, at 2 & Att. F; Tr. 8, at 1101). Table 6, below, provides modeled magnetic fields at the sea floor with the Project operating at maximum (100 percent) and 50 percent capacity (Exhs. EFSB-MF-15 (c), Table 2; VW-2, Att. I, at 2 & Att. F).[68]

---

care appliances such as shavers, hair dryers and massagers half a foot away can range from 600-700 mG (Exh. VW-12, Att. I, at 6).

67 Among the cited advisory limits referenced by the Company is a power-frequency magnetic field limit of 2,000 milligauss ("mG") from ICNIRP (Exh. VW-2, Att. I, at 7, Table 2.1). See also https://www.icnirp.org/cms/upload/publications/ICNIRPLFgdl.pdf.

68 The Company stated that, given the 165 feet spacing between the two Offshore Export Cables, and the rapid reduction in magnetic field levels with increasing distance away from the cables, there would be minimal interaction of magnetic fields from adjacent cables (Exhs. EFSB-MF-15 (S 2) (c); EFSB-MF-3).

Table 6. Modeled Magnetic Fields at the Sea Floor for Project Offshore Export Cables.

Cable Load	Maximum Magnetic Field (mG), (directly above centerline)	Magnetic Field (mG), (+/-20 feet from centerline)
400-MW Submarine Cable/ 100 Percent Loading	82.8	5.5
400-MW Submarine Cable/ 50 Percent Loading	41.4	2.8

Source: (Exh. EFSB-MF-15 (S 2), Table 2).

PCW stated that its modeling is conservative because it did not account for the shielding effect of the steel armoring wire forming the outer portion of the Offshore Export Cables (Exh. EFSB-MF-5; Tr. 8, at 1107-1109). The Company added that it also assumed a straight concentric trefoil configuration for the three cores within each Offshore Export Cable, when the Company would be using cables with a helical, twisted configuration that provides for significant magnetic field cancelation (Exh. EFSB-MF-5). Based on the above, the Company argues that it has mitigated offshore magnetic field impacts (Company Brief at 180).

PCW asserts that the modeled magnetic field levels from the Offshore Export Cables are not expected to affect marine organisms (Company Brief at 178). The Company stated that, while magnetic field impacts on marine organisms are the subject of ongoing research, a 2018 BOEM study of the Block Island Wind Farm showed that magnetic fields from electrical cables did not block the movement of either cartilaginous fish (sharks, skates, and rays) or American lobster (Exhs. VW-1, at 5-106; VW-7, at 2-54 to 2-55).[69] Furthermore, the Company stated that there is no evidence linking magnetic fields from wind turbine cables to negative responses in fish, while allowing that such research has been limited (Exh. VW-1, at 5-107).

The Company also modeled magnetic field levels at the Craigville Beach landfall, where the two cables would come ashore (Exh. EFSB-MF-15 (S 2)). The Company modeled the magnetic fields at two locations for each cable: (1) the middle of Craigville Beach (i.e., halfway

[69] The BOEM report also stated that surveys in European waters have "overwhelmingly shown that offshore wind energy projects and undersea cables have no effect on fish populations" (Exhs. VW-1, at 5-109; VW-7, at 2-57). See also: https://espis.boem.gov/final%20reports/BOEM_2018-068.pdf.

between the most seaward and most landward edges of the beach, with an assumed depth of 22 feet from the top of the Offshore Export Cables conduits to the beach surface);[70] and (2) at the landward edge of the beach abutting the parking lot (with a depth of 8.5 feet) (Exh. EFSB-MF-15 (S 2)). The Company reported maximum modeled magnetic fields of 4.3 and 28.8 mG, respectively (at 100 percent line loading), for the middle and landward edge of Craigville Beach directly above the Offshore Export Cable conduit (Exh. EFSB-MF-15 (S 2)). At 50 percent line loading, which is the expected actual average line loading of the cables, the magnetic field values were halved (Exh. EFSB-MG-15(S2) at 7). Modeled magnetic fields drop off substantially with lateral distance from the cables, falling to 2.6 and 4.9 mG, respectively, for the middle and landward Craigville Beach locations, at 20 feet from the centerlines at 100 percent loading (Exh. EFSB-MF-15 (S 2)).[71]

Table 7: Modeled Magnetic Field Values at Craigville Beach at ground level above cables (50%/100% Line Loading)

Cable Depth	Magnetic Field (mG) directly above cables 50% and 100% Line Loading	Magnetic Field (mG) +/- 20 feet from centerline 50% and 100% Line Loading
Middle of Beach (depth of 22 feet to the top of the cables)	2.1/4.3	1.3/2.6
Landward edge of beach, adjacent to the paved parking area (depth of 8.5 feet to the top of the cables)	14.4/28.8	2.5/4.9

70 As described above, the Company's design proposes the HDD trajectory to pass 40 feet below the ground surface (at mean high water) (Exh. VW-11, at 5-4 & Att. J, at Sheet 4 and Sheet 5). The Siting Board notes that the actual burial depth in the middle of the beach is 35 feet and not the 22 feet used in the MF model (Exh. VW-11, Att. J, at Sheet 4 and Sheet 5). According to the Company, surface magnetic field strength is primarily a function of burial depth, with an increase in burial depth corresponding to a decrease in magnetic fields at ground level (Exh. EFSB-MF-7; Tr. 8, at 1106-1107). The Company's HDD engineering plans show that the depth of the HDD trajectory is approximately 50 feet below the surface at the seaward edge of the beach (Exh. VW-11, Att. J).

71 The Company reported modeled magnetic fields of 2.1 and 14.4 mG at 50 percent capacity directly above cables for the middle and landward edge beach locations, respectively (Exh. EFSB-MF-15 (S 2)).

Source: (Exh. EFSB-MF-15 (S 2), Table 3)

For the Covell's Beach landfall site, PCW relied on Vineyard Wind's analysis for the Vineyard Wind Connector (Exh. EFSB-MF-2). PCW stated that the modeled peak magnetic field levels directly above each cable were 3.7 and 21.6 mG for the middle of the beach and landward edge locations, respectively at 100 percent loading (Exh. EFSB-MF-2). The modeled lines for the Covell's Beach were 220 kV and separated by approximately 65 feet (Exh. EFSB-MF-2).[72] The Company added that the modeled magnetic field of 21.6 mG fell to less than 5 mG at a lateral distance of 20 feet (Exh. EFSB-MF-2).

iii. Mr. Akselson's Position

Mr. Akselson observes that, even though PCW provided "credible" studies and assurances that magnetic fields generated by the cables at the landing site would be within safe limits, with minimal risk to the public of accidental electrocution or explosion of the cable vaults, this Project (and the Vineyard Wind Connector) would be the first time in the U.S. that cables at such voltages would be placed beneath public beaches (Akselson Brief at 5). Mr. Akselson contends that the Siting Board has "in effect" chosen a public beach as a "proving ground" for magnetic field impacts, with "apparently" no established long-term safety record for the use of similar sites outside of the U.S. (Akselson Brief at 5). Mr. Akselson concludes that the uncertainty regarding risks and consequences remain too high and that the Siting Board should deny PCW's petition (Akselson Brief at 5).

iv. Analysis and Findings on Magnetic Fields

The record shows that the target burial depth for the Offshore Export Cable is five to eight feet and average output of the wind turbines would be 50 percent. The Company provided modeled magnetic fields with burial at five feet, higher output (100 percent), and no steel armoring, thereby introducing an element of conservatism in its modeling. Based on the record,

---

[72] As stated above, PCW elected to use 275 kV transmission lines for its Project. See Section IV.B. The Company submits that the magnetic fields for the higher voltage lines would be lower than the modeled results for the Vineyard Wind Connector (Exh. EFSB-MF-2).

the actual anticipated burial depths and use of steel armoring will further reduce magnetic fields from the Offshore Export Cables. The Company's modeling scenarios also show a rapid drop off in magnetic fields to either side of the cable centerline. The record contains no evidence that links magnetic fields from offshore export cables installed globally with negative responses in commercial or recreational fish populations, or other bottom-dwelling marine species.

The modeling results for Craigville Beach provided by the Company show that at 100 percent line loading, the magnetic fields range from 4.3 mG in the middle of the beach to 28.8 mG adjacent to the parking lot. These values are reduced by half at the 50 percent line loadings that are estimated to occur, on average, for the Project. The Siting Board also notes that the modeling assumptions used by the Company appear to overstate the magnetic field levels because the engineering design calls for a cable burial depth at mid-beach of approximately 35 feet below the surface, rather than the 22 feet reflected in the model. The record shows that this additional cable burial depth would result in magnetic field levels being reduced at ground level.

Mr. Akselson asserts that because this would be one of the first instances of high voltage transmission lines being buried under a public beach in the U.S., the potential effects of magnetic fields are unknown. This is not the first time the Siting Board has reviewed magnetic field impacts for similarly situated offshore wind projects connecting to the onshore grid. In Vineyard Wind, the Siting Board found that comparable magnetic field impacts both offshore, and at the Covell's Beach landfall site, were appropriately minimized.[73] The Siting Board notes that the Project's range of modeled magnetic fields for the Offshore Export Cables, at either landfall site, are comparable to values that it has previously approved in numerous proceedings, and far below magnetic field safety threshold established by ICNIRP and referenced by the WHO. Based on the above, the Siting Board finds that magnetic field impacts for the Offshore Export Cables, and at either landfall site, would be appropriately minimized.

---

[73] The maximum modeled magnetic fields ranged from 3.6 to 21.1 mG between the middle of Covell's Beach and landward edge of the beach. See Vineyard Wind at 76.

e. Air, Traffic, and Safety

i. Air

The Company stated that air impacts from offshore construction would be temporary and minor relating primarily to commercial vessel emissions, and do not trigger state air permitting requirements (Exh. VW-1, at 5-90; Tr. 2, at 365).[74] PCW stated that there would not be significant onshore or vessel traffic from HDD activity at the landfall site (Exh. EFSB-T-33). As described in Section VI.D.3.e.ii, the Company will implement air and dust mitigation to minimize the temporary air impacts from onshore construction. PCW stated that it would use marine vessel engines and generators that are certified by the manufacturer to comply with applicable air quality standards (Company Brief at 108; Exh. VW-1, at 5-93; VW-7, at 10-44). These include international and national standards such as the MARPOL treaty (International Convention for the Prevention of Pollution from Ships) and U.S. EPA regulations (Exhs. VW-1, at 5-92; VW-7, at 10-43 to 10-44).

The Company contends that it would not be able to reduce air impacts through vessel selection, because highly specialized vessels are required for installation of the Offshore Export Cables and vessel availability would depend on other offshore projects across the country and worldwide (Exh. VW-1, at 4-50). The Company added that retrofitting or replacing engines in marine vessel to further reduce emissions would not be feasible because vessel manufacturers strictly limit upgrades to avoid violating warranties (Exhs. VW-1, at 5-93; VW-7, at 10-44). The Company does not anticipate that the Project would result in permanent air emissions impacts along the OECC (Company Brief at 112).[75]

---

74 The Company stated that the EPA will also be reviewing the portions of the Project in federal waters as part of an Outer Continental Shelf (OCS) Air Permit (Tr. 2, at 356, 365). The Company will also describe overall air quality impacts through the BOEM EIS process (Tr. 2, at 364; see also Exh. PCW-15).

75 The Company argues instead that the Project would contribute to significant air quality and greenhouse gas emissions benefits by connecting electric power generated by the offshore windfarm to the New England electric grid (Exhs. VW-1, at 1-38 to 1-39; VW-7, at 6-6; Company Brief at 112-113).

ii. Traffic

PCW asserts that it has minimized and mitigated temporary, construction-related impacts to navigation and fishing activities near its construction vessels (Company Brief at 105). The Company considered impacts to navigation corridors when it initially identified its OECC (Company Brief at 105; see also Vineyard Wind at 78-79). The Company asserts that vessel traffic associated with the Project construction would not represent a "significant" increase over current levels of vessel traffic throughout the region (Exh. EFSB-T-9).

According to the Company, an average of approximately six vessels would operate within both state and federal waters during a typical construction day (Exh. VW-1, 5-70).[76] The Company estimated an average of six vessel round trips a day for construction in state and federal waters together (Exh. EFSB-T-1; Tr. 3, at 501-03). Many of the vessels would remain within the windfarm lease area for days or weeks at a time, and the Company estimated that a maximum of approximately 14 vessel trips per day would be required during the most active period of construction (Tr. 3, at 499; Exhs. EFSB-T-1; EFSB-T-9). The Company stated that after construction, there would be annual inspections of the wind turbines and foundations with vessels (Exh. EFSB-MC-2).

The Company stated that there are no shipping lanes within a mile of the OECC (Exh. EFSB-T-2 & Att. 1). The Company asserts that any impacts to navigation would be temporary and limited primarily to particular areas of active construction along the corridor (Exh. VW-1, at 5-69; VW-7, at 8-10). The Company anticipates safety measures required by the U.S. Coast Guard, such as the establishment of a 1,640-foot temporary safety zone around construction vessels (Exhs. VW-1, at 5-69 to 5-70; EFSB-T-5; EFSB-T-32). The Company asserts that most vessel navigation would remain entirely unrestricted, with the only restrictions being U.S. Coast Guard safety zones around active cable installation vessels (Exh. EFSB-T-5). The Company added that it would employ safety boats to provide guidance to mariners and fishing vessels to explain the ongoing activities and keep them outside the buffer zones (Exh. EFSB-T-32). The

---

[76] PCW reported that the vessels would likely originate from multiple ports (Tr. 3, at 515; Exh. EFSB-T-9).

Company stated that it will publish those construction buffer zones in publications such as Local Notice to Mariners, Broadcast Notice to Mariners and in the Company's usual communications (Exh. EFSB-T-32; Tr. 3, at 507-508).

The Company added that it will coordinate with the Coast Guard, the Massachusetts Steamship Authority, and ferry operators before beginning cable installation activities to address how best to communicate with fishermen, commercial vessel operators, and recreational boaters about active work zones (Exh. VW-7, at 2-76). The Company is developing a Navigational Risk Assessment for the Project in conformance with Coast Guard guidance regarding offshore renewable energy installations (Exhs. VW-1, at 5-70; VW-7, at 8-10). The Company will also develop a marine traffic management plan ("TMP"), which will create a marine coordination center and designate a marine coordinator to facilitate offshore navigation (Tr. 3, at 508; Exhs. EFSB-T-4; VW-7, at 8-10; EFSB-T-4; EFSB-T-31).

PCW does not anticipate long-term impacts to marine traffic, navigation or fishing (Company Brief at 110). The Company contends that the Offshore Export Cables would be buried deep enough to allow anchoring and the use of mobile fishing gear by vessels (Exh VW-7, at 8-10). However, the Company plans on using cable protection for cables only in limited areas – a total of approximately three miles per cable (Exhs. VW-1, at 5-69; VW-7, at 4-6 to 4-8; VW-11, at 2-14, 2-16; EFSB-MC-19 (S); Tr. 2, at 382).

The Company expects to employ about four vessels for operations and maintenance activities at any one time, with a total of 250 vessel trips per year (Exhs. EFSB-MC-2 (a); VW-1. at 5-70). The Company contends that this number of vessels would not significantly add to existing vessel traffic in Nantucket Sound (Exh. EFSB-MC-2 (d)). Similar to the construction vessels, the Company expects that maintenance and repair activities would only temporarily affect navigation and fishing, and impacts would be localized to where the activities are occurring (Exh. EFSB-MC-2 (d)).

As stated above, the Company indicated that there not be significant onshore or vessel traffic from HDD activity at the landfall site (Exh. EFSB-T-33). The Company stated that it did not anticipate marine traffic impacts in association with its work at the landfall site (Exh. EFSB-T-7). PCW stated that the onshore traffic for the landfall site would include delivery of materials

and equipment for construction (Exh. EFSB-T-33). The Company would locate staging for construction within the paved parking lot (Exh. EFSB-T-33).

The Company committed in its HCA with the Town to commencing construction at the landfall no sooner than September 15 and completing construction no later April 30 to enable resident access to the beach after the first Friday in May (Exh. EFSB-G-14 (S), Att. 1, at 15). The Company would also provide status reports to the Town on the progress of construction every two weeks after April 1 about any anticipated construction beyond April 30 (Exh. EFSB-G-14 (S), Att. 1, at 15). The Company will also perform scheduled planned maintenance activities within the landfall site between September 15 and May 15 in coordination with the Barnstable DPW (Exh. EFSB-G-14 (S), Att. 1, at 15-16).

iii. Safety

As described in Section VI.D.e.ii, *supra*, during installation of the Offshore Export Cables, a temporary safety zone would be established around all construction vessels, and the Company would use safety boats to inform other vessels of the safety zone (Exh. VW-1, at 1-12). The Company explained that the safety boats would have no enforcement authority but would be able to provide guidance and document any safety concerns (Exh. EFSB-T-32; Tr. 3, at 520-22). PCW also committed to working with the U.S. Coast Guard to create a safety plan, which would describe the boundaries of the exclusion zones (VW-1, at 5-69 to 5-71; VW-7, at 10-7 to 10-10; EFSB-T-32). As stated above, the Company does not expect significant offshore traffic related to its work at the landfall site (Exh. EFSB-T-33).

iv. Analysis and Findings on Air, Traffic, and Safety

The record shows that air impacts from the Offshore Export Cables and Landfall would consist of temporary construction impacts to ambient air quality from construction vehicle and vessel emissions. PCW would minimize these impacts through the use of modern equipment, and compliance with domestic and international regulations.[77] Based on the above, the Siting

[77] The Company's Outer Continental Shelf air permit, issued by EPA, addresses air impacts occurring in federal waters (RR-EFSB-16 & Att. 1). No aspect of the Project would trigger state air permitting requirements within the three nautical miles of state waters

Board finds that air impacts of Offshore Export Cable and Landfall construction would be minimized. With respect to marine traffic impacts, the record shows that construction and operation of the Project would not cause an undue increase in vessel traffic volumes. PCW committed to employing a marine coordinator to manage all construction-related vessel logistics. The record also shows that there would be onshore traffic associated with deliveries to the Landfall construction site. The Company has agreed to time-of-year related restrictions on its construction and operation related activities at the landfall site. The Siting Board finds that with the mitigation described, offshore and onshore traffic impacts of Offshore Export Cable and Landfall construction would be minimized.

Finally, the record shows that the Company would implement measures to protect the safety of its workers and the public during construction and operation of the Project. These measures include creating a safety plan and establishing a temporary safety zone around all construction vessels. Based on the Company's proposed safety measures, the Siting Board finds that potential safety impacts from offshore construction would be minimized.

f. Conclusion on Offshore Export Cable and Landfall Environmental Impacts

The Company has carefully evaluated marine and landfall sites for construction, operation, and maintenance of its Offshore Export Cables for the Project. While some degree of impacts is unavoidable during construction, the Company has provided a comprehensive analysis of such impacts, avoided or minimized them where possible, and made significant commitments to protection and preservation of the marine environment. The Company has also identified and collaborated with other stakeholders who depend on the marine environment in the area of the OECC for recreational or business activities and worked to minimize disruptions or adverse impacts to these critical uses. The record demonstrates that the Company has addressed public

---

where Project construction will also occur (Tr. 2, at 365). In addition, emissions are generally minimized by ensuring complete combustion to avoid formation of carbon monoxide (CO), particulate matter (PM), and volatile organic compounds (VOC) and by controlling mixing of fuel and oxygen in the combustion process to avoid "hot spots" that generate nitrogen oxides (NOx) (Exh. VW-1, at 5-92).

concerns about air impacts, traffic, and safety issues from marine construction activities, and developed plans to appropriately mitigate these impacts.

We note that the Siting Board is but one of many local, state and federal agencies that have jurisdictional responsibilities over the Project's offshore and landfall components. The Company has received multiple permits for the proposed Craigville Beach landfall, and the Town has expressed its preference for the Craigville Beach landfall in the HCA.

While the Company has requested that the Siting Board approve the Craigville Beach landfall, it has also sought approval from the Board to use Covell's Beach as a landfall variant for either onshore route. Absent extenuating circumstances, that would need to be fully documented and approved in a Project Change filing, the Siting Board declines to approve the Covell's Beach landfall variant location. As noted above, Covell's Beach would add an additional 0.4 mile-length to either onshore route, along with related construction and operational impacts, and therefore, is an inferior landfall choice for the Project. The Town and the Company have also clearly articulated a preference for the Craigville Beach landfall, with which the Siting Board concurs, and accordingly approves the Craigville Beach landfall.

D. Onshore Cables Route Impacts

In this Section, the Siting Board compares the two Onshore Cables routes, and, based on the analysis below, chooses the Shootflying Hill Road Route as the superior route. In Section V, above, the Siting Board determined that the Preferred Grid Interconnection Route is the superior route for the Grid Interconnection. In this Section, the Siting Board also determines whether the Company has appropriately minimized impacts from the chosen routes.

The Company compared the Shootflying Hill Road Route, and its variants, to the Oak Street Route, and its variants. The Company contends that, while all the proposed routes are viable, the Shootflying Hill Road Route and Preferred Grid Interconnection Route are superior in terms of environmental factors, costs, reliability, and community acceptance (Company Brief at 90). PCW also conducted a detailed analysis of the Project's potential mitigation measures for the onshore routes, which are generally similar for all routes. Based on this assessment, PCW requests that the Siting Board approve the Shootflying Hill Road Route, with its variants, and the Preferred Grid Interconnection Route, with its variants (Company Brief at 90).

1. Route Scoring Comparison

The Company stated that both Onshore Cables routes are viable options with generally comparable environmental impacts, although it regards the Shootflying Hill Road Route as somewhat preferrable in terms of environmental factors (Exhs. VW-1, §§ 4.5, 5.0; VW-7, §§ 3.4, 4.0 to 10.0). As noted in Section V.B.5, *supra*, PCW evaluated environmental impacts using a route scoring system similar to those reviewed previously by the Siting Board and identified some variation in the impacts associated with each route (Exh. VW-1, § 4). The Company's environmental scoring analysis showed a score of 10.8 for the Shootflying Hill Road Route and 11.4 for the Oak Street Route (lower scores are better) (Exh. VW-1, at 4-34, Table 4-7, 4-36, Table 4-8).

The Shootflying Hill Road Route scored best or tied-for-best of all routes and variants on seven of the eleven scoring criteria: residential units, sensitive receptors, archeological resources, wetland resource areas, rare species habitat (tie), Article 97 jurisdictional areas, and tree clearing (Exh. VW-2, Att. E). The Oak Street Route scored best on three scoring criteria: archeological resources, potential to encounter subsurface contamination, and public water supplies.[78] The Shootflying Hill Road route and its variant 3 had identical environmental scores, while the next lowest score was the Oak Street Route.

2. General Onshore Construction Methods and Sequencing

The onshore construction methods and mitigation measures, described in this Section, are the same among the various onshore routing options (Exhs. VW-1, at 5-104; VW-7, at 10-61). Distinguishing environmental factors between the various routes are described below to compare the routing options. Construction impacts for the two routes are comparable because the same construction methods and mitigation measures will generally be used for both routes (Exhs. VW-1 at 5-104; VW-7 at 10-61). The Shootflying Hill Road Route is shorter than the Oak Street Route by 2.1 miles, resulting in reduced impacts generally (Exhs. VW-1 at 4-34; VW-7 at 3-26).

---

[78] The Shootflying Hill Road Route is shorter than the Oak Street Route by 2.1 miles (Exhs. VW-1 at 4-34; VW-7 at 3-26). Shorter routes generally reduce construction time and scope, and, therefore, construction impacts (see Exhs. VW-1 at 4-35; VW-7 at 3-26).

The Company expects to begin Project construction with onshore and some nearshore construction, including the HDD to the landfall site, onshore duct bank, and Substation construction (Exh, VW-1, at 1-48). The Company would install the Onshore Cables in the following sequence: (1) install splice vaults; (2) install concrete duct bank with conduits to house the cables; and (3) pull and install the cables through the duct bank conduits and complete cable splices and terminations (Exh. VW-1 at 5-78). The Company explained that trench excavation in areas with no ledge, or excessive underground utilities, it expects construction crews to progress at a rate of 80 to 200 feet per day, with an average duration of approximately seven days at any one location (Exh. VW-7, at 10-47). The Company will also prepare a Construction Management Plan ("CMP") that outlines feasible measures to eliminate or minimize impacts including traffic management, soil management, air quality, noise, water quality, erosion and sedimentation, solid waste management, soil management, spill control and archaeological resources (Exh. VW-9, at 26).

a. Duct Bank and Splice Vaults

PCW proposed to install the Onshore Cables via open-cut trenching with equipment such as excavators and backhoes to accommodate a buried concrete duct bank (Exh. VW-1, at 1-47, 5-78). The duct bank would be five feet wide and two and one-half feet deep, consisting of an array of up to eight polyvinyl chloride or high-density polyethylene sleeves encased in concrete, installed using an open trench method with typical construction equipment, such as an excavator and backhoes (Exh. VW-1, at 5-78). The duct bank would carry the two circuits, each containing three separate single core cables; there would also be smaller conduits in the duct bank that would house fiber optic communications cables (Exhs. VW-1, at 1-14, 5-78; VW-7, at 10-7). The Company proposes to install the duct bank within the existing roadway layouts or within ten feet of the pavement (Exh. VW-1, at 5-5).

The Company expects to install 80 to 200 feet of duct bank per day (Exh. VW-1, at 5-79). After installing duct bank, the Company would fill the trenches with a combination of flowable thermal backfill, sand and gravel, or aggregate (Exh. VW-1, at 5-80). The target depth of cover of the duck bank for the Onshore Cables route is at least three feet, with a minimum cover of 2.5 feet in certain areas such as utility crossings (Exh. VW-1, at 5-79). Where pavement is cut, the

Company would restore pavement in compliance with Section 9.0 of the Department of Public Utilities Street Restoration Standards and will repave roadways to as-new condition (Company Brief at 125-126; Exh. VW-1, at 5-81, 5-83).

PCW proposes to install splice vaults every 1,500 to 2,500 feet along most of the Onshore Cables route (Exh. VW-1, at 5-79). The splice vaults would consist of two-piece pre-formed concrete chambers typically eight feet wide by 34 feet long by nine feet deep (Exh. VW-1, at 5-79). According to the Company, those dimensions would require an excavation area approximately 20 feet wide by 50 feet long (Exhs. VW-1, at 5-79; VW-11, at 5-4). The Company proposes to stagger the installation of the vaults to minimize roadway impacts (Exh. VW-1, at 5-81). PCW would clean the inside and verify the internal diameter of the cable conduits and then install the Onshore Cables in segments between splice vaults by placing a cable reel at one vault and pulling each cable through the conduits with a hydraulic winch and tensioner from the next vault (Exh. VW-1, at 5-84). The Company would then splice the cables together in the vaults, using a splicing van and mobile generator (Exh. VW-1, at 5-84). For the Grid Interconnection components, the Company indicated that the duct bank would consist of a two conduit by three conduit alignment with a cover depth of two feet (Company Brief at 125; RR-EFSB-52 (S), Att. 2).

The Company anticipated construction limitations between Memorial Day and Labor Day (Exhs. VW-1, at 1-48; EFSB-CM-14 (S)). PCW proposes construction from Monday to Friday, 7.00 a.m. to 6.00 p.m., with nighttime work on an as-needed basis for some busy road crossings (Exh. VW-1, at 1-48). The Company stated that it would consult with the Town regarding any nighttime work or extended construction hours, including weekends (Exh. VW-1, at 1-48). PCW described the potential for collaboration and coordination with the Town of Barnstable regarding overlapping work in areas where the Town's ongoing sewer expansion project is located (Exh. VW-1, at 1-46). As part of the HCA, the Company and Town agreed that they would coordinate sequencing of Onshore Cables and the proposed sewer project to the extent feasible (Exhs. EFSB-G-14 (S), Att. 1, at 9; EFSB-G-27 (S)).

b. Centerville River Crossing

PCW selected microtunneling as its preferred trenchless method for crossing the Centerville River (Exhs. EFSB-CM-7; EFSB-CM-9).[79] This method involves using a microtunnel boring machine ("MTBM") that is pushed by hydraulic jacks on a jacking frame from a jacking shaft to a receiving shaft (Exh. VW-7, at 2-27, 10-21). PCW stated that the installation would require a power generator, ancillary equipment, and a slurry separation plant (Exh. EFSB-NO-10). The Company estimated that the microtunnel would take 12-14 weeks to complete (Exh. EFSB-CM-6).

The Company proposes to locate the jacking shaft and staging area on the southwest side of the Centerville River Bridge at 2 Short Beach Road, while the receiving shaft would be located north of the river on Craigville Beach Road (Exhs. VW-7, at 2-28; EFSB-LU-13).[80] The Company stated that the use of the north side of Craigville Beach Road would minimize impacts to private property and resource areas (Company Brief at 128; Exh. VW-1-29). The Company reported that with microtunneling, the cable depth would be approximately 24 feet (Exhs. EFSB-MF-7; VW-2, Fig. 1-15a).

The MTBM and jacking frame are aligned in the jacking shaft (Exh. VW-7, at 2-27). Each time the MTBM is pushed forward, the Company would lower a concrete casing pipe into the jacking shaft between the jacking frame and MTBM or previously jacked pipe (Exh. VW-7, at 2-27, 10-21). The casing would serve as a tunnel to install the electrical cables (Exh. EFSB-NO-11). PCW proposed to install 48-inch diameter concrete pipes, which would house eight 8-

---

79 PCW stated that it considered several trenchless techniques (including HDD) and also a bridge replacement option, which would have modified the deck of the existing bridge over the Centerville River to allow it to carry the Onshore Cables (Exh. VW-7, at 2-27 to 2-28, 2-31).

80 The Company has an exclusive option to purchase 2 Short Beach Road (Exh. EFSB-LU-13). The Town of Barnstable maintains that PCW "failed to notify the Town of a material change of use of 2 Short Beach Road, Centerville, a residentially zoned parcel on the Centerville River" (Town of Barnstable Motion to Intervene at 5, November 20, 2023). We note that the use of 2 Short Beach Road for a microtunnel jacking shaft and staging, and the Company's option to purchase the property, are described in the MEPA DEIR Certificate at page 4, issued June 25, 2021.

inch flexible PVC conduits for power cables and three 2-inch HDPE conduits for communication and ground cables (Exh. VW-7, at 2-28).[81] The MTBM advances along the planned cable alignment until the MBTM reaches the reception shaft on the opposite end of the microtunnel alignment (VW-1, at 2-27 to 2-28, 10-21). The Company expects to accomplish the microtunnel in a single 430-foot drive (Exh. VW-7, at 2-28).

PCW stated that it would use a continuous loop slurry system to transport excavated soil cuttings back to the launch shaft where slurry would be reused after it is separated from soil using a slurry separation plant (Exhs. EFSB-CM-10; EFSB-CM-9). The slurry separation plant would be located on the south side of the river near the jacking shaft (Exh. EFSB-NO-10, citing VW-2, Fig. 1-19 (a) & (b)). The Company would transport the separated soil offsite and dispose of it appropriately (Exh. EFSB-CM-8).

3. Onshore Cables Route Environmental Impacts

PCW stated that most impacts from the onshore portions of the Project would be construction-related and temporary (Company Brief at 71 n.31; Exh. VW-11, at 5-6). The Company also indicated that it optimized its onshore routing and construction methods to avoid or minimize both temporary and permanent onshore environmental impacts (Company Brief at 123; Exh. VW-1, §§ 4.4, 4.6).

a. Land Resources and Uses

Land resources, as discussed below, include a variety of elements in the natural and human environment, including: land uses adjacent to the routes, sensitive receptors, historical and archeological resources, and flora and fauna habitat.

i. Description

Land use along the Shootflying Hill Road Route is primarily residential, with areas of commercial development along Main Street and Old Stage Road (Exh. VW-1, at 1-22). The Oak

---

[81] PCW added that the concrete pipe would also house several grout lines (Exh. VW-7, at 2-28; Company Brief at 127). The Company explained that it would use the grout line to grout the annular space around the pipe using thermal cellular grout to dissipate heat (Exh. VW-7, at 2-28).

Street Route traverses a mix of residential, commercial, and industrial uses (Exh. VW-1, at 5-1). In comparison to the Oak Street Route, the Shootflying Hill Road Route passes fewer identified land uses within 300 feet of the respective ROW boundaries, including residential structures, residential units, businesses, sensitive receptors, and open space/conservation/recreational land (Exh. VW-1, at 4-35; see Table 8 and Table 9, *infra*).

Table 8. Adjacent Land Uses for the Shootflying Hill Road Route.

Preferred Transmission Route: Adjacent Land Uses						
	Within the work area	0 to 25 feet	> 25 feet and ≤ 50 feet	> 50 feet and ≤ 100 feet	>100 feet and ≤ 200 feet	> 200 feet and ≤ 300 feet
Residential Structures	0	6	77	185	243	173
Residential Units	0	6	88	210	278	213
Businesses	0	5	15	17	25	18
Sensitive land uses	1	4	4	4	4	4
Open space, conservation, and recreational lands	1	3	3	3	6	6

Source: (Exh. EFSB-LU-23).

Table 9. Adjacent Land Uses for the Oak Street Route.

Noticed Alternative Transmission Route: Adjacent Land Uses						
	Within the work area	0 to 25 feet	> 25 feet and ≤ 50 feet	> 50 feet and ≤ 100 feet	>100 feet and ≤ 200 feet	> 200 feet and ≤ 300 feet
Residential Structures	0	6	125	279	357	279
Residential Units	0	8	134	298	392	288
Businesses	1	8	12	22	28	15
Sensitive land uses	0	6	6	7	7	4
Open space, conservation, and recreational lands	2	8	9	9	11	13

Source: (Exh. EFSB-LU-23).

The Company reported that the Project would have no permanent impacts on the sensitive receptors along the onshore routes, with any impacts lasting only as long as it takes to

complete roadway installation of a 100- to 200-foot segment of duct bank (Exh. VW-1, at 5-56, 5-58). PCW committed to maintain access for each sensitive receptor during construction, and to address all construction-related traffic impacts in its TMP(s) (Company Brief at 139, citing Exhs. VW-1, at 5-58; EFSB-RS-17; see also Section VI.E.2.c.i). The Company also committed to minimizing construction-related noise impacts at sensitive receptors (Company Brief at 139; see also Section VI.E.2.d.i). PCW indicated that it would conduct only minor tree trimming along in-road sections of the Onshore Cables routes (Exh. VW-1, at 5-33). Variant 2 of the Oak Street Route, which proposes to use part of Eversource ROW 353, could require more tree clearing because vegetation in the ROW has not been maintained to the full ROW width (Exh. VW-1, at 5-34). Regarding rare species, the onshore routes are located entirely outside of protected habitats, and so all routes considered are equivalent in avoiding impacts to rare species (Exhs. VW-1 at 5-24 to 5-25; VW-7 at 9-10).

In terms of sensitive receptors, the two routing options are comparable. The Shootflying Hill Road Route and the Oak Street Route both pass four sensitive receptors, including churches, cemeteries, and childcare services (Exhs. VW-1 at 5-58; VW-2, Fig. 5-19). As part of the HCA, PCW agreed to designate an ombudsperson to serve as the point of contact for any abutting property owners with respect to any complaint involving damage to the abutting owner's property that may have been caused by Project construction (Exh. EFSB-G-14 (S), Att. 1, at 9). PCW will work with the abutting owner to repair or replace in-kind damage caused by PCW (Exh. EFSB-G-14 (S), Att. 1, at 9).

The Company asserts that no routing option would result in construction or operational impacts to historic buildings or structures (Exh. VW-1, at 5-50 to 5-51). The Shootflying Hill Road Route passes through the Centerville Historic District (Exhs. VW-1, at 1-22; EFSB-CM-1; EFSB-LU-17; Company Brief at 83). Nevertheless, PCW argues that the route is superior to the Oak Street Route in terms of impacts to historic and archaeological resources because it passes by fewer known historical sites (Exh. VW-1, at 5-50).[82] According to the HCA, the Company

---

[82] PCW reported that the Shootflying Hill Road Route Variant 3 would pass through or by one National Register district, one National Register property, and 32 Inventory properties (Exhs. VW-1, at 5-49; VW-2, Fig. 5-15). Variant 1 to the Shootflying Hill

agreed to restore the full-width of impacted roadways with respect to historic roadway and streetscape restoration (Exh. EFSB-G-14 (S), Att. 1, at 14).

The Shootflying Hill Road Route is slightly superior to the Oak Street Route in terms of impacts to historic and archaeological resources because it passes by fewer known historic and archeological sites (Exhs. VW-1 at 5-50; VW-7 at 5-6). However, none of the routing options will result in construction or operational impacts to historic buildings or structures (Exhs. VW-1 at 5-50 to 5-51; VW-7 at 5-6; EFSB-LU-15; EFSB-LU-17).

PCW's archaeological consultant classified most of the Onshore Cables routes as having moderate to high sensitivity for unrecorded archeological resources (Exh. VW-1, at 5-47 to 5-48). However, the Company asserts that it is unlikely that unrecorded archeological resources would be found in previously disturbed roadway layouts, where the duct banks would be placed (Exh. VW-1, at 4-47 to 4-48). The Company committed to developing an Unanticipated Discoveries Plan in consultation with the MHC should any resources be identified during construction (Exh. EFSB-LU-14). The Company also committed to coordinating with the MHC regarding additional field surveys with Tribal Historic Preservation Officers regarding impacts to Native American archaeological resources, if any are identified (Company Brief at 153, citing Exh. VW-1, at 5-50 to 5-51).

The Company designed its Onshore Cables routes using existing paved roadways to avoid crossing public open spaces (Exh. VW-7, at 2-37). Nevertheless, several of the route variants pass through at least one Article 97 jurisdictional parcel (Exh. VW-1, at 5-56). The Company reported there would only be temporary impacts on the parcels except for possible ground-level manhole covers installed to access buried splice vaults (Exh. VW-1, at 5-56). The Oak Street Route and Variant 2 to the Shootflying Hill Road Route could additionally pass

---

Road Route passes through an additional seven Inventory properties, while Variant 2 passes by one additional National Register property and three fewer Inventory properties (Exhs. VW-1, at 5-49; VW-2, Fig. 5-15). The Oak Street Route passes through or by one National Register district, two National Register properties, and 35 Inventory properties (Exhs. VW-1, at 5-49; VW-2, Fig. 5-15).

beneath a parcel subject to Article 97 approval, Aaron S. Crosby Park (Exh. EFSB-G-5 (S)).[83] The Company stated that, while its design for routes did not require routing the duct bank beneath the park, it could become necessary to cross the park to avoid a complicated layout, which could lead to several road closures (Exhs. VW-1, at 5-53; EFSB-LU-5; EFSB-G-5). The Commonwealth has granted Article 97 approval for this parcel (Exh. EFSB-G-5 (S); see also Section VI.C).

Variant 2 to the Oak Street Route also crosses a parcel owned by the Centerville-Osterville-Marstons Mills Fire District (Exh. VW-1, at 5-54). The Company contends that because the parcel is subject to ROW easements held by Eversource, the Project duct bank would not require new property disposition nor constitute a change of use for the parcel (Exhs. VW-1, at 5-54; EFSB-G-5; Tr. 4, at 736). The Shootflying Hill Road Route may require temporary closure of a Town boat ramp at 460 Shootflying Hill Road, which would be unlikely to last more than two or three days (Exh. VW-1, at 5-52).

The Company reported that the Onshore Cables routes are located entirely outside of protected habitats and would thus avoid impacts to rare species (Exh. VW-1, at 5-23 to 5-25). However, Variants 1 and 2 to the Shootflying Hill Road Route and Variant 1 to the Oak Street Route pass next to rare species habitat (Exh. VW-1, at 5-24). According to the Company, by installing the duct bank entirely within the existing roadway layout, it would avoid potential impacts to those areas (Exh. VW-1, at 5-24 to 5-25).

Eversource, which will be constructing the Grid Interconnection, stated that the primary environmental impacts for the Grid Interconnection would be from clearing vegetation and removal of soils from trenching (Tr. 9, at 1272). Eversource stated that existing ROW vegetation is managed from edge to edge; thus, it did not expect to remove trees for the bulk of the length of the transmission line (Company Brief at 153, citing RR-EFSB-52 (S)). Eversource also stated that it would clear approximately 1.4 acres of trees on Parcel 214-001 (the Park City Wind-owned parcel to the east of Eversource's West Barnstable Substation) for the northern end of the

---

83 The Company noted that, even if the routes did not cross under the park, access to a portion of the park could be temporarily restricted during construction due to the narrow width of the roads in the area (Exh. VW-1, at 5-53).

345 kV transmission circuits (RR-EFSB-52 (S); Company Brief at 176). Eversource stated that it would dispose the remnants of trees that it removes in accordance with its best management practices and applicable state and local regulations (RR-EFSB-52 (S); Eversource Brief at 8).

Eversource estimated that it would have to remove 3,700 cubic yards of excess soils, including from excavating the launching and receiving pits for trenchless installation under Route 6 (RR-EFSB-52 (S)). Eversource would remove and dispose of those soils in accordance with its best management practices and applicable state and local regulations (Eversource Brief at 9; Tr. 9, at 1272).

The Grid Interconnection would also pass through Parcel 214-001subject to Article 97 approval; the parcel was previously taken for purposes of water storage and public water supply protection (Exh. EFSB-G-5). The parcel is owned by the Centerville-Osterville-Marston Mills Fire District (Exh. EFSB-G-5). However, the Company contends that Article 97 approval is likely not required because the Project duct bank would be located within Eversource's ROW, which does not require new disposition or constitute a change of use for the parcel (Exh. EFSB-G-5). The Grid Interconnection route avoids sensitive receptors (Exh. VW-2, fig. 5-20). The route passes by or through one State Register district and two Inventory properties (Exh. VW-1, at 5-50). The Grid Interconnection would not pass through or adjacent to any mapped rare species habitat (Exh. VW-1, at 5-24; RR-EFSB-52 (S)).

ii. Analysis and Findings on Land Resources and Uses

Land resource and use impacts of the Project along either route would occur primarily in-road or in previously disturbed areas and would be temporary for the most part. The number of residential units affected by the Project along the Shootflying Hill Road Route (213) would be fewer than along the Oak Street Route (288). Impacts to vegetation, protected species, and historical or archaeological resources are not anticipated to be a concern along either route option. Several route options could also require crossing of land subject to Article 97 approval. The record shows that the Company has either received the required approval or that further action is not required. Given the above, the Siting Board finds that the land use impacts for the Shootflying Hill Road Route are slightly preferrable to the Oak Street Route. Among the variants to the Shootflying Hill Road Route, Variant 3 fared best, and is on par with the main

route regarding land resource impacts described above, with Variant 2 and Variant 1 following, in order of preference. The Grid Interconnection, to be constructed by Eversource, would result in permanent tree clearing and soil removal. The record shows that Eversource will manage the removal of trees and soils according to existing regulations and its own best management practices.

Given the implementation of the mitigation measures proposed by the Company and the above conditions, the Siting Board finds that land use resource impacts from the construction and operation of the Shootflying Hill Road Route and the Grid Interconnection would be minimized.

b. Wetlands and Water

i. Description

PCW indicated that no routing option would result in permanent impacts to wetland resource areas, only temporary construction-related impacts (Exh. VW-1, at 5-7). According to the Company, all of the wetland impacts would be associated with the installation of the duct bank and manhole system (Tr. 6, at 995). The Company also committed to obtaining necessary approvals from the Cape Cod Commission, the Barnstable Conservation Commission, and other regulatory agencies as needed, and to comply with any conditions of those approvals (Company Brief at 132). As part of the HCA, PCW agreed to relocate or otherwise safeguard Town-owned water and sewer infrastructure within roadways at PCW's own expense (Exh. EFSB-G-14 (S), Att. 1, at 9).

PCW stated that the Shootflying Hill Road Route passes through fewer linear feet of wetlands resource areas compared to other routing options (Exh. VW-1, at 5-8 & Table 5-2). The Company stated that the Shootflying Hill Road Route crosses one wetland resource area at the Centerville River, and another wetland area buffer zone just north of the Centerville River (Exh. VW-1, at 5-5). The Company stated that any impacts to the buffer zone would be construction related and temporary in nature (Exh. VW-1, at 5-5). Variant 2 of the Shootflying Hill Road Route also crosses the buffer zone to Lake Wequaquet, in addition to approximately 300 feet of LSCSF and 400 linear feet of riverfront area ("RFA") associated with a culverted stream along South Main Street near the Weaver Road intersection (Exh. VW-1, at 5-5).

The Oak Street Road Route passes through approximately 0.4 miles of LSCSF, 0.4 miles of RFA associated with the Centerville River and three unnamed perennial streams flowing through culverts beneath Old Stage Road and Oak Street (Exh. VW-1, at 5-6). Variant 2 of the Oak Street Route avoids crossing the three culverted perennial streams but crosses 80 linear feet of Bordering Vegetated Wetlands and 60 linear feet of Land Under Water associated with a small unnamed pond located along Eversource ROW 345 (Exh. VW-1, at 5-7). Regarding the Grid Interconnection, Eversource stated that its ROW did not cross any wetland resource areas but occupies 0.6 linear miles in Zone 1 or Zone II wellhead protection areas (Tr. 9, at 1239, 1272; Exhs. VW-1, at 5-28; VW-2, Att. E, at 1).

All onshore routes and variants would cross the Centerville River (Exh. VW-1, at 5-3 to 5-4). The Centerville River crossing consists of areas that either go through or are within a hundred feet of a Coastal Bank, Salt Marsh, and a RFA (Exh. VW-7, at 4-26 to 4-31). As stated above, the Company has selected microtunneling for the Centerville River crossing (Exhs. EFSB-CM-7; EFSB-CM-9; see Section VI.E.1.b). PCW maintains that it selected microtunneling as the "best way" to cross Centerville River (Company Brief at 134). The Company reported that microtunnel activities would temporarily affect approximately 10,400 square feet of the RFA and barrier beach and would be located within LSCSF and the regulatory buffer zone of salt marsh and land under the ocean (Exh. VW-1, at 5-3 to 5-4). Nevertheless, the Company expects impacts to be limited to the period of Project construction with no permanent impacts (Exh. VW-1, at 5-4). The Company stated that using microtunneling would result in shallower burial depth of the cable, allowing the cable to better dissipate heat (Tr. 9, at 1364-1366). The straight trajectory of the microtunnel would also result in a lower risk of impacting the nearby bridge over the Centerville River compared to the arced trajectory of HDD (Tr. 9, at 1364-1366).

PCW argues that erosion or sedimentation impacts from either route would be construction-related, and thus minimal and temporary (Company Brief at 148). The Company would adopt measures to minimize erosion and sedimentation, such as using straw bales and silt fences as temporary erosion control barriers during the Project construction (Exh. VW-1, at 5-101 to 5-102). PCW reported that it would maintain spill containment gear and absorption

material onsite that all operators will be trained to use (Exh. VW-1, at 5-87). PCW will also include a SPCC Plan and a spill response plan in an emergency response plan (Exhs. VW-1, at 1-19; EFSB-W-5).[84] The Company explained that the SPCC Plan would cover all aspects of Project construction and operations that could result in the release of a pollutant (Exh. EFSB-W-18). The Company also stated that it has developed dewatering procedures if groundwater is encountered during duct bank construction (Exh. VW-7, at 10-25 to 10-26).

PCW reported that, although all routing options would pass through Zone I and Zone II wellhead protection areas, the Project would not impact the water supplies (Exh. VW-1, at 5-28 to 5-29).[85] The Company explained that the duct bank, once installed, would not result in any erosion or sedimentation, and that the Onshore Cables would not contain fluids (Exh. VW-1, at 5-28 to 5-29). During construction, the Company would perform nearly all vehicle fueling away from construction areas, with only some large, less mobile equipment requiring onsite refueling (Exh. VW-1, at 5-87). The Company noted, however, that it would not refuel within 100 feet of wetlands, waterways, known wells or within any Zone I area (Exh. VW-1, at 5-88; Tr. 6, at 979). The Company also stated that the refueling would be performed by personnel with knowledge of the area and equipped with a work zone spill kit (Exh. VW-1, at 5-87).

According to the Company, the Onshore Cables duct bank for either route would be able to withstand a modeled three-foot rise in sea level over the projected 30-year operational lifespan of the Project (Company Brief at 150, citing Exh. VW-1, at 5-30 to 5-31; VW-7, at 6-2; VW-11, at 2-31 to 2-33).[86] The Company also indicated that the insulation and burial depth of the

---

84 PCW stated that the emergency response plan will be a part of the Project overall safety management system (Exh. VW-1, at 1-19).

85 A Zone I area is "the protective radius required around a public water supply well or wellfield," while a Zone II is an "area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation)" (Exh. VW-1, at 5-26 n.8 & n.9).

86 The Company reported that it used the Cape Cod Commission's Sea Level Rise Viewer, which incorporates overlays from FEMA Flood Insurance Rate Maps and the National

Onshore Cables would protect it against hurricane storm surge inundation that might occur along the routes (Exh. VW-1, at 5-31). The Company added that the Onshore Cables would be heavily insulated and buried in an underground concrete duct bank that is designed to withstand wet conditions, thus would be unaffected by sea level rise or hurricane storm surge (Exh. VW-1, at 5-31).

ii. Analysis and Findings on Wetlands and Water

The placement of the Onshore Cables within roadways for either route would largely avoid any direct impacts to wetlands and water resources. All of the routes would cross Centerville River, although the impacts would be temporary and construction related. The record shows that operation of the Project would not impact the existing bridge crossing over the Centerville River. The record also shows that the Company has considered sea level rise and storm related inundation of the duct bank and designed it to protect against such evolving risks.

Based on the record, refueling for installation of the Onshore Cables would take place outside the 100-foot buffer zone of wetlands and waterways. PCW has committed to a protocol for proper spill containment. With respect to erosion and sediment control, the record shows that the Company has pledged to implement practices that will minimize erosion and sedimentation impacts of Project construction, and to restore any disturbed areas. The Siting Board finds that, as in-street routes, the Shootflying Hill Road Route would be comparable to the Oak Street Route with respect to wetlands and water resource impacts. The variants to either route present slightly greater impacts than the respective main routes.

Given the details noted above, the Siting Board concludes that construction of the Onshore Cables and Grid Interconnection would result in no permanent impacts, and only minimal temporary impacts, if any, to wetlands and water resources. Therefore, with the implementation of the mitigation measures proposed by the Company, the Siting Board finds that the wetland and water resource impacts from the construction and operation of the Shootflying Hill Road Route and Grid Interconnection have been minimized.

Weather Service's SLOSH (Sea, Land, and Overland Surges from Hurricane) model in its sea level rise model (Exh. VW-1, at 5-30).

c. Traffic

i. Description

PCW states that the traffic impacts for either Onshore Cables route would be temporary and construction-related (Company Brief at 135). The Company's traffic analysis relied on MassDOT's road classification system and most recent traffic counts, as well as communications with local officials (Exh. VW-7, at 10-28). PCW asserts that the shorter Shootflying Hill Road Route would minimize impacts on traffic and residents due to its shorter construction schedule (Exh. VW-1, at 4-35; Company Brief at 72, 85). However, the Company argues that it would be able to manage traffic impacts effectively for either routing option (Company Brief at 85).

The Company reported that the Oak Street Route would cause traffic impacts on South Main Street (Exh. VW-1, at 5-39). The Company stated that South Main Street is an important east-west connector for drivers travelling from Osterville to Hyannis (Exh. VW-1, at 5-39). The Oak Street Route would also require crossing Route 28 at Phinneys Lane, which could result in additional impacts due to the roadway configuration at that intersection (Exh. VW-1, at 5-39). The Company described this roadway as a major signalized intersection, for which MassDOT indicated installation must occur at night (Exh. VW-7, at 10-30).

Although PCW would be able to manage traffic impacts effectively for either routing option, the Shootflying Hill Road Route is considered superior in terms of construction-related traffic impacts (Exhs. VW-1 at 5-39; VW-7 at 10-33). The Oak Street Route would avoid the village of Centerville, but would shift traffic impacts to South Main Street, an important east-west connector for drivers travelling between Osterville/Centerville and Hyannis (Exhs. VW-1 at 5-39; VW-7 at 10-33). The Oak Street Route would also require crossing Route 28 at Phinneys Lane, which could result in additional impacts due in part to the oblique roadway configuration at that intersection (Exhs. VW-1 at 5-39; VW-7 at 10-33). Regarding the Grid Interconnection Route, the Preferred Route would avoid traffic impacts by traveling mostly along utility ROWs rather than roadways (Exhs. VW-1 at 5-39; VW-7 at 10-33).

PCW indicated that the microtunnel construction would avoid the need for temporary blockage of the road (Exh. EFSB-CM-21). The Company explained that the use of the 2 Short Beach Road parcel for the launching pit, outside of the traffic lane, would allow it to avoid one

lane closure during construction (Tr. 9, at 1364-1366). However, the receiving shaft of the microtunneling across the Centerville River would be within the Craigville Beach Road layout (Exhs. VW-1, at 1-29; VW-7, at 2-28). The location of the receiving shaft would require closure of the northbound lane on Craigville Beach Road (Exh. EFSB-T-24).

For either route, the Company expects duct bank construction to progress at a rate of 100 to 200 feet per day (Exhs. EFSB-T-21; EFSB-T-17; see Section VI.E.1.a). According to the Company, this would limit traffic impacts to only a short time in any particular location, minimizing inconvenience to residents and businesses (Company Brief at 135, citing Exhs. EFSB-T-21; VW-7, Att. E, at Sheet 14-19). The Company would also stagger installation of splice vaults to minimize roadway impacts during construction (Exhs. VW-1, at 5-81; VW-7, at 10-20). The Company committed to working with Barnstable officials, including the Barnstable Police Department, Department of Public Works, and Town engineer, in developing and implementing TMP(s) (Company Brief at 135, citing Exhs. VW-1, 5-39 to 5-40; VW-7, at 10-33). Additionally, the Company will work with MassDOT District 5 traffic engineers to develop temporary traffic control plans ("TTCPs") (Company Brief at 135-136, citing Exhs. VW-1, at 5-40; VW-7, 10-33 to 10-34).

PCW committed to engaging in public outreach to ensure residents, business owners and Town officials are informed during construction (Company Brief at 137, citing Exhs. VW-1, at 5-39; EFBS-T-20; EFSB-21). The Company would also communicate directly with each abutting business to determine specific constraints (Exh. VW-7, at 10-40). The Company also committed that its construction contractor will have plating on site to cover trenches or work areas to allow residents to access their properties when construction activities occur on roadways in front of their properties (Company Brief at 137, citing Exh. EFSB-T-20).

The Company would not perform construction during the busy summer season (i.e., the months of June through September) (unless authorized by the Town) to reduce impacts to residents and businesses (Exhs. VW-1, at 1-48; VW-7, at 10-28, 10-40; EFSB-T-21). PCW reported that it would coordinate any required parking for construction workers with Barnstable and its police department (Company Brief at 137, citing Exhs. VW-7, at 10-40; EFSB-T-22). The Company indicated that it would secure parking locations that will minimize impacts to the

local community prior to construction (Company Brief at 137, citing Exhs. VW-7, at 10-40; EFSB-T-22).

The Grid Interconnection route would avoid traffic impacts by traveling mostly along utility ROWs rather than roadways (Exh. VW-1, at 5-39). Eversource stated that its construction equipment would use existing roads on its ROWs (RR-EFSB-52 (S)). Where that was not possible, Eversource would create new temporary access roads (RR-EFSB-52 (S)). Temporary traffic management measures would be required when the Grid Interconnection construction crosses Shootflying Hill Road, and Service Road (Exh. VW-7, at 10-31). The Company explained that because a trenchless crossing technique would be used to perform the crossing under Route 6, minimal traffic management measures would be necessary (Exh. VW-7, at 10-31).

ii. Analysis and Findings on Traffic

The record shows that construction along either the Shootflying Hill Road Route or the Oak Street Route would create temporary traffic impacts along the roads designated for Onshore Cables installation. The record also shows that the Shootflying Hill Road Route has the slight advantage of being shorter than the Oak Street Route, resulting in a shorter total duration of impacts. Traffic impacts would be mitigated by the limited duration of construction at any one location, and by the implementation of TMP(s) on local streets and of TTCPs to govern roadways under MassDOT jurisdiction. Time-of-year restrictions would further mitigate impacts by ensuring that in-street construction does not take place during the busy summer tourist season. On balance, traffic impacts for Shootflying Hill Road Route are slightly preferrable to the Oak Street Route. Variant 2 for the Oak Street Route compares favorably on traffic, given its partial use of existing Eversource ROW instead of full in-road construction.

The record shows that the Company is committed to instituting an active public outreach program that would keep town officials and the public apprised of detours, lane closures, work crew and equipment movement, repaving, emergency vehicle access, and other traffic management measures. The Siting Board directs the Company, in consultation with the Town of Barnstable, to develop a comprehensive public outreach plan for Town residents and businesses. The outreach plan should describe the procedures the Company will use to notify the public

about: (1) the scheduled start, duration, and hours of construction in particular areas; (2) the methods of construction that will be used in particular areas (including any use of nighttime construction); and (3) anticipated street closures and detours. The outreach plan should also include information on complaint and response procedures; Project contact information; the availability of web-based Project information; and protocols for notifying schools and local and regional public transit operators of upcoming construction.

The record shows that the Company is developing TMP(s) for the Project with Barnstable officials. The Siting Board directs the Company to submit a copy of the final TMP(s) to the Siting Board and all other parties when available, but no less than four weeks prior to the commencement of construction, and to publish the TMP(s) on the Company's Project website. With the implementation of the mitigation measures and conditions discussed above, the Siting Board finds that traffic impacts for the Shootflying Hill Road route and the Grid Interconnection are preferrable and minimized.

d. Construction Noise

i. Description

There is no basis to distinguish the two routing options on operational noise because the only sources are associated with the Onshore Substation, which is the same for both routes (see Exh. VW-8). The Company explained that, in general, sound levels from construction would be characterized by the loudest piece of equipment in operation (Exh. VW-1, at 5-95). PCW stated that noisy Onshore Cables construction activities include trench excavation, duct bank installation, manhole installation, backfill and compaction, and pavement restoration (Exh. VW-1, at 5-94). The Company reported the equipment used is similar to that used in public works projects such as road resurfacing, storm sewer installation, or transmission line installation (Exh. VW-1, at 5-95). PCW expects construction to occur Monday through Friday 7.00 a.m. to 6.00 p.m. (Exhs. VW-1, at 5-94; EFSB-NO-4). The Company notes that the Town of Barnstable does not have a bylaw applicable to construction noise (Exh. VW-1, at 5-98).

PCW stated that trench excavation and manhole installation are typically the loudest phases of construction (Exh. VW-1, at 5-96). The Company reported that no manhole locations would be within 150 feet of any sensitive receptors for any routing option (Exh. EFSB-NO-8).

While the Company does not expect cable pulling and splicing activities to generate significant noise, splicing equipment could include a splicing truck and generator (Exh. VW-1, at 5-96). The Company indicated that it would minimize noise emitted by the generator and truck by using a muffled generator and implement portable sound walls (Exh. VW-7, at 10-47). The Company also committed to proper muffling and maintenance of construction equipment, muffling enclosures on continuously operating equipment, turning off construction equipment if not in use, minimizing idling times of construction equipment, taking specified measures to minimize noise from splicing cable inside manholes, and using shielding or buffering distance to the extent practical to mitigate the impact of noise equipment on sensitive locations (Exh. VW-1, at 5-98). The Company will also keep the public away from the generator and work with the Town to coordinate work (Exh. VW-1, at 10-47, 10-49). The Company also stated that by complying with 310 CMR 7.10, it would reduce unnecessary noise of sound-emitting equipment (Exh. VW-1, at 5-98). The Company had also previously stated that it would make reasonable efforts to minimize noise impacts from construction for the Project as a whole, including the Grid Interconnection (Exh. VW-1, at 5-98).

The Company stated that the closest sensitive receptors to the Shootflying Hill Road Route are the South Congregational Church, Beechwood Cemetery, Plumer Family Childcare, and D'Angelo Family Childcare (Exh. VW-1, at 5-57). The Oak Street Route passes by Our Lady of Victory Parish, Cape Regency Rehab and Health Care Centre, Ancient Cemetery, and Cordeiro Family Childcare (Exh. VW-1, at 5-57). The Grid Interconnection passes by the Cape Cod Conservatory (Exh. VW-1, at 5-58).

As described earlier, PCW expects to cross the Centerville River by microtunneling and for construction to take place over 12 to 14 weeks. (EFSB-NO-10; see Section VI.E.1.b). The Company stated that there would be approximately four weeks of excavation activities for installing the jacking shaft and receiving shaft (Exh. EFSB-NO-10). The Company stated that the generator supplying the jacking frame and slurry separation plant would likely generate the most noise during construction (Exh. EFSB-NO-10).

Similarly, Eversource will cross Route 6 with a trenchless construction method. (EFSB-NO-12; see Section VI.E.1.a). This construction would last approximately 18 to 20 weeks and

likely also require a generator and hydraulic jacking frame (Exh. EFSB-NO-12). However, that traffic noise at Route 6 is already significant; therefore, PCW does not anticipate the construction noise near Route 6 to pose a significant increase in noise (Company Brief at 141, citing Exhs. VW-7, at 10-48; EFSB-NO-12; EFSB-NO-20).

ii. Analysis and Findings on Construction Noise

The record demonstrates that, for either route, noise impacts of installation of the Onshore Cables and the Grid Interconnection would be temporary and would principally result from the construction activities of trench excavation, duct bank installation, manhole installation, backfill and compaction, and final pavement restoration. The Siting Board observes that manhole installation, an intrusive noise source that can occur over four or five extended workdays, is typically one of the loudest phases of construction. The record shows that manhole installation would not occur within 150 feet of any sensitive receptors. The Siting Board observes, in addition, that the generator used for cable pulling and splicing would be a source of noise. The Siting Board concludes that noise impacts of Onshore Cables construction are comparable along both routes.

Barnstable does not have bylaws governing construction-related noise; however, the Company commits to conducting work to the extent possible during daytime hours from 7.00 a.m. to 6.00 p.m., Monday through Friday, to minimize noise impacts. The Company agreed to an "as-needed only" basis for night work, coupled with coordination with each affected municipality. The Siting Board observes that the Company's proposed noise mitigations, noted above, would be consistent with approaches to mitigation that the Siting Board has accepted in past cases. To further minimize noise impacts, the Siting Board directs PCW to use the quietest generators and portable heating ventilation and air conditioning units reasonably available to the Company. In addition, to reduce noise impacts at residences, when operating noisy equipment, such as whole tree chippers or compressors, the Company shall locate such equipment as far away as possible from nearby residences, where the flexibility exists to do so.

With respect to the Onshore Cables, the Siting Board accepts the standard construction hours of Monday to Friday, 7.00 a.m. to 6.00 p.m. Work requiring longer continuous duration than normal construction hours allow, such as cable splicing, is exempted from this requirement.

Should the Company anticipate the need to extend construction work beyond the above-noted hours or days, with the exception of emergency circumstances on a given day necessitating extended hours, the Siting Board directs the Company to seek prior written permission from the Town of Barnstable before the commencing such work, and to provide the Siting Board with a copy of such permission.

With the implementation of the mitigation measures and conditions discussed above, the Siting Board finds that construction noise impacts for the Shootflying Hill Road Route and Grid Interconnection would be is minimized.

e. Visual and Air

i. Visual

The Company asserts that, once installed, the Onshore Cables along either route would not result in permanent visual impacts because the cables would be underground (Exh. VW-1, at 5-59, 5-34 to 5-35). For the Grid Interconnection, Eversource stated that there would be visual impacts from vegetation clearing on its ROWs and the addition of riser poles to interconnect the underground transmission lines to the substations (RR-EFSB-52 (S); Eversource Brief at 8). Eversource indicated that the visual impacts of the construction would be minimized over time as low growing plant species revegetate on the ROWs (RR-EFSB-52 (S); Eversource Brief at 8). As stated above, approximately 1.4 acres of tree clearing is also necessary on Parcel 214-001 (Exh. VW-1, at 5-34; RR-EFSB-52 (S); see also Section VI.E.2.a.i). Parcel 214-001 is not visible from adjacent residential receptors as it is currently entirely forested and is surrounded by Route 6 to the south, West Barnstable Substation to the west and north, and undeveloped land to the east (Exh. VW-1, at 1-18).

ii. Air

PCW asserts that, during Project construction, there would only be temporary impacts on ambient air quality limited to areas adjacent to construction vehicles (Exh. VW-1, at 5-90 to 5-91). The Company indicated that it would minimize those impacts by complying with MassDEP Air Pollution Control Regulations, 310 CMR §§ 7.02, 7.09 (Company Brief at 142, citing Exhs. VW-1, at 5-91; VW-7 at 10-42). The Company's contractors will use ultra-low sulfur diesel in

off-road diesel vehicles and comply with the MassDEP Diesel Retrofit Program and require all non-road construction equipment with an engine rating of 50 or more horsepower that will be used for 30 or more days to either be EPA Tier 4-compliant or have EPA-verified (or equivalent) emissions control devices (Exh. VW-1, at 5-91 to 5-92). The Company also stated that it would implement measures to minimize impacts from dust (Exh. VW-1, at 5-91). Nevertheless, the Company indicated that that the short duration of construction would lessen the likelihood that dust would migrate (Exh. VW-1, at 5-91).

iii. Analysis and Findings on Visual and Air

The record shows that, due to underground installation, no permanent visual impacts are anticipated with construction of the Onshore Cables along either Shootflying Hill Road Route or the Oak Street Route. Accordingly, the Siting Board finds that visual impacts along both routes would be comparable and minimized. Construction of Eversource's preferred Grid Interconnection would entail additional transmission poles and some tree clearing on a currently forested parcel with no surrounding residences. The record shows that these impacts would be reduced as vegetative buffers are allowed regrow. The Siting Board finds that the visual impacts of the Grid Interconnection would be minimized.

With regards to air quality impacts of Onshore Cables construction, the record demonstrates that the Company would minimize air quality impacts by complying with MassDEP Air Pollution Control Regulations, by adhering to the MassDEP Diesel Retrofit Program, using ULSD in off-road diesel vehicles, and by minimizing idling consistent with the Massachusetts anti-idling law. The Company would also institute measures to prevent airborne dispersal of dust and other fine particles associated with construction. Based on the record, the Siting Board finds air impacts of the Onshore Cables along the Shootflying Hill Road Route or Oak Street Route would be comparable and minimized. Air impacts of the Grid Interconnection would also be minimized given the off-road construction area.

f. Magnetic Fields

i. Description

PCW contends that the magnetic fields for both routes and variants are comparable and far below relevant guidelines for public exposure (Company Brief at 87, citing Exhs. VW-1, at 5-104 to 5-105; VW-2, Att. I, at 21; EFSB-MF-15 (S 2)). The Company modeled onshore magnetic field levels with the Project operating at both 100 percent and 50 percent capacity, as shown in Table 10 below (Exh. EFSB-MF-15 (S 2), Table 4). The Company's modeling results show that 3.3 feet directly above the underground transmission lines, there could be a magnetic field up to 82 mG when the offshore wind capacity is at 100 percent (Exh. EFSB-MF-15 (S 2), Table 4). The Company's results also show magnetic field levels diminishing to single digits when approaching 20 feet on either side of the cable centerline (Exh. EFSB-MF-15 (S 2), Table 4). The Company asserts that modeled magnetic fields above the Onshore Cables at the Centerville River crossing would be 18.5 times lower than the values above because magnetic fields decrease exponentially with increasing distance (Exh. EFSB-MF-7).[87]

PCW reported that it used various conservative assumptions in its magnetic field modeling, such as assuming no possible cancellation between the Project and other magnetic field sources (Company Brief at 176, 183-184, citing Exh. RR-JJ-3). PCW also indicated that by proposing to install the Onshore Cables underground it further mitigated potential magnetic fields (Company Brief at 182, citing Exh. EFSB-MF-5).

---

87 As noted previously, the Onshore Cables at the Centerville River crossing would be approximately 24 feet deep. See Section VI.E.1.c.

Table 10. Modeled Magnetic Fields 3.3 Feet Aboveground for Two Possible Duct Bank Array Configurations on the Onshore Cables Route.

Cross Section	% Offshore Wind Capacity/ Loading	Magnetic Field (mG, Milliguass)		
		Directly Above Centerline (Maximum)	-20 ft from Duct Bank Centerline	+20 ft from Duct Bank Centerline
Roadway 2 wide × 4 deep Duct Bank Array	100%	57.8	3.8	3.8
	50%	28.9	1.9	1.9
Roadway 4 wide × 2 deep Duct Bank Array	100%	82.0	4.1	4.1
	50%	41.0	2.0	2.0

Source: (Exh. EFSB-MF-15 (S 2), Table 4).

PCW also modeled magnetic field levels for the Grid Interconnection along Eversource ROW 343 and 345 (Exh. EFSB-MF-15 (S 2), Table 6, Table 7). The Company modeled four loading scenarios in each ROW, shown in Table 11 and 12 below (Exh. EFSB-MF-15 (S 2), Table 6, Table 7). The magnetic field levels dissipate rapidly with distance from the edge of the duct bank (RR-EFSB-52 (S); Eversource Brief at 9). At a distance of 15 feet from the edge of the ROWs, the magnetic field levels associated with the Grid Interconnection would be negligible at the closest residence, i.e., less than 1 mG (Exh. EFSB-MF-15 (S 2); RR-EFSB-52 (S)). According to Eversource, there are eight residences whose property lines are between 20 to 100 feet from the edges of the ROWs (RR-EFSB-52 (S)).

Table 11. Modeled Magnetic Fields 3.3 Feet Aboveground for ROW 343 (275 kV line entering Substation).

Model Scenario	Magnetic Fields (mG)		
	Maximum Within ROW	Northern Edge of ROW	Southern Edge of ROW
1) 100% offshore wind production and minimum Cape Cod loading	231	46.1	22.0
2) 100% offshore wind production and maximum Cape Cod loading	136	46.5	12.5
3) 50% offshore wind production and maximum Cape Cod loading	55.8	20.4	2.2
4) 0% offshore wind production and maximum Cape Cod loading	101	9.9	9.7

Source: (Company Brief at 181, citing Exh. EFSB-MF-15 (S), Table 6).

Table 12. Modeled Magnetic Fields 3.3 Feet Aboveground for ROW 345 (345 kV line leaving Substation).

Model Scenario	Magnetic Fields (mG)		
	Maximum Within ROW	Northern Edge of ROW	Southern Edge of ROW
1) 100% offshore wind production and minimum Cape Cod loading	473	32.8	30.6
2) 100% offshore wind production and maximum Cape Cod loading	270	20.2	17.5
3) 50% offshore wind production and maximum Cape Cod loading	48.8	5.2	3.2
4) 0% offshore wind production and maximum Cape Cod loading	207	13.4	13.4

Source: (Company Brief at 181, citing Exh. EFSB-MF-15 (S), Table 7).

The Company asserts that its modeled magnetic field levels are well below relevant safety guidelines (Company Brief at 182). Specifically, the Company stated that the modeled magnetic field levels were below an exposure guideline of 2,000 mG set by ICNIRP (Company Brief at 182, citing Exh. EFSB-MF-4; RR-EFSB-46). The Company asserts that because those modeled levels fell far below relevant guidelines and reference points, the Project did not require further magnetic field mitigation (Company Brief at 176).

ii. Analysis and Findings on Magnetic Fields

The magnetic field strengths along the Shootflying Hill Road Route and the Oak Street Route would be similar. Consistent with WHO recommendations, the Siting Board continues to look for low-cost measures that would minimize exposures to magnetic fields from transmission lines. In prior Siting Board decisions, the Siting Board has recognized public concern about magnetic fields and has encouraged the use of practical and low-cost design to minimize magnetic fields along transmission ROWs. See e.g., Salem Cables at 88.

Given the underground installation of the Project Onshore Cables, the Company's modeled magnetic field values show maximums located over the Project centerline, with lateral distance from the centerline resulting in significant magnetic field reductions. Magnetic fields

20 feet from the Project Onshore Cables centerline would be between approximately 2 mG and 4 mG. For the Grid Interconnection, magnetic fields at 15 feet from the edge of the ROWs would also be similar in magnitude to the rest of the Onshore Cables routes. Additionally, the magnetic field value is expected to be magnitudes lower at the Centerville River crossing due to the deeper burial depth of the microtunnel path under river. The Siting Board finds that magnetic field impacts for the Shootflying Hill Road Route, the Oak Street Route and the Grid Interconnection would be similar, and that, given the planned installation described above, magnetic field impacts from construction and operation of the Project along either route would be minimized.

g. Onshore Cables Route Impacts Conclusion

Given the relatively similar topography, natural and human environments, and construction methods among the Shootflying Hill Road Route (and variants) and the Oak Street Route (and variants), the scoring and qualitative differences among them do not vary significantly. However, the Shootflying Hill Road Route did achieve the best score among all candidate routes and seems to offer other advantages noted above with respect to several impact categories. Accordingly, the Siting Board finds that the Shootflying Hill Road Route is, indeed, the "preferred route." Absent extenuating circumstances that would make it necessary to use one or more segments of the variants to this route, the Siting Board directs the Company to use the Shootflying Hill Road Route exclusively. Should such circumstances arise during permitting or construction, the Siting Board requires the Company to submit a notice of project change to the Siting Board for review and approval, describing the reasons necessitating the use of the proposed alternative routing. As described above, the Siting Board evaluated the impacts of the Preferred Grid Interconnection only. The Siting Board finds that the environmental impacts associated with the Grid Interconnection have been minimized.

E. Onshore Substation Environmental Impacts

1. Onshore Substation Description

PCW proposes to use the approximately 6.7-acre parcel at 8 Shootflying Hill Road for the Onshore Substation site (Exh. VW-1, at 1-16, 4-14 to 4-15). The site is located southeast of

the intersection of Route 6 and Route 132 and has direct access to Eversource ROW 343 (Exh. VW-1, at 1-16).[88] The site currently contains a motel building and paved parking areas in the north (that would be removed) and wooded land in the south (Exh. VW-1, at 1-16). PCW has options to purchase 8 Shootflying Hill Road, as well as 6 Shootflying Hill Road, a one-acre parcel to east, owned by the Cape Cod Chamber of Commerce (Exhs. VW-1, at 4-15; VW-11, at 1-9; Tr. 9, at 1371-1374).[89] The Company proposes to use the 6 Shootflying Hill Road parcel for access to the Onshore Substation (Exhs. VW-7, at 2-47; VW-10). The 8 Shootflying Hill Road parcel can currently be accessed only from the north by Shootflying Hill Road (Exh. VW-1, at 1-16). By using the 6 Shootflying Hill Road parcel as the entrance, the Company would avoid potentially having to re-grade the site to ten feet above its current elevation to gain access directly from Shootflying Hill Road (Exh. VW-10; RR-EFSB-42).[90] The Onshore Substation site is bordered to the west by three residences, further east by more land owned by the Cape Cod Chamber of Commerce and MassDOT, and to the south by Eversource ROW 343 (Exh. VW-1, at 1-16).

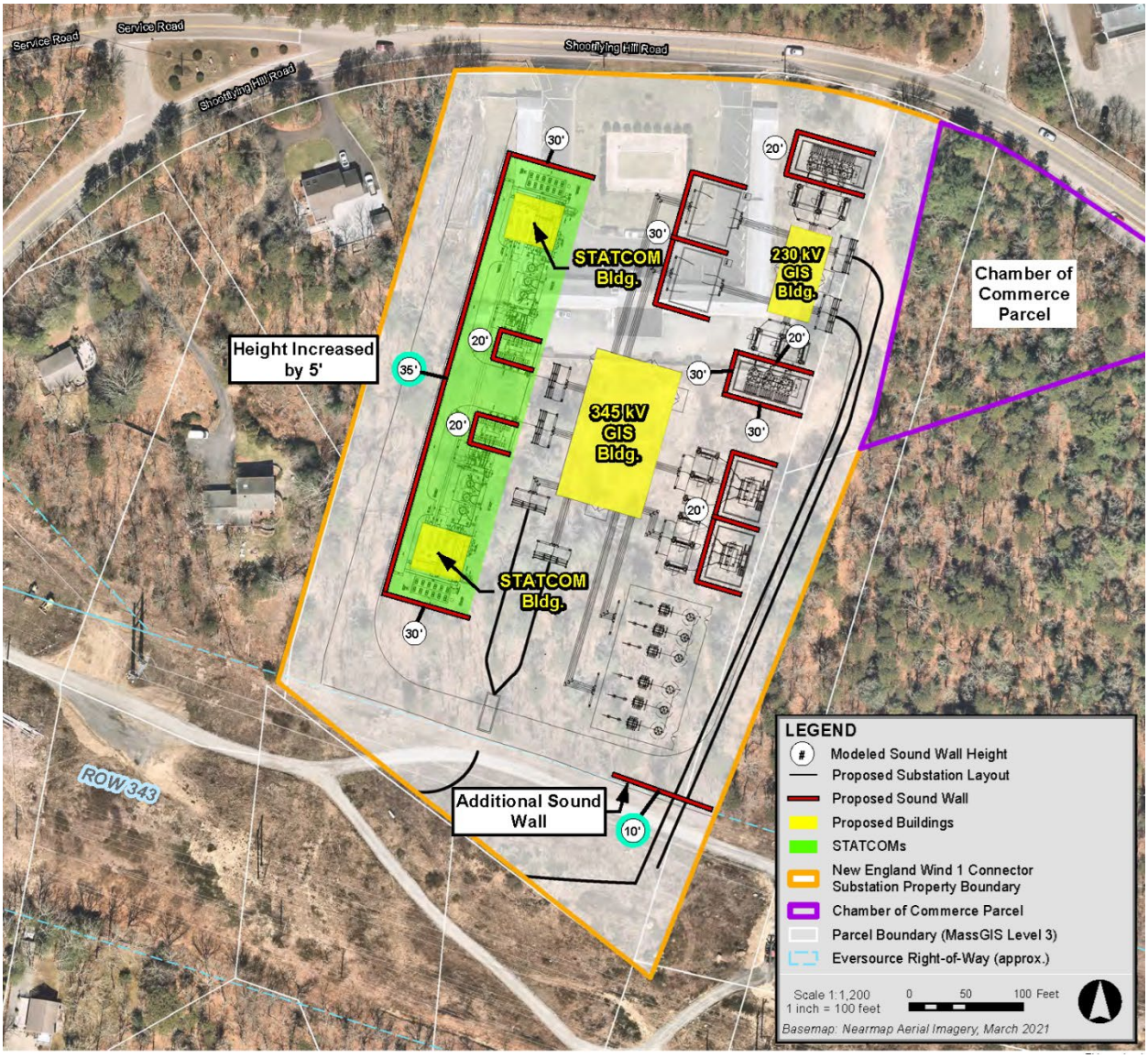
---

88 From a map provided by the Company, the Siting Board estimates that the Onshore Substation site is approximately 200 feet south of Route 6 (Exh. VW-2, Figure 1-9).

89 MassDOT holds a right of first offer to purchase 6 Shootflying Hill Road (Exh. VW-11, at 1-9). However, the Chamber of Commerce has requested a release of that condition from MassDOT (Exh. VW-11, at 1-9).

90 The Company noted, however, that it had not yet selected a final grade elevation for the Onshore Substation site (RR-EFSB-2; RR-EFSB-42).

Figure 5: Design of Onshore Substation Site.



Adapted from: (Exh. VW-11, Figure 1-7).

PCW proposed a GIS design for the Onshore Substation (Exh. VW-1, at 1-17). The Company explained that a GIS design consists primarily of a structure containing substation equipment with pressurized sulfur hexafluoride ("SF_6") that insulates the equipment (Exh. VW-1, at 1-17). The Company stated that an alternate air-insulated switchgear ("AIS") design would require more space between equipment and that the Onshore Substation site is too small for AIS design (Exh. VW-1, at 1-17). The Company stated that two static synchronous compensators

("STATCOM") would be placed on the western portion of the site (Exh. VW-7, at 2-47). Each of the STATCOM would include an enclosure that houses the static compensator itself, with necessary ancillary equipment such as transformers, reactors, and cooling fan arrays outside the enclosure (Exh. VW-7, at 2-47). The Company stated that a 345 kV GIS switchgear building, including integrated control room, would be located in the center of the Onshore Substation site with the remaining equipment (including a 275 kV GIS switchgear building, shunt reactors, transformers, and shunt filters) arranged along the eastern portion of the site (Exh. VW-7, at 2-47).

The Company's Substation design also includes internal and perimeter sound barriers, and a 30-foot wide vegetated buffer along the Onshore Substation site's western edge, and a planted strip along Shootflying Hill Road on the north side (Exh. VW-7, at 2-47). The perimeter sound barrier would extend 400 feet on the western edge of the site, with shorter extensions on both northern and southern ends (Exh. VW-7, at 2-47). The barrier would be three-sided, and 35 feet high (Exhs. VW-7, at 2-47; EFSB-V-12 (S)). PCW will also install perimeter security fencing around the Onshore Substation and use crushed stone for the ground around the Onshore Substation equipment (Exh. VW-1, at 5-85).

2. Onshore Substation Construction

PCW expects construction for the new Onshore Substation to take approximately 18 to 24 months (Exh. VW-1, at 5-86). The Company would begin construction by installing perimeter fencing, a security gate, and initial erosion controls (Exh. VW-1, at 5-85). The Company would then clear and grade the site, install retaining walls and excavate areas requiring drainage swales and basins (Exh. VW-1, at 5-85). After that, the Company would excavate areas for major component foundations, such as for transformers and reactors, and containment sumps (Exh. VW-1, at 5-85).

After the site is prepared, PCW reported that it would construct the major foundations and containment sumps and install major equipment (Exh. VW-1, at 5-85). The Company would then install underground cabling connections for the Onshore Substation and place crushed stone around the Onshore Substation yard (Exh. VW-1, at 5-85). Next, the Company would deliver and set up a prefabricated control house, deliver and place other equipment such as breakers, and

complete electrical buswork, cabling, control wiring, and install protection systems (Exh. VW-1, at 5-85 to 5-86). Finally, the Company would install permanent perimeter security fencing, screening and performing final landscaping (Exh. VW-1, at 5-86).

3. Onshore Substation Environmental Impacts (other than noise)

PCW stated that approximately three acres of the Onshore Substation site are currently undeveloped and contain Pitch Pine-Oak forest (Exh. VW-1, at 5-33). PCW anticipates that the entire site will need to be cleared to accommodate grading and access during construction, but that buffers will be revegetated following construction pursuant to final design plans (Exh, VW-1, at 5-33). Given that adjacent forested land that will remain unaffected, however, PCW maintains that this clearing is unlikely to have significant impacts on wildlife (Exh. VW-1, at 5-33). Eversource would also remove approximately 0.70 acres of trees around the West Barnstable Substation to construct the Grid Interconnection (RR-EFSB-52 (S), Fig. 1 & Fig. 2). The Company indicated that the Onshore Substation site is not located within or adjacent to mapped rare species habitat (Exh. VW-1, at 5-23). The Company will maintain a 30-foot-wide buffer along the western edge of the site following construction, as well as plant evergreens along the northern edge facing Shootflying Hill Road (Exhs. VW-1, at 5-33; EFSB-V-15; see also VI.E.2.e.i). The Company reported that its proposed Onshore Substation site is too far from any historic properties to result in adverse visual impacts to those properties (Exh. VW-1, at 4-48).

The proposed Onshore Substation site is located within area mapped for Zone II wellhead protection[91] and the Barnstable Groundwater Protection Overlay District (Exh. VW-1, at 5-26 to 5-27). PCW explained that on Cape Cod, the soil type is more sandy, which means that fluids infiltrate into the ground and move through the soil quicker and at greater distances than other

[91] As defined in 310 CMR 22.02, Zone II "means that area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation). The Zone II must include the entire Zone I area…" As defined in 310 CMR 22.02, Zone I "means the protective radius required around a public water supply well or Wellfield…" (Exh. VW-1, at 5-25 n.8 & n.9)

parts of the state where the soil had more fines and clay composition (Tr. 6, at 986). Additionally, the Company stated that residents on the Cape are entirely dependent on groundwater for drinking water (Tr. 6, at 986). PCW reported there are no wetlands resource areas present on or adjacent to the Onshore Substation site (Exh. VW-1, at 5-9).[92] PCW asserts that the Onshore Substation would not cause permanent impacts to drainage or water quality (Company Brief at 173).

The Company stated that it would equip major Substation components that use dielectric fluids, including transformers and iron core reactors, with full-volume (110 percent) containment sumps (Company Brief at 173, citing Exhs. VW-1, at 1-18; VW-7, at 2-48; VW-11, at 1-12). At the Town's request, the Company committed to adding an additional margin to accommodate stormwater from an extreme precipitation event, i.e., the Probable Maximum Precipitation event of 30 inches of rain as defined by the Town (Company Brief at 173, citing Exhs. VW-1, at 1-18 to 1-19; VW-7, at 2-48). The Company also committed to implementing containment measures outlined in its HCA with the Town, specifically, that containment for the Onshore Substation be constructed consistent with that described in PCW's FEIR (Company Brief at 173; RR-EFSB-24; Exh. EFSB-G-14 (S), Att.1, at 7). The Company will provide the final Substation drawings for civil construction and containment to Barnstable prior to commencement of construction of the Onshore Substation (Exh. EFSB-G-14 (S), Att. 1, at 7). Furthermore, the Company's drain system, which would be connected to each individual containment area, will include an oil-absorbing inhibition device and oil water separator (Exh. VW-1, at 1-18). The Company described the multiple levels of containment (individual containment, a common filter drain system and infiltration basin) as well beyond a standard substation design (Tr. 6, at 985-986).

The Company stated that it would place spill containment kits and spill control accessories strategically around the Onshore Substation and train operators to use and deploy the equipment (Exh. VW-1, at 1-19). The Company added that it would retain a licensed third-party

---

92 The Siting Board notes that the Onshore Substation site is just under 2,000 feet north of Lake Wequaquet (Exh. VW-2, Att. F, Sheet 2). As noted above, Variant 2 of the Shootflying Hill Road Route passes through the 100-foot buffer zone of the lake (Exh. VW-1, at 5-5).

spill response contractor on call as part of PCW's emergency spill response plan (Exh. VW-1, at 1-19). As stated above, the Company will also have an SPCC Plan that covers all aspects of Project construction and operation that could result in the release of a pollutant (Exh. EFSB-W-18).

The Company reported that its stormwater management design will meet or exceed Massachusetts Stormwater Policy recommendations and comply with MassDEP Stormwater Standards (Exhs. VW-1, at 1-20; VW-11, at 1-14, Att. F). The Company stated that its stormwater management system would include best management practices and strategies that have low development impact to capture, treat, and recharge stormwater runoff (Exhs. VW-1, at 1-19; VW 11, at 1-13, Att. F). The Company also reported that it would design the Onshore Substation so that post-development total discharge volume and peak runoff rates would be less than existing conditions for 2-year, 10-year, and 100-year 24-hour storms (Exh. VW-11, Att. F). The site of the Onshore Substation is not within an existing FEMA flood zone, and no hurricane storm surge inundation would be expected at the site (Exh. VW-1, at 5-29, 5-31).

PCW drafted a Stormwater Management Plan for the Onshore Substation construction (Exh. VW-11, Att. F). The Stormwater Management Plan would include an Erosion and Sedimentation Plan that describes how the Company would contain all potential sedimentation and erosion that might occur during Substation construction (Exh. VW-7, Att. N). The plan would also include best management practices to minimize offsite pollution, including disposal methods for construction debris, erosion control, dust control, and disturbed surface maintenance practices (Exh. VW-7, Att. N).

According to its HCA with the Town, the Company does not expect to require any material increase in the use of emergency response resource by the Town (Exh. ESFB-G-14 (S), Att. 1, at 19). As stated above, the Company intends to have an emergency response plan as part of the Projects overall safety management system (Exh. VW-1, at 1-19). The HCA requires that PCW reimburse the Town for all reasonable costs incurred by the Town in responding to any and all emergency response actions, such as emergency medical response, fire-fighting resource, and hazardous material release, originating from the Project (Exh. EFSB-G-14 (S), Att. 1, at 19). The Company will also reimburse reasonable expenses of the Town and its fire districts for

training for, equipping for and preparing for emergency response actions originating from the Project (Exh. EFSB-G-14 (S), Att. 1, at 19).

PCW acknowledges that the Onshore Substation would result in permanent visual impacts (Company Brief at 158). The Company employed a contractor to provide a detailed assessment of the Onshore Substation's visual impacts and mitigation strategies (Exh. VW-8). The Company represented that those impacts would be related to tree clearing, grading and equipment installation at the Onshore Substation site (Company Brief at 158-59, citing Exh. VW-1, at 1-16 to 1-18; VW-7, at 1-15 to 1-16). The Company stated that the Onshore Substation would be abutted by three residences to the west, two of which are 40 feet and one of which is 230 feet from the Onshore Substation property line (Exhs. VW-1, at 1-16; EFSB-V-12 (S)). The Company provided line of sight profiles to represent views from each of the three residences (Exh. EFSB-V-10 (S), Att. 1). PCW stated that it would primarily mitigate visual impacts through fencing and landscaping around the Onshore Substation's perimeter (Company Brief at 159).

The Company proposed to maintain a minimum of 30 feet of vegetated buffer along the site's western edge and the abutting residences (Exhs. VW-7, at 2-47; VW-10; EFSB-V-15; Tr. 6, at 908, 915-917). According to the Company, the area between the Onshore Substation and the residences is currently a forested area of primarily deciduous trees that serves as a natural buffer (Company Brief at 160, citing Tr. 6, at 915). PCW stated that it may clear some trees in the buffer area as it finalizes its Onshore Substation design; the Company committed to replacing any cleared trees with native evergreen species (such as spruce or cedar trees) (Tr. 6, at 915-917, 938-939). The Company committed to notifying the Siting Board if it determines that it needs to clear any part of the vegetated buffer (Company Brief at 160; Tr. 6, at 917; RR-EFSB-37). According to the Company, any vegetated screening maintained on the Onshore Substation site will remain natural and will not necessitate application of herbicides (Exh. VW-1, at 5-25).

As described earlier, the Company also proposes a 35-foot sound barrier that would mitigate noise impacts to residences to the west of the Onshore Substation site, as well as retaining walls (Exhs. VW-7, at 2-47; VW-8, at 1; EFSB-V-12 (S); see also Section VI.F.1). The Company claims that the sound barrier would also provide visual screening for the residences

(Exhs. VW-7, at 2-47; VW-8, at 1). According to the Company, depending on leaf conditions, the sound barrier and retaining walls would be visible to varying degrees from the three nearby residences (Company Brief at 162-163, citing Exh. EFSB-V-12 (S)).

PCW also proposed to plant evergreens along the Onshore Substation site's northern edge to mitigate visual impacts along Shootflying Hill Road (Exh. EFSB-V-15). Additionally, the Company claims that on the northern side of the perimeter fence around the Onshore Substation site, plastic slats inserted into the chain links would minimize visual impacts (Tr. 6, at 913-914; Exhs. VW-8, at 1; EFSB-V-14). According to the Company, its visual simulations showed that the proposed evergreens provide nearly complete visual screening of the Onshore Substation along its northern edge in five years (Exh. VW-8, App. C, Fig. 1b & 1c).

PCW reported that outdoor lighting is necessary at the Onshore Substation for safety and security purposes (Company Brief at 163, citing Exh. EFSB-V-3(b); Exh. VW-1, at 1-20; RR-EFSB 38). The Company indicated that most outdoor lights would only be used in limited situations (Company Brief at 164, citing Exhs. VW-1, at 1-20; ; VW-7 at 2-50). The Company stated that its lighting design will be based on requirements in the National Electric Safety Code and that it will comply with night sky lightning standards to the extent practicable (Exh. VW-1, at 1-20; RR-EFSB-39). The Company also stated that it would work with Barnstable to ensure that the lighting scheme complies with Town requirements (Company Brief at 164, citing Exhs. VW-1, at 1-20; VW-7, at 2-50; RR-EFSB-39).

The Company would install low-intensity lighting fixtures at the 275 kV GIS building, 345 kV GIS building, and corners of the two STATCOM walls, which would operate from dusk to dawn (Exh. VW-1, at 1-20; RR-EFSB 38; RR-EFSB-40). The Company would have high-intensity flood lights fitted on static masts in the corners of the Onshore Substation to provide lighting to personnel present at the Onshore Substation site (Exh. EFSB-V-7; RR-EFSB-38; RR-EFSB-40). The Company reported that it was considering holophane-type fixtures equipped with light shields to prevent light from encroaching into adjacent areas (Exhs. VW-1, at 1-20; VW-7, at 2-49; EFSB-V-9; Tr. 6, at 928-930).

The Company also reported that parking at the Onshore Substation would be infrequent, thus Onshore Substation operations would not adversely affect traffic (Exh. EFSB-Z-12). As

stated above, the Company proposed a GIS design for the Onshore Substation, which means that certain equipment such as circuit breakers and gas insulated bus would contain SF_6 (Exhs. VW-1, at 1-17; EFSB-A-5; see also Section VI.C.3). SF_6 is a potent greenhouse gas (RR-EFSB-80). The Company stated that SF_6 is the primary choice for GIS equipment in the utility industry (Company Brief at 157; RR-EFSB-81). The Company estimated that the circuit breakers would contain between 125 and 165 pounds of SF_6 per breaker, with the current Onshore Substation configuration requiring between 14 to 16 breakers (Exhs. VW-1, at 1-17; EFSB-A-5). The Company estimates that the gas insulated bus, which would be about 1,500 linear feet, would contain 125 to 165 pounds of SF_6 every five linear feet (Exhs. VW-1, at 1-17; EFSB-A-5; RR-EFSB-78; Tr. 9, at 1355-56).

SF_6 emissions are regulated by MassDEP regulation 310 CMR 7.72; PCW committed to meet the applicable requirements of MassDEP's regulations (Exhs. VW 1, at 1-17; VW-11, at 1-12; EFSB-A-5; Company Brief at 158). According to PCW, SF_6 is carefully regulated, controlled, and monitored due to its global warming potential (RR-EFSB-80).[93] MassDEP limits the maximum annual leakage rate of SF_6 leakage to 1.0 percent after 2020. 310 CMR 7.72. The Company stated that it will require its equipment manufacturer to guarantee a maximum annual leak rate of less than 0.1 percent (Exhs. VW-1, at 1-17 to 1-18; VW-11, at 1-12; EFSB-A-5). The Company reported that it would take all reasonable precautions to minimize leaks of SF_6 (Company Brief at 158). The Company explained that the circuit breakers and gas insulated bus would be airtight and sealed for the life of the equipment (Exhs. VW-1, at 1-17; VW-11, 1-12; EFSB-A-5). The Company also represented that it would follow manufacturer recommended maintenance procedures and best industry practices to avoid leaks and will continuously monitor the equipment (Company Brief at 158, citing Exhs. VW-1, at 1-18; VW-7, at 2-47 to 2-48; VW-11, at 1-12; EFSB-A-5).

Finally, PCW modeled magnetic field levels at the residences to the west of the proposed Onshore Substation site (Company Brief at 183, citing Exh. EFSB-MF-15 (S 2), Fig. 9; RR-JJ-

---

93 The Company indicated that there are no emergency reporting requirements for SF_6 because there is no direct human health risk associated with SF_6 (Tr. 2, at 366-367).

3(b)). The Company's models showed a 1 mG to 2 mG increase in magnetic field levels at the residences, as a result of the Onshore Substation (Company Brief at 183, citing Exh. EFSB-MF-15(S2), fig. 9; RR-JJ-3(b)).

PCW represented that the construction-related impacts for the Onshore Substation would be similar to those of the Onshore Cables route construction (Company Brief at 156-157). During Onshore Substation construction, PCW indicated that temporary lane closures would only be required for construction near the site access roads, as well as during deliveries of large substation equipment (Exh. EFSB-T-26). The Company will prepare a traffic mitigation plan and present it to the Town for review and approval prior to construction (Exh. EFSB-T-26). As stated above in Section VI.D.3.e.ii, the Company will implement emission and dust mitigation measures during construction to minimize vehicle-related air impacts.

PCW estimated that re-grading the site to be accessed by Shootflying Hill Road would require bringing in 56,000 cubic yards of fill to raise the site elevation by ten feet (Exh. VW-10; RR-EFSB-42). PCW asserts that using 6 Shootflying Hill Road for access would avoid the need to import fill and the potential construction related traffic impacts associated with transporting fill (Company Brief at 156-157, citing Exh. VW-10; RR-EFSB-42). The Company estimated that the reduction in elevation would result in the need to export soils equivalent to approximately two-thirds the volume of fill the Company would have needed to import for the original site design (Exh. VW-10). The Company initially indicated that, based on the original Onshore Substation design that there could be approximately 3,120 truck trips to transport fill to the site (Exh. EFSB-T-36 (S)).[94] The Company represented that the trucks would enter and exit the site from Route 6 (RR-EFSB-42).[95] PCW will coordinate truck routes and frequency with the Town to mitigate potential traffic impacts; the Company also committed to avoiding

---

94 The Siting Board calculates the estimated number of truck trips related to exporting fill to be 2,080 based on the Company's assertion that the volume of soil needing to be transported would two thirds of the original volume.

95 The Siting Boards notes that the Company provided maps of potential truck routes, which show the trucks entering and exiting the site from the proposed access road at 6 Shootflying Hill Road (RR-EFSB-42, Att. 1 & 2).

concentrated truck trips during peak hour traffic (Exh. EFSB-T-36 (S)). The HCA notes that the Company will cooperate with other Town of Barnstable agencies to obtain local permitting (Exh. EFSB-G-14, Att. 1, at 14).

i. Analysis and Findings on Substation Environmental Impacts (other than noise)

Over the course of this proceeding, the Company's design of the Onshore Substation has evolved as it has responded to development challenges and opportunities, addressed stakeholder concerns and comments, and endeavored to further avoid and minimize environmental impacts. The Company acknowledges that the size of the parcel at 8 Shootflying Road required the use of GIS technology, even though more costly than AIS design. Initially, the Company considered locating some of the components of the Onshore Substation on a 2.8-acre site north of Route 6 and adjacent to the West Barnstable Substation (parcel 214-001), but ultimately decided to locate all components on the 8 Shootflying Hill Road site. The Company has negotiated a purchase option for adjacent property at 6 Shootflying Hill Road, that would provide an alternative means of accessing the Onshore Substation property and avoid the need to elevate the Onshore Substation site by ten feet. Nevertheless, the Company asserts that it has not finalized the final grade elevation of the site. The Siting Board has evaluated the impacts of the Onshore Substation at the lower elevation and approves the Onshore Substation as described at the lower elevation. The Siting Board directs the Company to notify the Siting Board should it not be able to construct the Onshore Substation at the lower elevation.

The Siting Board notes that the Company will remove almost four acres of trees in a Pitch-Pine Oak forest. The Siting Board urges the Company to examine opportunities for mitigation. The Siting Board advises future applicants to take all feasible measures to avoid or minimize the impacts of the loss of tree cover associated with project development activities. Such measures should fully consider the costs and benefits of on-site tree preservation and/or off-site mitigation and offer the maximum protection and/or mitigation possible based on such an evaluation. The Siting Board also expects full and complete descriptions in future filings of how such measures would be accomplished.

The Onshore Substation site is located in a Zone II wellhead protection zone and within the Barnstable Groundwater Protection Overlay District that safeguards the Town's drinking water supplies. The Company has proposed a number of measures to mitigate the risk to groundwater supplies and the environment generally, which include: an integrated fluid containment system with capacity capable of capturing at least 110 percent of any components containing dielectric fluid, plus additional capacity for extreme rainfall events; a Stormwater Management Plan and Erosion and Sedimentation Plan, including a stormwater management system in conformance with the Massachusetts Stormwater Management Standards; and a Spill Prevention, Control, and Countermeasures Plan. These measures, among others, addressed groundwater protection concerns expressed by a variety of stakeholders during the MEPA review process, including the Secretary's FEIR Certificate. Additionally, the HCA between the Town and the Company requires the Company to construct the containment system for the Onshore Substation consistent with that described in the FEIR. With these mitigation measure, the Siting Board finds that impacts to groundwater and stormwater runoff would be minimized.

The record shows that while the Company does not expect that the Town would not require additional emergency response resource, PCW will reimburse the Town for emergency response related spending, including for training, equipment and actual emergency response actions. The Company has stated that it will prepare an emergency response plan. The Siting Board directs the Company to describe in its emergency response plan, at a minimum, specific steps to be taken in response to emergency situations including, but not limited to, flooding and fires. The plan shall also describe the structure of communication and authority that would be followed in the event of an emergency at the Onshore Substation, specifically identifying the public safety and emergency management officials with whom PCW would coordinate. In developing the emergency response plan, the Company shall consult appropriate municipal and/or state public safety and emergency management officials. The Company shall submit to the Siting Board the emergency response plan at least 30 days prior to the start of the operation of the Project and indicate any evacuation-related provisions of plan that are still in development with appropriate public safety and emergency management officials.

The Siting Board acknowledges that certain fire-prevention and fire-fighting agents have, in the past, contained hazardous chemicals referred to as per- and poly-fluoroalkyl substances ("PFAS").[96] To avoid future harm to the environment, the Siting Board directs PCW to employ non-PFAS high-expansion foams at the Onshore Substation, to the extent such products are commercially available, efficacious, and compliant with the relevant requirements of 310 CMR 112.

The record shows that PCW's proposed Onshore Substation would result in permanent visual impacts. These impacts would be due to tree clearing, site grading, and equipment installation. The Company will maintain a vegetative buffer to mitigate the visual impacts to residences to the west of the Onshore Substation, including a 30-foot-wide natural buffer. In addition, the proposed 35-foot-high sound wall on the western side of the site, and other perimeter fencing and landscaping, will provide some visual mitigation of the equipment and structures within the Onshore Substation site. The Company will install lighting for safety and security purposes, following existing regulations and standards, and will minimize the duration that lighting would be used. The Siting Board finds that with implementation of mitigation, the visual impacts of the Company's Onshore Substation would be minimized.

Certain equipment at the Onshore Substation would contain SF_6, which is a very potent greenhouse gas. The Company will install equipment designed to have an annual maximum SF_6 leak rate much lower than the applicable MassDEP regulations and will implement various mitigation measures to prevent the gas from leaking. The Siting Board finds that with the Company's mitigation measures, including its proposed procurement requirement for SF_6 containing equipment and manufacturer's guarantee, the potential air impacts of SF_6 would be minimized.

The Company evaluated the added level of magnetic field exposure to the closest residents of the Onshore Substation and determined that the added levels would be roughly one or two mG, which is a very low level in comparison with established ICNIRP standard, and

---

[96] See https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas.

many other projects approved by the Siting Board and the Department. Thus, we find the Company's has minimized magnetic fields as part of the Onshore Substation design.

Construction of the Onshore Substation would also result in temporary traffic and air related impacts. The record shows that this construction would involve vehicle trips to and from the Onshore Substation site related to fill export and large equipment deliveries. Fill removal to grade the site is one of the earlier steps in Onshore Substation construction, therefore it is not likely that vehicle traffic would remain at elevated levels throughout the duration of construction. PCW anticipates that these trucks would travel from Route 6 to the site from the proposed access road east of the site on the 6 Shootflying Road parcel. The Company will implement a TMP regarding the trips and committed to coordinating with the Town on reducing the potential impacts of the fill removal trucks. The record also shows that the Company may have additional local permitting requirements and that it commits to complying with those processes. The Siting Board directs the Company to fulfill its commitment to work with the Town to mitigate the traffic related to re-grading the site, and to explore further mitigation of this work through any subsequent permitting processes with Town of Barnstable permitting agencies. The Company will also implement emission and dust related mitigation for the Project to minimize those potential impacts. In view of the above, we find the Company's has minimized traffic and air impacts as part of the proposed Onshore Substation.

The main environmental issue in contention in this proceeding concerns Substation noise impacts to abutters, and this is addressed below.

4. Onshore Substation Noise

i. Description

PCW modeled sound level increases at 12 nearby receptors using techniques that it argues are standard for the utility industry and have been accepted by the Siting Board in previous proceedings (Company Brief at 164-165; Exh. VW-7, at 7-14). The receptors included neighboring residences and residential property lines near the Onshore Substation site (Exhs. VW-7, at 7-14; EFSB-NO-28). The Company reported that its consultants carried out a nine-day sound survey in mid-January 2020 under leaf-less conditions, which the Company contends provided a conservative measurement of existing ambient sound levels near the Onshore

Substation site (Company Brief at 165, citing Exh. VW-7, at 7-1). The Company concluded from the survey that existing ambient sound levels in the area are heavily influenced by traffic noise from Route 6, particularly in the day and evening – often between 45 to 60 dBA (Company Brief at 165, citing Exh. VW-7, at 7-1; 7-7). On the other hand, from midnight to 3 or 4 a.m., ambient sound levels are very quiet (32 to 35 dBA) (Company Brief at 165, citing Exh. VW-7, at 7-1, 7-7).[97]

The Company's noise consultant, Epsilon, used Cadna/A software to model operational noise levels at the Onshore Substation (Company Brief at 165, citing Exh. VW-7, at 7-14).[98] The Company explained that the noise modeling was used to develop strategies to mitigate potential noise impacts for Substation operations – including locating equipment in certain areas of the Substation site, use of low-noise equipment, and use of enclosures for certain equipment (Company Brief at 164). The Company states these strategies are used to limit increases in offsite ambient sound levels under quiet late-night conditions (Company Brief at 164, citing Exh. VW-7, at 7-9 to 7-10). For example, the Company explained that, to minimize sound level increase to the west, the two STATCOM on the western portion of the site were placed behind three-sided, 35-foot-high, 400-feet-wide sound barrier (Exhs. VW-7, at 7-9 to 7-10; EFSB-V-12 (S)). The Company stated that modeling was done in an iterative fashion to determine the most feasible, least impactful design (Exh. VW-7, at 7-10).[99] The Company testified that it added the Onshore Substation sound wall as a result of the iterative process, to eliminate potential pure

---

97 The Company presented its measurements as L_{90} sound pressure levels (Exh. VW-1, at 5-61). L_{90} is a statistical description of the sound level exceeded 90 percent of the time over a measurement period (Exh. VW-7, at 7-4).

98 The Company identified its modeling inputs and parameters for its Cadna/A calculations (Exh. VW-7, at 7-14 to 7-15). According to the Company, inputs in the software include: the site plan, receptor locations, terrain elevation, sound power levels of equipment, meteorological conditions, and attenuation of sound by the ground (Exh. VW-7, at 7-14).

99 The Company explained this iterative process: if the modeling showed that a particular design or equipment configuration could generate significant offsite noise, Epsilon revised the design through the application of mitigation until the modeling showed that the design was optimized, i.e., consistent with relevant noise standards (Tr. 10, at 1490-1491).

tones from the transformers (Tr. 5, at 785). The Company also chose the location of its GIS switchgear buildings to reduce modeled noise impacts (Exh. VW-7, at 2-47).

The Company reported that it relied on equipment sound power levels from the Vineyard Wind Connector substation for all equipment other than the 450 megavolt-amperes ("MVA") transformers and iron core shunt reactors (Exh. VW-7, at 7-10). The Company stated that the transformers would be the loudest sources of sound at the Onshore Substation (Tr. 5, at 813-817). The Company explained that an increase in sound power level of a source will translate into a direct increase of sound pressure level at a close receptor (Tr. 10, at 1498-1499). According to the Company, Epsilon used a sound power level of 93 dBA for a "quieted" transformer from the "Electrical Power Plant Environmental Noise Guide" published by Edison Electric Institute ("EEI Noise Guide") as a "starting point" (Exh. VW-7, at 7-12). Epsilon applied a further reduction of 7 dBA to the transformer sound levels as a result the iterative modeling (Exh. VW-7, at 7-12; Tr. 10, at 1490). Epsilon also made reductions in sound power levels to STATCOM related components (Johnson Brief at 15 citing Tr. 10, at 1495-1496). The Company explained that to reduce sound power levels, transformers could be built with denser casings, and STATCOM cooling fan banks may incorporate larger but slower-speed fans to reduce sound power levels (Exh. VW-7, at 7-12 to 7-13).

The Company asserts that all modeled noise levels at nearby residences are below the MassDEP Noise Policy threshold of 10 dBA increase over ambient conditions (Company Brief at 167, citing Exh. VW-7, at 7-1 to 7-2).[100] PCW reported that the maximum modeled sound

---

[100] Park City's noise modeling showed an increase of 12 dBA over L_{90} late night ambient conditions at a commercial property – a Cape Cod Chamber of Commerce building northeast of the Onshore Substation site (RR-EFSB-4, Att. 1, at 3). The Company stated that the building is only used during the day (RR-EFSB-4, Att. 1, at 3). The Company asserts that MassDEP's Noise Policy focuses on inhabited residences rather than commercial properties (Company Brief at 168, citing Tr. 10, at 1535). According to the Company, representatives from the Chamber of Commerce did not have existing concerns with regard to the Project (Tr. 5, at 831; Tr. 10, at 1537-1538; RR-EFSB-35). The Chamber of Commerce also filed a comment letter in 2020 in support of the Project (October 26, 2020 Comment Letter).

increase over late-night L_{90}[101] ambient conditions at one of the closest residences (Modeling Location D) is 8 dBA (Company Brief at 166-167, citing RR-EFSB-4, Att. 1, at 2-3; Exh. VW-11, at 1-15 to 1-16).[102]

Table 13: Onshore Substation Modeled Increases Over L_{90} Ambient Conditions.

Modeling Location	Type	Ambient L_{90} Sound Level (dBA)	Modeled Onshore Substation Only L_{eq} Sound Level (dBA)	Total Sound Level (dBA)	Increase over Ambient (dBA)
A	Residence	35	38	40	5
B	Residence Property Line	35	41	42	7
C	Residence	32	32	35	3
D	Residence	32	39	39	8
E	Residence Property Line	32	39	39	8
F	Chamber of Commerce	34	46	46	12
G	Cape Cod Conservatory	32	32	35	3
H	Residence	32	30	34	2
I	Residence	32	32	35	3
J	Residence	32	30	34	2
K	Residence	32	37	38	6
L	Residence	32	35	37	5

Source: (Exh. VW-11, at 1-15 to 1-16, Table 1-2).

The Company stated that the modeled increase at all other residences and residential property lines is 7 dBA or lower (RR-EFSB-4, Att. 1, at 3; Exh. VW-11, at 1-15 to 1-16). The Company argues that, because the daytime and evening sound levels (before midnight) are

---

101 L_{90} is the sound level exceeded 90 percent of the time during a measurement period (Exh. VW-7, at 7-4). The L_{90} is close to the lowest sound level observed (Exh. VW-7, at 7-4).

102 Modeling Location D is intervenor Jacqueline Johnson's residence. Ms. Johnson estimates that the two STATCOM buildings would be closest to her property (about 144 feet away) and would be the closest noise source to her home (Johnson Brief at 15-16, citing Exh. VW-11, Att. A, Fig. 1-7).

strongly influenced by traffic on Route 6, noise from Substation equipment would likely be imperceptible during daytime and evening hours (Company Brief at 167, citing Exh. VW-1, at 7-1 to 7-2). The Company stated that there are no federal noise regulations applicable to the Project (Exh. VW-7, at 7-4).

PCW argues that actual Substation noise levels would be lower than the modeled levels because the noise modeling included several conservative assumptions (Company Brief at 169-70). First, the Company stated that the modeled noise levels assumed receptors are outdoors (Exh. VW-7, at 7-2). The Company explained that perceptible noise impacts were modeled between 12 a.m. and 4 a.m., when very few people are likely to be outside; the Company asserts that receptors who are indoors would experience a 10 dBA reduction in perceptible noise (Company Brief at 169, citing Exh. VW-7, at 7-7; Tr. 5, at 779; Tr. 10, at 1546; RR-EFSB-30; RR-EFSB-30, Att. 1, at 80). The Company based this assumption on a document it referred to as the U.S. EPA "levels document" ("EPA Levels Document") (RR-EFSB-30 & Att. 1).

Next, the Company asserts that Substation noise would be less noticeable, conservatively at least 5 dB lower, in summer (due to foliage and background insect noise) than in winter, when the ambient noise levels were measured (Tr. 5, at 775-776; Exh. VW-7, at 7-6). The Company maintains that it minimized the effects of atmospheric attenuation of noise in its modeling (Exh. EFSB-NO-30; Tr. 5, at 838-839). The Company also claims that it added a 2 dBA modeling uncertainty to the results from the Cadna/A model (Tr. 5, at 839; Tr. 10, at 1524-1525). Additionally, PCW argues that the model assumed all Substation equipment would be operating maximum capacity, a scenario that would not be typical (Tr. 5, at 820-821, 838). Finally, the Company stated that its modeling assumed that the ground in and around the Onshore Substation would be more reflective of noise than is likely, increasing modeled sound levels (e.g., it assumed hard reflective surfaces versus the crushed stone or vegetation that will be present) (Exh. EFSB-NO-30; Tr. 10, at 1524-1525).

The Company proposed to install a 35-foot high, 400-foot-wide sound barrier on the western edge of the Onshore Substation site and a 10-foot high, 100-foot-wide wall on the southeastern corner of the site (RR-EFSB-4, Att. 1, at 5; Exhs. EFSB-NO-29 (S); EFSB-V-12 (S); Tr. 5, at 794-796). The Company asserts that any further increase in wall heights would

result in diminishing returns for additional noise mitigation (Company Brief at 172). The Company modeled a five-foot increase to the Onshore Substation's western sound wall that would cost an additional $250,000 and only result in a 1 dBA improvement at the nearby receptors (Company Brief at 172, citing Tr. 5, at 795, 797-798; RR-EFSB-32; RR-EFSB-33; Exh. EFSB-NO-29 & Att. 1). Nevertheless, the Company acknowledged that it may need to increase the height of the sound wall and have additional internal sound walls if its modeled noise levels are exceeded (Exh. EFSB-NO-29 (S)). The Company noted that it had not finalized the material for the sound barriers but opined that concrete with metal acoustical panels could reflect noise away from receptors, furthering mitigating noise impacts (Company Brief at 171, citing Exh. EFSB-NO-23; Tr. 5, at 878-879).

The Company would also place STATCOM units (including transformers and shunt reactors) in enclosures behind three-sided sound barriers varying in heights between 10 to 35 feet (Exhs. VW-7, at 2-47; EFSB-NO-27; Tr. 5, at 786; RR-EFSB-4, Att. 1, Fig. 1). PCW stated that it did not contemplate mitigation measures to reduce noise at a MassDOT-owned parcel to the east of the Onshore Substation site as the majority of the parcel did not experience a modeled increase of more than 10 dBA over ambient conditions (Company Brief at 172, citing Tr. 5, at 822-30; RR-EFSB-31, Att. 1; Exh. VW-7, Fig. 7-6). The Company also represented that it was not aware of any proposed redevelopment of the parcel for residential purposes (Company Brief at 172-173, citing Tr. 5, at 824-825).

PCW represented that the construction-related noise impacts would be similar to those of the Onshore Cables route construction (Company Brief at 156-157). As stated above, the Company expects Onshore Substation construction to take 18-24 months to complete. See Section VI.E.2. Some of the proposed construction work at the Substation includes: clearing and removing fill to regrade the site; excavation for site drainage structures; excavation for major equipment foundations and footings; deliveries of major equipment such as transformers and reactors; placing of the major equipment with heavy load vehicles and equipment; and trenching for underground cabling and backfilling (Exh. VW-7, at 10-24 to 10-25). As stated before, in general, sound levels from construction would be characterized by the loudest piece of equipment in operation (Exh. VW-1, at 5-95). As described in Section VI.D.3.d.i, the Company

will use several mitigation measures to reduce construction related noise impacts. PCW also expects construction to occur Monday through Friday 7.00 a.m. to 6.00 p.m. (Exhs. VW-1, at 5-94; EFSB-NO-4). However, the Company stated that it did not expect to restrict summertime construction at the Onshore Substation site (Exh. EFSB-CM-15).

ii. Ms. Johnson's Position

Ms. Johnson owns and resides at 82 Shootflying Hill Road, which abuts the Onshore Substation to the west (Johnson Brief at 5; RR-EFSB-31 & Att. 1). Ms. Johnson notes that the two STATCOM buildings would be closest to her property (about 144 feet away) and would be the closest noise source to her home (Johnson Brief at 15, 16, citing Exh. VW-11, Fig. 1-7). Ms. Johnson argues that PCW's proposed Onshore Substation site is unsuitable because of its proximity to, and acoustical impact on three residential homes to the west of the site, including hers (Johnson Brief at 5, citing Exh. VW-11, Fig. 1-7; Johnson Reply Brief at 4). Ms. Johnson also argues that the modeled 8 dBA increase at her home is an untrustworthy projection that is not in compliance with industry standards and Siting Board precedent (Johnson Reply Brief at 4). Ms. Johnson additionally asserts that the Company's claims regarding sound level modeling lack logic (Johnson Brief at 24).

Ms. Johnson asserts that the record shows that the Project site is problematic due to its size and location (Johnson Brief at 6). Ms. Johnson contends that the Company proposed the more expensive GIS system due to site constraints (Johnson Brief at 6, citing Tr. 10, at 1451-1452).[103] Ms. Johnson further argues that the Onshore Substation does not fit on the Project site, because it required sound barrier walls to mitigate noise (Johnson Brief at 6). Ms. Johnson contends that spending more money would not reduce the impacts at her home (Johnson Brief at 32). Ms. Johnson concludes that PCW should choose another site on Cape Cod for the Onshore Substation, which she argues could even lower construction costs (Johnson Brief at 32-33).

Ms. Johnson asserts that Epsilon's testimony is not credible, especially with respect to making unsupported reductions in equipment sound power levels to meet the MassDEP noise

---

[103] Ms. Johnson cites to the Vineyard Wind decision, which stated that the GIS system adds approximately $25 million in cost over an AIS system. Vineyard Wind at 110.

policy (Johnson Brief at 33). Ms. Johnson argues that the Company made a 7 dBA "further reduction" to make the modeling comply with MassDEP limits (Johnson Brief at 12-13). Ms. Johnson contends that should the Siting Board approve the Project, it would send the signal that the Board simply upholds the applicant's model results absent supporting documentation (Johnson Brief at 33). Ms. Johnson argues that after-the-fact sound reduction modifications, if ordered by the Siting Board based on operational phase testing, would not be sufficient as the Company has already incorporated every possible mitigation measure into its model (Johnson Brief at 33).

Ms. Johnson references the Siting Board's decision in Vineyard Wind as a point of comparison with PCW's Project (Johnson Brief at 7). Ms. Johnson argues that the equipment proposed at both the Onshore Substation and the Vineyard Wind Connector substation are substantially similar and that the Company used the same computer software to assess noise impacts (Johnson Brief at 7-8; Exh. EFSB-NO-25). Ms. Johnson noted a challenge faced by PCW: the distance between the closest residence and the Vineyard Wind Connector substation was 271 feet, while for PCW, there would only be 144 feet of separation between the closest sound source at the Onshore Substation and her residence (Johnson Brief at 6, citing RR-JJ-5). Ms. Johnson also notes that, in Vineyard Wind, the modeled increase over ambient sound levels in the middle of the night at the closest residence was just 3 dBA (Johnson Brief at 6, citing Vineyard Wind at 115).

Ms. Johnson argues that the Company's assumed sound levels for Substation equip are unreliable and faults Epsilon for not obtaining and providing specific manufacturer data to support its assumptions about equipment noise profiles used for modeling in this proceeding (Johnson Brief at 15, citing Tr. 10, at 1496-1497; Johnson Brief at 22).[104,105] Ms. Johnson contends that Epsilon should have obtained certified sound levels from manufacturers of the

---

104 Ms. Johnson asserts that the Company's modeling report showed that it was able to provide manufacturer data for STATCOM components (Johnson Brief at 16).

105 Ms. Johnson observed that Epsilon also did not appear to use data for current makes and models from a manufacturer of the equipment used for the Vineyard Wind Connector (Johnson Brief at 10).

equipment (Johnson Brief at 8). Barring that, Ms. Johnson argues that the Company should have used data from at least one qualified manufacturer consistent with the sound power level used in the model (Johnson Brief at 8). Ms. Johnson also argues that Epsilon did not take into account the tonal nature of transformer noise (Johnson Brief at 26).[106]

Ms. Johnson contrasts the value of 98 dBA sound power for the 450 MVA transformer analyzed in Vineyard Wind versus the 93 dBA assumed for a comparable 450 MVA transformer in this proceeding (Johnson Brief at 11).[107] Ms. Johnson points out that the assumed sound level of 93 dBA is not substantiated in the EEI Noise Guide referenced by the Company for this purpose (Johnson Brief at 9).[108,109] Ms. Johnson asserts that there is no basis in the record that such a design specification requirement could be met, and that the sound power level assumed by the Company was selected arbitrarily to produce model results showing compliance with the MassDEP Noise Policy (Johnson Reply Brief at 6). Ms. Johnson also describes the noise reductions assumed for the STATCOM components as "quite dramatic" and unsubstantiated in the record (Johnson Brief at 16).

Ms. Johnson argues that the Company's unwarranted assumed reductions in Substation equipment sound power levels dwarf any supposed benefits of the Company's claimed "conservative assumptions" in the model (Johnson Brief at 29). For example, Ms. Johnson

---

106 Ms. Johnson asserts that it is important to know the data for individual frequency bands to determine how likely an equipment is to generate a pure tone and that these data are typically provided by the manufacturer (Johnson Brief at 8).

107 Ms. Johnson also notes that Epsilon admitted that the 93-decibel sound level for a 450 MVA transformer assumed as a model input is an "aggressive and extremely quiet" sound level assumption (Johnson Brief at 17, citing Tr. 5, at 816).

108 Ms. Johnson also notes that, in hearings, Epsilon did not recall whether it had consulted the base document from which the EEI Noise Guide obtained the sound level for its analysis of the Vineyard Wind Substation (Johnson Brief at 9, citing Tr. 10, at 1488).

109 Ms. Johnson notes that, according to the EEI Noise Guide, a quieted transformer unit corresponds with a 10 dBA reduction from a typical transformer (Johnson Brief at 11-12, citing Exh. JJ-1). Ms. Johnson also notes that the record did not contain information about what changes a manufacturer would have to make to a transformer for it to qualify as a quieted unit (Johnson Brief at 12).

rejects as irrelevant the Company's position that her house itself acts to reduce substation sound pressures in the middle of the night (Johnson Brief at 29-30). Ms. Johnson asserts that the Company's basis for assuming indoor noise attenuation is an outdated EPA document (from 1974) and, in any event, is not accepted by the MassDEP in its work on noise pollution (Johnson Brief at 30-32). Ms. Johnson argues that MassDEP's Noise Policy focuses solely on outdoor, rather than indoor, sound levels (Johnson Brief at 31).

In her reply brief, Ms. Johnson elaborates that none of the three past Siting Board decisions cited by the Company justify its modeling approach (Vineyard Wind; Exelon West; and Braintree Electric) discussed or involved unsubstantiated reductions to model inputs for sound power levels (Johnson Reply Brief at 6). In fact, Ms. Johnson asserts, in Exelon West, the Siting Board explicitly considered the availability of manufacturer-provided sound power information to be important (Johnson Reply Brief at 7). Citing Box Pond Association v. Energy Facilities Siting Board, 435 Mass. 408 (2001) ("Box Pond"), Ms. Johnson argues that the Siting Board must do more than simply accept Epsilon's acoustical analysis (Johnson Brief at 21). Ms. Johnson asserts that in Box Pond, the Siting Board based its analysis of air emissions on specific equipment manufacturer information provided by that project proponent (Johnson Brief at 24).

In sum, Ms. Johnson contends that Epsilon's modeling did not contain "a minimum of data" about equipment sound power levels as required by the Siting Board's enabling statute (Johnson Brief at 19). Ms. Johnson also contends that the predicted sound levels at the adjacent residential properties are not supported by substantial evidence as required under G. L. c. 164 §§ 69H-69O (Johnson Brief at 19-20). Ms. Johnson concludes that the Siting Board should not evaluate the evidence in the record in a "perfunctory way" (Johnson Brief at 20, citing Planning Board of Braintree vs. Department of Public Utilities, 420 Mass. 22 (1995)). Ms. Johnson notes that, according to G. L. c. 30A § 1 (6), substantial evidence means a reasonable mind might accept the evidence as adequate to support a conclusion (Johnson Brief at 21-22, citing Fitchburg Gas & Electric Light Co. v Department of Public Utilities, 395 Mass. 836 (1985)).

iii. Company Response

PCW argues that the Siting Board should reject Ms. Johnson's assertions challenging the Company's noise modeling (Company Reply Brief at 2). The Company contends that its noise

modeling is based on standard industry practices previously accepted by the Siting Board (Company Reply Brief at 2). The Company requests that the Siting Board rely on those precedents and the supporting testimony of PCW's experts and affirm that the Company's modeling of noise impacts and its mitigation strategies are appropriate (Company Reply Brief at 4). The Company contends that Ms. Johnson's assertion that it submitted insufficient data to support its noise modeling is meritless (Company Reply Brief at 4). The Company further argues that Ms. Johnson did not offer contrary evidence to support her criticism of the Company's modeling protocols (Company Reply Brief at 4).

PCW argues that the Siting Board is not bound by the MassDEP policy and its 10 dBA threshold but is instead charged with assessing the reasonableness of noise increases and mitigation in light of the MassDEP policy as well as other factors (Company Reply Brief at 7, citing Exelon West Medway, LLC, EFSB 15-01/D.P.U. 15-25, at 100-01 (Nov. 18, 2016) ("Exelon West Medway"). The Company notes that the Siting Board has approved modeled increases of ambient noise levels of up to 8 dBA at residences in previous proceedings without requiring additional mitigation (Company Reply Brief at 7, citing Exelon West Medway; Braintree Electric Light Department, EFSB 07-1/D.T.E. 07-5, at 40 (Feb. 29, 2008)).

The Company contends that Ms. Johnson's assertions incorrectly assume that manufacturer's data exists in a form that is readily obtainable from manufacturers (Company Reply Brief at 9). The Company contends that detailed equipment vendor data is either not available or has already been provided to the Siting Board, and that no additional data is needed for the record (Company Reply Brief at 8). The Company contends that Ms. Johnson misunderstands the procurement process for some larger Substation equipment – which are often not prefabricated for purchase and must be custom-built (Company Reply Brief at 9; Tr. 5, at 846). The Company argues that the Company supplies manufacturers with specifications, including reduced power levels, according to which the manufacturer must design and build the equipment (Company Reply Brief at 9, citing Tr. 5, at 813-816).

The Company contends that it did not arbitrarily assume "further reductions" in sound power levels of Substation equipment but based the reductions on known design options for reducing operational noise levels (Company Reply Brief at 10). The Company asserts that the

reductions in sound power levels used in its modeling reflect the known ability of manufacturers to achieve sound reductions relative to historical practice (Company Reply Brief at 10, citing Tr. 10, at 1489). PCW argues that Ms. Johnson did not provide evidence to contest the accuracy of the Company's assumed reductions in its noise modeling (Company Reply Brief at 9).[110]

PCW contends that the record shows that the EEI Noise Guide is a standard tool in the field of industrial acoustics and that the methods in the document remain valid (Company Reply Brief at 16-17, citing Tr. 10, at 1488-1489). PCW asserts that the EEI Noise Guide provides methods that noise experts may use to determine sound power level inputs (Company Reply Brief at 10).

PCW argues that Ms. Johnson makes unsupported comparisons between the Project and the Vineyard Wind project (Company Reply Brief at 14). The Company asserts that there are differences between the projects that materially affect the substation noise profiles (Company Reply Brief at 14). The Company contends that the sound power level modeling inputs for equipment are different because the two substations do not use the same equipment (Company Reply Brief at 14). The Company argues that the 450 MVA transformers in both substations are designed to operate differently, and therefore the transformers are not identical, and result in different sound characteristics (Company Reply Brief at 14-15, citing Tr. 10, at 1530).

PCW also rejects Ms. Johnson's assertion that Vineyard Wind did not use "further reductions" in sound power levels in the modeling for the Vineyard Wind substation (Company Reply Brief at 15). The Company argues that Ms. Johnson does not account for the fact that Vineyard Wind also proposed to procure reduced-noise substation equipment as a noise mitigation strategy (Company Reply Brief at 15, citing Exh. JJ-2, at 7-9, 7-13). The Company contends that the Siting Board's standards do not require that PCW build the exact same substation that Vineyard Wind proposed or procure the same equipment (Company Reply Brief at 15). The Company argues instead that the Siting Board should consider circumstances of the

---

110 The Company contends that Ms. Johnson's claim that reductions are not substantiated ignores evidence in the Company's DEIR, FEIR, and evidentiary hearing testimony (Company Reply Brief at 11, citing Exhs. VW-7, at 7-1 to 7-19; VW-11, at 1-14 to 1-18; Tr. 5, at 882).

project and that the Company has taken sufficient steps to identify potential impacts and propose reasonable mitigation measures (Company Reply Brief at 15-16).

PCW alleges that, contrary to Ms. Johnson's suggestion, there is no statute, regulation or precedent that requires the Company submit raw data or manufacturer's data to substantiate its noise modeling (Company Reply Brief at 12). The Company contends that rather than raw data, it provided the modeling inputs to the Siting Board, which it believes are more helpful to the Siting Board in performing its review of potential noise impacts (Company Reply Brief at 10-11, citing Exh. VW-7, at 7-13). The Company also argues that because the Siting Board does not attempt to recreate or perform its own noise modeling, the Siting Board does not need additional underlying data (Company Reply Brief at 12, citing Vineyard Wind at 122).

The Company contends that Ms. Johnson's arguments pay minimal attention to the conservative assumptions and approaches built into the Company's modeling (Company Reply Brief at 5). The Company argues that a key conservative approach is its use of measured ambient sound levels between midnight and 4 a.m. in January (Company Reply Brief at 5). The Company explains that the winter months are generally the quietest of the year because of reduced traffic and limited sounds from birds and rustling vegetation (Company Reply Brief at 5).

The Company argues that the Onshore Substation equipment would only operate at full capacity if the wind turbines were operating at full capacity (Company Reply Brief at 6, citing Company Brief at 169-170). The Company contends that the assumption reflects the "absolute worst day" in terms of hot and windy weather instead of more typical weather conditions (Company Reply Brief at 6, citing Tr. 5, at 820-821). PCW argues that Ms. Johnson mischaracterized evidence that receptors indoors are less affected by potential noise than receptors that are outside (Company Reply Brief at 6). The Company clarifies that it noted that indoor receptors experience reduced sound impacts only for context and that its modeling showed that relevant outdoor measurements comply with MassDEP requirements (Company Reply Brief at 6-7).

The Company also asserts that Ms. Johnson is incorrect in stating that the Onshore Substation design would result in a pure tone condition (Company Reply Brief at 18). The

Company explains that it had identified a pure tone in one iteration of its modeling efforts, but that the pure tone was eliminated with the addition of a sound barrier (Company Replay Brief at 18, citing Tr. 5, at 786).

PCW argues that there is no need to relocate the Onshore Substation to a different site nor is there a feasible site where the Company could relocate the Onshore Substation at this stage of development of the Project (Company Reply Brief at 18-19). The Company contends that any delay would cause harm to the New England region's ability to meet key renewable energy goals (Company Reply Brief at 19). The Company explains that requiring a sudden change in the Onshore Substation site would require significant time to find another feasible site and the need to alter the onshore routing, and possibly the landfall site and offshore routing as well (Company Reply Brief at 21).

The Company instead contends that the record shows that PCW comprehensively evaluated other possible options on the Cape and found those options were not preferable to the proposed site (Company Reply Brief at 20). The Company rejects Ms. Johnson's argument that the site is too small (Company Reply Brief at 18). The Company asserts that its technical design documents showed that the layout for all Substation equipment fits well within site boundaries with enough room for a perimeter access road, stormwater facilities, necessary clearances for future maintenance, and mitigation for potential offsite visual and noise impacts (Company Reply Brief at 20, citing Exh. VW-11, Figs. 1-6, 1-7). In sum, the Company maintains that the record demonstrates that the Onshore Substation site has been selected in accordance with Siting Board precedent and that associated noise impacts have been mitigated consistent with Siting Board precedent (Company Reply Brief at 2).

iv. Analysis and Findings on Substation Noise

The Company's estimation of Substation noise impacts to abutters is a contested issue in this proceeding and has led to extensive argument on brief between Ms. Johnson (whose residence is approximately 144 feet from the nearest sound source at the Onshore Substation) and the Company. In essence, Ms. Johnson asserts that the Company's noise modeling, which appears to show compliance with MassDEP's Noise Policy, is results-oriented and unreliable, and "simply an expression of hope" that compliant sound pressure levels at nearby abutter

residences will be possible (Johnson Brief at 7). The Company maintains that its modeling approach is based on standard practices and conservative assumptions previously accepted by the Siting Board, and that the modeling results show that the Onshore Substation noise levels will comply with the MassDEP Noise Policy. The Company contends that that such results do not require further mitigation, or the extreme remedies favored by Ms. Johnson of either selecting another site on Cape Cod for a Substation, or denial of the Project by the Siting Board.

The Company modeled noise impacts from the Onshore Substation at 13 receptor properties, including neighboring residences and property lines. The Company recorded ambient noise levels in the vicinity of the Onshore Substation over nine days in January 2020 (during leafless conditions). The ambient noise levels are quietest during late night hours from midnight to 3 or 4 a.m. Substation operational noise would be masked during daytime hours due to existing noise from the nearby highway. The Company then used Cadna/A software to model operational noise from the Onshore Substation and tested different iterations of equipment, configuration, and mitigation measures to achieve a design that minimizes off-site noise impacts in a feasible manner.

There appears to be no dispute on the record about the Company's use of the Cadna/A noise model itself, or the background noise measurements taken by the Company between midnight and 4 a.m. in January 2020 (Exh. VW-7, at 7-6). What is in dispute between the Company and Ms. Johnson focusses largely on: (1) the requirements of the MassDEP noise policy; (2) whether the Siting Board is required to follow the MassDEP Noise Policy; and (3) whether the Onshore Substation equipment sound levels, used as model inputs, are accurate and reliable, can be procured as specified; and (4) whether actual operation of the Onshore Substation will ultimately achieve the modeled noise results.

With regard to the MassDEP Noise Policy, the Company's DEIR cited the MassDEP's requirements for noise (Exh. VW-7, at 7-4). The Company noted that MassDEP has the authority to regulate noise under 310 CMR 7.10, which is part of the Commonwealth's air pollution control regulations. Under MassDEP regulations, noise is considered to be an air contaminant and, thus, 310 CMR 7.10 prohibits "unnecessary emissions" of noise:

> For projects requiring a state air permit, MassDEP administers this regulation through its Noise Policy DAQC 90-001, dated February 1, 1990. The Noise

> Policy limits a source to a 10-dBA increase above the ambient sound measured at the property line for the site and at the nearest residences. "Ambient" is defined as the background A-weighted sound level that is exceeded 90% of the time, measured during equipment operating hours (L_{90}). While the [Project] does not require a Massachusetts air permit, the MassDEP Noise Policy has been used as a guidepost in environmental reviews conducted by other state offices.
>
> (Exh. VW-7, at 7-4).

The Company also cited text from a document called "Noise Pollution Policy Interpretation" accessed from MassDEP's website:[111]

> "Noise levels that exceed the criteria at the source's property line by themselves do not necessarily result in a violation or a condition of air pollution under MassDEP regulations (see 310 CMR 7.10). The agency also considers the effect of noise on the nearest occupied residence and/or building housing sensitive receptors.
>
> A new noise source that would be located in an area that is not likely to be developed for residential use in the future (e.g., due to abutting wetlands or similarly undevelopable areas), or in a commercial or industrial area with no sensitive receptors may not be required to mitigate its noise impact on those areas, even if projected to cause noise levels at the facility's property line to exceed ambient background by more than 10 dB(A). However, a new noise source that would be located in an area in which housing or buildings containing other sensitive receptors could be developed in the future may be required to mitigate its noise impact in these areas."
>
> (Exh. VW-7, at 7-5 n.5, citing MassDEP Noise Policy Interpretation https://www.mass.gov/files/documents/2018/01/31/noise-interpretation.pdf. Accessed October 2020).

In its Reply Brief, the Company argues that "the Siting Board is not bound by the MassDEP policy and its 10 dBA threshold. It is instead charged with assessing the reasonableness of noise increases and the appropriateness of proposed mitigation in light of the MassDEP Noise Policy as well as other factors" (Company Reply Brief at 7, citing Exelon West Medway, at 100-101). Ms. Johnson acknowledges the distinction between MassDEP's air

---

111 The citation provided by Company for the cited text is: "Energy and Environmental Affairs. Noise Policy Interpretation/MassDEP. https://www.mass.gov/files/documents/2018/01/31/noise-interpretation.pdf. Accessed October 2020." (Exh. VW-7, at 7-5 n.5). The link provided is no longer active.

pollution control regulations at 310 CMR 7.00 (which include noise a "pollutant") and the MassDEP Noise Policy, which is "not a regulation" (Johnson Brief at 25). She notes that "The Siting Board in past decisions has correctly treated the MassDEP 10 dBA allowance above ambient Policy as just that, a policy, not a regulation. In many cases Siting Board has limited energy facilities to a lesser increase…" (Johnson Brief at 25).

Given the Company's view that the Siting Board is "not bound by the MassDEP policy and its 10 dBA threshold," a point of clarification is necessary. Since its adoption in 1990, the MassDEP Noise Policy of a 10 dBA allowance above ambient levels has been cited frequently by the Siting Board as a maximum sound impact level for a project's nearest noise receptors, although lower levels of sound impacts have often been attainable and were required by the Siting Board. In such instances, the Siting Board has found that lower noise level impacts were consistent with the Board's dual objectives of minimizing costs and environmental impacts. However, in no instance has the Siting Board ever granted its approval to a project known to exceed the noise levels specified in the MassDEP Noise Policy. Similarly, in this proceeding, the Siting Board treats the MassDEP Noise Policy as an upper bound of acceptable noise impacts, and strives to achieve lower levels of noise impacts, where feasible and consistent with the Board's cost minimization requirements.

The sound emission profiles of various pieces of equipment at the Onshore Substation are the most pointed disagreement between the Company and Ms. Johnson regarding the estimated Substation noise impacts. As described above, the Company's determination of sound profiles for its noisiest Substation components includes two 450 MVA transformers (at 93 dBA); two 150 MVA shunt reactors (at 90 dBA); two 50 MVA shunt reactors (at 86 dBA); six harmonic filter reactors (at 76 dBA); and six harmonic filter capacitors (at 72 dBA). The Company used a variety of methods to produce these equipment sound estimates. For the transformer, the Company used the EEI Noise Guide, inclusive of a 10 dBA reduction from a typical transformer (a so-called "quieted unit"), and a specified assumed reduction of 7 dBA to be provided to the equipment manufacturer. A similar approach was used for the shunt reactors. The harmonic filter sound levels were adopted based on similar equipment selected for the Vineyard Wind project, in some cases, with further noise reduction assumptions (Exh. VW-7, 7-12, Table 7-3).

The Company has readily acknowledged that these sound input assumptions are not necessarily reflective of "off-the-shelf" equipment available today from manufacturers, and that much of the equipment used will be built-to-order, per the noise specifications provided by PCW in its procurement process. PCW points to the ability of manufacturers to meet noise reduction requirements for various pieces of equipment through design and engineering modifications such as denser casings on transformers, and larger, but slower-speed fans on STATCOM cooling fan banks (Exh. VW-7, at 7-12 to 7-13). Conversely, Ms. Johnson views such noise assumptions as unrealistic and "results-oriented" used by the Company to seek out a narrow (and unreliable) margin of illusory modeling compliance with the MassDEP Noise Policy.

The Siting Board shares Ms. Johnson's skepticism regarding the Company's self-described "aggressive" assumptions regarding the noise profiles of its intended Substation equipment. While the Siting Board does not prescribe specific types of evidence to support noise modeling in our proceedings, we do ensure that the results of such modeling are reasonable and enforceable. Here, the Company has not been able to offer specific manufacturer-provided equipment specifications to support its modeling assumptions. Instead, it has relied on decades-old reference guides, and made certain subjective noise reduction adjustments that that were "iterative" to achieve modeled compliance with the MassDEP Noise Policy.

While there is reason to be skeptical of such adjustments, the Company may, in fact, be able to secure equipment that meets these specifications and achieve the modeled noise levels at nearby receptors' residences. The Siting Board notes that in previous cases it has imposed specific noise impact conditions, based on company representations, and required compliance with such noise levels post-construction. Vineyard Wind at 122. Rather than the harsh remedies recommended by Ms. Johnson, the Siting Board finds it much more effective, pragmatic, and consistent with precedent, to ensure that the actual noise impacts post construction are reflective of the modeling representations in the record. The Company's modeling indicates that noise will not increase more than eight dB at Ms. Johnson's residence, and less at other abutting residences. Should the actual noise impacts exceed those presented in the record, especially if violative of the MassDEP Noise Policy, the Siting Board can require additional mitigation, as necessary. The Company has acknowledged this possibility, as well as the authority of the Siting Board to

review any such exceedances, and to require additional noise mitigation, as necessary (Company Reply Brief, at 12-13). Ms. Johnson may contact Siting Board Staff post construction to address any concerns with excessive noise levels and requests for additional mitigation.

Accordingly, the Siting Board directs the Company to provide a compliance filing, within the first 180 days of commercial operation, demonstrating that the Onshore Substation's actual noise profile is consistent with the modeled results it has presented in this proceeding. In addition, to gain earlier visibility of the steps being taken by the Company to achieve this result, the Siting Board further directs the Company to provide a pre-construction compliance filing documenting the noise profiles of the Onshore Substation equipment types listed in Exh. VW-7, 7-12, Table 7-3, when the equipment is procured, and any additional noise mitigation measures, such as additional or taller sound walls, that the Company intends to take as a result.

The Siting Board notes that the Company has taken other important steps to mitigate noise from the Substation, including: the use of a GIS switchgear for the Onshore Substation, housed in a switchgear building (which also serves as a sound barrier); the STATCOM units will be placed within a three-sided sound barrier, measuring 400 feet long and 35 feet high at the western edge of the site; a 90-foot long, 10-foot high sound wall will be constructed at the southern end of the site and smaller three-sided sound barriers will be constructed around transformers and shunt reactors on the eastern part of the site; and the Onshore Substation will be enclosed by a fence around the perimeter of the site with a 30-foot wide vegetated buffer on the western side and a planting strip and guardrail along the north side. In addition, the Siting Board notes that the record demonstrates that several aspects of the Cadna/A sound model, used to assess noise impacts at nearby receptors, are likely to be conservative and actual noise impacts may be less than modeled.

Construction of the Onshore Substation would take place continuously for 18 to 24 months, with no summer season restrictions. The construction activities at the site include several potentially noisy activities such as excavation and installation of large equipment with heavy machinery. The Company committed to mitigating construction noise impacts for the entire Project. The Siting Board expects that these mitigation measures will apply to Onshore

Substation construction. The Company will also have a CMP that includes measures to minimize construction related impacts, including noise.

In view of the foregoing, the Siting Board finds that, with the implementation of the conditions and mitigation measures described above, the noise impacts from construction and operation of the Onshore Substation would be minimized.

5. Conclusion on Environmental Impacts of Project Elements

The Siting Board finds that the information the Company provided regarding the Project's environmental impacts is substantially accurate and complete. The Company proposed a single offshore route, two landfall sites, and two onshore routes between landfall and a sole proposed site for a new Onshore Substation. The Company also proposed two cable route options between its Onshore Substation and the existing Eversource West Barnstable Substation. However, Eversource, which will build this portion of the onshore cables, has already stated its preferred route. This option would mostly use existing cleared utility ROWs as opposed to roadways and would thus have fewer construction and operational impacts, and the Siting Board agrees that this Grid Interconnection route is superior. The offshore route would make landfall in the Town of Barnstable, with the option to use adjacent public beaches. The impacts of making landfall at either landfall site are largely identical, although the Town of Barnstable and the Company have expressed a preference for the Craigville Beach landfall site, and the Siting Board supports that preference, as found above.

With regard to onshore impacts, the Shootflying Hill Road Route is shorter than the Oak Street Route and has fewer impacts in several categories and is preferrable as found above. None of the variants to the Shootflying Hill Road Route were shown to be superior overall to the main route. Absent extenuating circumstances necessitating use of portions of the Shootflying Hill Road Route variants, and a subsequent filing advising the Siting Board of such necessity, and seeking approval in advance, the Siting Board gives its approval herein solely to the Shootflying Hill Road Route.

F. Cost

The Company provided cost differentials for the Onshore Cables, comparing the Shootflying Hill Road Route to the Oak Street Route and their respective variants (Exhs. VW-2, Att. L; EFSB-C-1).[112] The Company did not provide a cost analysis for offshore routing because it proposed a single OECC route for the Project (Exh. VW-1, at 4-74).[113] The Company explained that its estimated costs were "concept-level" with an accuracy of +/- 50 percent; the Company stated that several variables relating to the final design and installation methods had not yet been resolved (Exh. EFSB-C-1). The Company explained that because construction methodology and property acquisition requirements are similar for all the routing alternatives, the cost differences were driven primarily by difference in route length and whether construction would be in-road or in ROWs (Exh. VW-1, at 4-74).

PCW's analysis showed that the Shootflying Hill Road Route would cost less than Oak Street Route; the estimation showed that the Oak Street Route and its variants were between $11.8 million to $18.8 million more expensive than the main Shootflying Hill Road Route (Company Brief at 32; Exh. VW-2, Att. L). The main Shootflying Hill Road Route is also the lowest-cost option relative to its variants and it is the most direct route to the point of interconnection; the variants are between $1 million to $10.7 million more expensive (Exhs. VW-1, at 4-74; VW-2, Att. L). These cost findings are also complementary with the preferred environmental characteristics of the Shootflying Hill Road Route, found above, demonstrating a route both environmentally and economically superior to the other identified options.

---

112 The Company explained that offshore wind projects have been exposed to financing cost risk, commodity risk, labor risk, and general inflation-related risk, causing material increase to Project costs (RR-EFSB-92). While the Company did not provide unredacted absolute costs, it stated that it expected costs for key components to experience increases ranging from 50 percent to 150 percent (RR-EFSB-92).

113 The Onshore Substation and Grid Interconnection would also be the same regardless of route. See Section VI.C. At the Onshore Substation, the Company proposes to lower the site elevation, which would be approximately $500,000 less expensive than the original design (Exh. VW-10; RR-EFSB-13; see also Section 2.a.i). According to the TSA, PCW has agreed to pay for the cost of the Grid Interconnection at no cost to Eversource customers (RR-EFSB-27 (S), Att. 1, at 14).

G. Reliability

PCW reported that all candidate Onshore Cables routes would be comparable in terms of reliability (Exhs. VW-1, at 4-75; EFSB-R-1). The Oak Street Route is longer than the Shootflying Hill Road Route (Exh. VW-1, at 4-75). The Company explained that while longer routes could increase exposure to potential faults, the lengths of the proposed onshore routes were similar enough that any additional risk is likely to be slight (Exh. VW-1, at 4-75). The Company added that because the cables would be buried entirely underground, they would be less susceptible to outages from adverse weather events compared to overhead lines (Exh. VW-1, at 4-75).[114] The Company also explained that landfall at Covell's Beach could be slightly less reliable than other options because it would co-locate landfall infrastructure with the separate Vineyard Wind Connector project (Exh. VW-1, at 4-75). The Company explained that geographic separation of energy infrastructure tends to increase reliability (Exh. VW-1, at 4-75). Nevertheless, the Company stated that co-location would not substantially affect reliability because events that damage both cables simultaneously are unlikely to occur (Company Brief at 89; Exh. EFSB-R-1). The Company further stated that it would design landfall HDDs and underground duck banks to protect the cables (Exh. EFSB-R-1).

The Company also stated that reliability is dependent on the Project proponent's ability to successfully permit and construct a project on a predictable and efficient timeline (Exh. VW-1, at 4-75). The Company represented that its consultations with Barnstable have been productive and culminated in the execution of an HCA for the Project (Exhs. VW-1, at 4-75; EFSB-G-14 (S 1); RR-EFSB-24). The Company stated that there would be no significant difference in reliability in terms of being able to successfully construct and permit the Project because all route alternatives are within the Barnstable (Company Brief at 78). The Company added that the offshore route would benefit from previous marine survey data because the OEEC would be a widened version of the OECC previously permitted for Vineyard Wind's project (Company Brief at 78-79; Exh. VW-1, at 4-75).

---

[114] As stated above, the underground concrete duct bank that would contain the Onshore Cables would be designed to withstand wet conditions, and thus would be unaffected by sea level rise or hurricane storm surge (Exh. VW-1, at 5-31).

H. Conclusion

The Siting Board has found that the Shootflying Hill Road Route is superior to the Oak Street Route with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment, at the lowest possible cost. In addition, the Siting Board has found that the Craigville Beach landfall is superior to the Covell's Beach landfall site with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment, at the lowest possible cost. Based on review of the record, the Siting Board finds that the Company provided sufficient information to allow the Board to determine whether the Project has achieved a proper balance among cost, reliability, and environmental impacts. The Siting Board finds that with the implementation of the specified conditions and mitigation presented above, and compliance with all local, state, and federal requirements, the environmental impacts of the Project along the Shootflying Hill Road Route would be minimized. The Siting Board finds that the Project along the Shootflying Hill Road Route would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability, and cost.

VII. CONSISTENCY WITH POLICIES OF THE COMMONWEALTH

A. Standard of Review

G.L. c. 164, § 69J requires the Siting Board to determine whether plans for construction of the applicant's new facilities are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. Mid Cape Reliability Project at 26-27; Beverly Salem at 109; Sudbury-Hudson at 183-184.

B. Company's Position

The Company states that the Project is consistent with the current health, environmental protection, and resource use and development policies of the Commonwealth (Exh. VW-1, at 6-1 to 6-26; Company Brief at 184-195). Regarding health policies, the Company argues that construction and operation of the Project would increase the reliability of electric service, which is "essential to the health of citizens of the Commonwealth" (Company Brief at 185, citing

Restructuring Act, St. 1997, c. 164, § 1(h); Needham-West Roxbury at 74). The Company also asserts that it has minimized environmental impacts from construction and operation of the Project, and it lists specific acts of compliance with federal and state environmental regulations (Company Brief at 186). The Company also argues that because the Project would deliver approximately 800 MW of renewable wind energy to New England, it would advance the Commonwealth's goal of reducing greenhouse gas emissions (Company Brief at 187).

Regarding the 2021 EEA Environmental Justice Policy ("EJ Policy"), the Company asserts that the Project does not exceed the regulatory thresholds, therefore, the enhanced public participation and enhanced analysis aspects of the EJ Policy do not apply to the Project (Company Brief at 189-190, citing Exhs. VW-11, at 1-34 to 1-48, 6-7 to 6-9; VW-1, at 6-8; VW-7, at 2-60, 2-61). Nevertheless, the Company represents that it "has engaged in extensive community outreach to . . . members of the [environmental justice] Populations" (Company Brief at 190). The Company notes that the EEA's EJ Policy has undergone revisions since it was first issued in 2002 (Company Brief at 189 & n.63, citing Exhs. VW-1, at 6-7; VW-7, at 2-59). When the Company filed its petitions in this proceeding, the January 2017 EJ Policy was in effect (Company Brief at 189 & n.63, citing Exhs. VW-1 at 6-7 to 6-9, VW-7 at 2-59 to 2-61). The EJ Policy was revised again in June 2021 in response to the Climate Roadmap Act (Company Brief at 189 & n.63, citing Exh. VW-11, at 1-34)). The Company represents that it has complied with both versions of the EJ Policy (Company Brief at 189-190; see also, Exh. VW-11, at 1-34 to 1-49).

The Company also maintains that the Project will bring significant benefits to the EJ community (Company Brief at 190). Specifically, the Company represents that: "The long-term impacts [of the Project] will include increased jobs, direct and indirect economic opportunities, and upgraded port conditions, all of which are expected to benefit area EJ communities" (Exh. VW-11, at 1-48).[115] Furthermore, the Company asserts, the EJ community will benefit by the Project's delivery of "clean, renewable energy to the New England electric grid while

---

115 Portions of the Substation, including the Offshore Export Cables and the Onshore Substation are located within a mile of EJ populations meeting the criteria of minority and income (Exh. VW-9, at 26).

significantly reducing GHG emissions" and improving air quality (Company Brief at 190, citing Exhs. VW-1, at 6-9; VW-7, at 2-61; PCW-12, at 17).

The Company also argues that the Project would be consistent with the Commonwealth's resource use and development policies (Company Brief at 193-195). In particular, the Company asserts that the Project would be consistent with, and further the goals of, the Massachusetts Global Warming Solutions Act ("GWSA"), the Climate Roadmap Act, the Commonwealth's Decarbonization Roadmap, and its Interim Clean Energy and Climate Plan for 2030 ("Interim CECP") (Company Brief at 194, citing Exh. EFSB-G-29 (S)). All four of these policies, the Company states, are aimed at reducing carbon emissions by bringing renewable energy, such as wind-generated energy, online (Company Brief at 194). Furthermore, the Company asserts that: (1) the Decarbonization Roadmap identifies the need for Massachusetts to host offshore wind facilities, such as the Project, that serve other states; and (2) the Interim CECP recognizes that at least 31 GW of offshore wind resources must be installed in the waters off New England, about half of which would connect to the grid through Massachusetts (Company Brief at 194, citing Exh. EFSB-G-29 (S)). According to the Company, the Project would also be consistent with the EEA's 2007 Smart Growth/Smart Energy Policy which sets out ten Sustainable Development Principles, including (1) the promotion of clean energy; (2) the encouragement of the use of existing sites, structures, and infrastructure; and (3) the implementation of regional solutions (Company Brief at 194, citing Vineyard Wind at 130; Exh. VW-1 at 6-26). In support of Principle number 2, the Company asserts that the Project would be located primarily within existing roadways (Company Brief at 194-195).[116]

C. Intervenor Positions

Ms. Johnson argues that the Project would not be consistent with MassDEP Policy 90-001 which limits increases from new noise sources to ten dBA (Johnson Brief at 19-21). As discussed in Section VI.F.4, the new noise source to which Ms. Johnson refers would be PCW's

---

[116] In its Supplemental Brief, PCW does not directly address whether the termination of the PPAs affects the Project's consistency with the policies of the Commonwealth. The Company in its Supplemental Brief reiterates the various policies of the Commonwealth that support offshore wind projects (Company Supplemental Brief at 10-14).

Onshore Substation, which would abut Ms. Johnson's home (Johnson Brief at 5, citing Exh. VW-11, at Figure 1-7). The Company has produced noise models that show a noise increase of less than 10 dBA at Ms. Johnson's property (Johnson Brief at 6, citing Exh. VW-11, at 1-15).[117]

Mr. Askelson argues that the generator lead line approach to offshore transition is in opposition to environmental goals of local, state, and federal government (Akselson Brief at 4).

D. Analysis and Findings

1. Health Policies

The Restructuring Act noted the fundamental importance of reliable electric service to public health in declaring that "electricity service is essential to the health and well-being of all residents of the Commonwealth" and that "reliable electric service is of utmost importance to the safety, health, and welfare of the Commonwealth's citizens and economy." St. 1997, c. 164, §1(h); see also Town of Sudbury at 748. Following this reasoning, a project that increases reliability in electric service should also be deemed to contribute to the health of the Commonwealth's citizens (Company Brief at 185). See, e.g., Andrew-Dewar at 99; Sudbury-Hudson at 188; Needham-West Roxbury at 74 ("Reliable electricity service is essential to the health of citizens of the Commonwealth; therefore, an improvement in reliability will result in health benefits.").

The Siting Board notes that construction of the Project, and the resulting provision of 800 MW to the grid, would enhance the reliability and diversity of energy mix in Massachusetts and in the ISO-NE area (see Exhs. VW-7, at 1-18 to 1-19; EFSB-G-12). In particular, the specific benefits of the Project would include:

- Providing a reliable source of energy during the winter months when the natural gas supply may be constrained: The location of the associated Offshore Generating Facility well offshore in a favorable wind regime, coupled with the efficiency of the wind turbines, will enable the Project to deliver substantial quantities of power on a reliable basis, with peak generation occurring in the high demand months of December through

---

[117] The issue of Substation noise is addressed fully in Section VI.E.4. Moreover, the Siting Board's review of project consistency with policies of the Commonwealth is intended to evaluate the application of broad energy and environmental policies to a particular project.

March, which coincide with the months when gas for generating facilities is in shortest supply (Exhs. VW-7, at 1-19; EFSB G-12).

- Diversifying the energy supply: The addition of 800 MW of offshore wind energy will diversify the generation mix in Massachusetts and throughout ISO-NE which is otherwise dominated by natural gas plants (Exhs. EFSB-G-12; VW-7, at 1-19).

- Improving the reliability of the electric grid in southeastern Massachusetts, including Cape Cod: The Project will connect to the bulk power system on Cape Cod, and thus will increase the supply of power to Barnstable County and other parts of southeastern Massachusetts, an area which has experienced significant recent (and planned) generation unit retirements (Brayton Point, 1,600 MW; Pilgrim 670 MW). Southeastern Massachusetts is also home to a sizeable plant at risk for retirement (Canal 1 & 2, 1,100 MW) (Exh. VW-7, at 1-18 and 1-19).

- Strengthening on-Cape electricity supply: Cape Cod is at the outer edge of the regional transmission system. The Cape is essentially supplied by one 345 kV and two 115 kV radial feeds. While recent significant investments in transmission reliability have strengthened the electricity supply to Cape Cod, the Project would further improve reliability by feeding power into the center of the Cape transmission system. Connecting a substantial electricity supply to Cape Cod will mitigate future costs for ensuring reliable service to Massachusetts customers (Exh. EFSB-G-12).

In Section VI.C.3.e.i, the Company committed to minimizing emissions from marine vessels through the use of modern equipment that complies with domestic and international regulations (see also, Exh. VW-1, at 5-92)). Furthermore, in Sections VI.D.2 and VI.E.2, the Siting Board found that the Project's offshore and onshore land use impacts, wetlands and water impacts, traffic, noise impacts, visual impacts, magnetic field impacts, air impacts, and safety impacts have been minimized. Finally, in Section VI.I, the Board found that the environmental impacts of the Project have been minimized consistent with the concerns of reliability and cost.

In addition, all design, construction, and operation activities for the Project will comply with applicable government and industry standards, including the National Electric Safety Code and the Occupational Safety and Health Administration ("OSHA") regulations (Company Brief at 187, citing Exh. VW-1 at 6-1). The OSHA standards have been put in place to protect the health and safety of the workers who will construct the Project in the Commonwealth. Crooker v. OSHA, Case No. 07-2770.01A (1st Cir. 2008).

Accordingly, subject to the specified mitigation and conditions set forth in this Decision, the Siting Board finds that the Company's plans for construction of the Project are consistent with current health policies of the Commonwealth.

2. Environmental Protection Policies

The OMP was developed pursuant to the Oceans Act, St. 2008, c. 114 (Exhs. VW-1 at 6-9; VW-7 at 2-61 to 2-72). Vineyard Wind at 128. The OMP identifies and maps important components of the Commonwealth's estuarine and marine ecosystems, such as SSU areas and key areas of water-dependent use (Exh. PCW-12, at 11). Vineyard Wind at 128. The OMP also contains siting and management standards designed to protect the mapped resources. Vineyard Wind at 128.[118]

In the Certificate issued on the FEIR, the Secretary found that:

> The project will avoid and minimize impacts to SSUs largely by selecting the least environmentally damaging practicable route as determined through extensive maritime surveys. The proposed cable route through the OECC minimizes impacts because it is the most direct route between the offshore wind turbines and the onshore interconnection point, avoids four of the six SSUs identified in the OMP for cable crossings and avoids eelgrass beds . . . the project will take all practicable measures to avoid damage to SSU resources by using a jet plow or mechanical plow to install the cables . . . Impacts during construction to navigation and fishing will be temporary and will be limited to safety zones specified by the U.S. Coast Guard.

(Exh. PCW-12, at 12).

Furthermore, in Section VI.D.2 the Siting Board reviewed the Project's impacts to water-dependent uses such as commercial and recreational fishing, and navigation, and concluded that, subject to the specified mitigation and conditions set forth below, the Project's impacts have been minimized.

The Oceans Act also established an Ocean Development Mitigation Fee ("ODMF") (Exh. VW-11, at 2-36 to 2-41). The fee would be assessed for offshore development projects as

---

[118] The OMP is incorporated into the Massachusetts Coastal Zone Management Plan (Exh. VW-1, at 6-9 to 6-16). CZM will assess the Project in light of the OMP during its consistency review at the federal level (Exhs. VW-1, at 6-9 to 6-16; PCW-12, at 9).

compensation to the Commonwealth for impacts to ocean resources and the broad public interest and rights in the lands, waters, and resources of the OMP areas (Exhs. PCW-12, at 13; VW-11, at 2-36). Vineyard Wind at 128. In the FEIR Certificate, the Secretary established a minimum fee of $287,500 for the Project based on the Project's footprint and impacts (Exh. PCW-12, at 13). In said FEIR Certificate, the Secretary also established a formula for increasing the ODMF if post-construction surveys reveal that the actual impact exceeds the estimates provided by the Company (Exh. PCW-12, at 13-14). For all these reasons, we find that construction and operation of the Project would be consistent with the OMP.

The GWSA, enacted in 2008, is a comprehensive statutory framework to address climate change. Needham-West Roxbury at 75, citing GWSA, St. 2008, c. 298. The GWSA "mandates that the Commonwealth reduce its GHG emissions by 10 to 25 percent below 1990 levels by 2020, and by at least 80 percent below 1990 levels by 2050." Needham-West Roxbury at 75; Vineyard Wind at 128; Exh. VW-1, at 6-5 to 6-6.[119] The GWSA also requires the Commonwealth's administrative agencies, which would include the Siting Board, "to consider reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise" when "considering and issuing permits." GWSA, St. 2008, c. 298, § 7; see also, Needham-West Roxbury at 75; Vineyard Wind at 129. The GWSA has been updated to increase and accelerate the Commonwealth's GHG emissions reduction targets. See the Energy Diversity Act (Chapter 188 of the Acts of 2016), and the Clean Energy Act (Chapter 227 of the Acts of 2018).

---

[119] The limits referred to are set forth in the GWSA, St. 2008, c. 298, § 6, codified at G.L. c. 21N, § 3(b). These limits remained in effect until June 24, 2021. G.L. c. 21N, § 3. The limits set forth in section 3(b) of the GWSA were later changed by the Climate Roadmap Act, St. 2021, c. 8, § 8, which became effective on June 24, 2021. G.L. c. 21N, § 3. Needham-West Roxbury was decided in 2018, and Vineyard Wind was decided in 2019, both before the Climate Roadmap Act became effective. Therefore, the citations in these decisions to G.L. c. 21N, § 3, refer to section 3 before it was amended.

The Climate Roadmap Act, St. 2021, c. 8, has further strengthened the Commonwealth's commitment to reducing greenhouse gases.[120] As a result of the Climate Roadmap Act, statewide greenhouse gas emissions must be 50 percent below 1990 levels by 2030, 75 percent below 1990 levels by 2040, and net zero by 2050 (Exh. EFSB-G-29(S) citing §§ 8-10 of the Act).[121] The Climate Roadmap Act expands the Commonwealth's commitment to produce offshore wind under Section 83C of the Green Communities Act from 1,600 MW to 4,000 MW (Exh. EFSB-G-29(S), citing St. 2021, c. 8, at § 91). The Company has presented analysis showing that the energy produced by the Project would reduce GHG emissions by approximately 1.59 million tons per year across the New England electric grid (Exhs. VW-1, at 1-45 and 6-6; VW-7, at 6-6).[122]

On June 30, 2022, the Secretary issued the final draft of the Clean Energy and Climate Plan for 2025 and 2030 ("2025- 2030 CECP") as required by the Climate Roadmap Act. This document updates key strategies the Commonwealth will use to reach the statutorily required 50 percent reduction in GHG emissions below 1990 levels. As noted in the 2025-2030 CECP, electricity demand in the Commonwealth is projected to increase significantly by 2050 due to the widespread electrification of building and transportation services. "Thus, the emissions intensity of electricity generation must continue to decrease even while total generation increases. *The Commonwealth anticipates offshore wind will be the primary source of electricity for its decarbonized energy system*, all of which would need to be interconnected to land in

---

120 PCW filed its ENF before the MEPA regulations and guidelines promulgated pursuant to the Climate Roadmap Act. PCW filed its ENF on June 11, 2020.

121 Further information is available at https://www.mass.gov/info-details/massachusetts-clean-energy-and-climate-plan-for-2025-and-2030 .

122 Regardless which New England state procures offshore wind energy, there are numerous Project benefits that accrue to the New England region. These include additional energy supply to the New England market area, economic development, reduced regional reliance on fossil fuels, and mutually beneficial collaborative efforts with other New England states in jointly developing offshore wind energy resources.

Massachusetts or other parts of the New England grid." 2025-2030 CECP at 62 (emphasis supplied).[123] The Project would facilitate the production of wind energy.

One of the goals of both the GWSA and the Climate Roadmap Act is to reduce GHG emissions. The Company has presented analysis showing that the energy produced by the Project would reduce GHG emissions by approximately 1.59 million tons per year across the New England electric grid (Exhs. VW-1, at 1-45 and 6-6; VW-7, at 1-24, 6-1, 6-6, 11-8). These reductions provide multiple environmental benefits and are consistent with environmental policy in Massachusetts. The Project is consistent with these multiple Commonwealth policies encouraging offshore wind projects and resultant greenhouse gas emissions reductions.

Regarding state and local permitting, the Company has endeavored to obtain all applicable environmental approvals, licenses, and permits, including MEPA review (Exhs. VW-1, at 6-2 to 6-5; see also Exhs. VW-7 (DEIR); VW-11 (FEIR); PCW-12 (FEIR Certificate)). The Project is also obligated to meet all the requirements of the Massachusetts Public Waterfront Act, G.L. c. 91 and 314 C.M.R. § 9.06(1)-(8) (Section 401 Water Quality Certification) (Exhs. VW-1, at 6-4; VW-7, at 2-75 to 2-81). The Project was also reviewed by the CCC and the Martha's Vineyard Commission (Exhs. VW-1, at 6-5; VW-7, at 2-91 to 2-93).[124] The Project will also secure all appropriate wetlands approvals from local conservation commissions and all appropriate road opening permits or grants of location from affected municipalities (Exh. VW-1, at 6-3; see also Exh. EFSB-G-14(S)(1) (HCA between the Company and Barnstable)).

---

123 On December 30, 2020, the Secretary issued the "Massachusetts 2050 Decarbonization Roadmap" ("2050 Roadmap"). Based on its analysis of a range of potential pathways, the 2050 Roadmap finds that the most cost-effective, low-risk pathways to net zero GHG emissions share core elements, including a balanced clean energy portfolio anchored by significant offshore wind resources, more interstate transmission, widespread electrification of transportation, building heat and hot water, and cost-effective replacement of equipment, infrastructure, and systems that use fossil fuels (2050 Roadmap at 21-26).

124 The Company received a Development of Regional Impact (DRI) Decision from CCC on May 11, 2023, approving the construction of the Project with conditions, and a DRI Decision from the Martha's Vineyard Commission granting approval for the Project with conditions on September 19, 2022 (Exhs. EFSB-G-4(S2); PCW-17; PCW-18).

The Project will also be consistent with the EEA EJ Policy. As noted above, the Project did not trigger either the enhanced public participation or enhanced analysis requirements of the EEA 2017 Environmental Justice Policy that was in effect at the time of the filing (Exhs. VW-1, at 6-8; VW-7, at 2-60; Tr. Vol. 9 at 1338:3-9).[125] In her certificate issued on the DEIR the Secretary wrote that: "The project does not exceed any of the stated review thresholds and therefore would not be subject to the 2017 EJ Policy" (Exh. VW-9, at 26). Nevertheless, the Company has reached out to the "EJ community" (Exhs. VW-1, at 6-8 - 6-9; VW-7, at 2-60 - 2-61). In addition, the Company's extensive outreach to the entire community would also have reached the EJ population (Exh. VW-7, at 1-30 – 1-39). Furthermore, as the Secretary stated in the FEIR certificate: "The project is anticipated to have an overall benefit to EJ populations by reducing air emissions" (Exh. PCW-12, at 17).[126] Finally, the Project will create construction work in the area; this will create jobs; and an increase in job opportunities is likely to benefit "local communities," which include of EJ populations (Exh. VW-1, at 1-5, 6-8; see also, Exh. VW-11, Attachment, Letter of Ann Berwick).

Subject to the specified mitigation and conditions set forth in this Decision, the Siting Board finds that the Company's plans for construction of the Project are consistent with the current environmental policies of the Commonwealth.

3. Resource Use and Development Policies

In 2007, Governor Patrick established Sustainable Development Principles pursuant to the Commonwealth's Smart Growth/Smart Energy Policy which had been produced by the

---

125 The Siting Board has compared the 2017 and 2021 EEA Environmental Justice Policies, and we find that there is no material difference between the two policies as they apply to the Project.

126 The Climate Roadmap Act contains various EJ related provisions that the Siting Board has found applicable to its adjudications. See Eversource East Eagle Certificate, EFSB 22-01, at 159 (2022). However, the Petitions in this proceeding were filed before enactment of the Climate Roadmap Act. Nevertheless, the record in this proceeding demonstrates that the Project offers numerous energy and environmental benefits, and few, if any, identifiable burdens to EJ populations.

Executive Office of Energy and Environmental Affairs.[127,128] These principles include: (1) promoting clean energy; (2) using natural resources (such as wind) wisely; (3) increasing job and business opportunities including, specifically, clean energy technology; (4) fostering development that has regional or multi-community benefits; and (5) encouraging remediation and reuse of existing sites, structures and infrastructure rather than new construction in undeveloped areas.

Construction of the Project would further these principles. The Project would promote clean energy, further the use of clean energy technologies, and use the natural resource of wind wisely (Principles 1, 2, and 3). In addition, construction of the Project would benefit the region by reducing GHG emissions (Principles 4). Furthermore, the Project would be built primarily within existing roadways, thus utilizing previously disturbed lands; where the Onshore Cables will not be located within existing roadways, they are proposed along existing transmission ROWs. The use of existing roadways and ROWs for placement of the Onshore Cables is a good example of the reuse of existing sites and infrastructure rather creating new construction in undeveloped areas (Principles 5). Consequently, the Siting Board finds that construction of the Project would be consistent with the current resource and development policies of the Commonwealth. See Mid Cape Reliability Project at 97.

E. Conclusion

The Siting Board finds that subject to the specified mitigation and conditions set forth in this Decision, the Project is consistent with the current health, environmental, and resource use and development policies of the Commonwealth.

---

127 https://www.mass.gov/info-details/smart-growth-smart-energy-policies.

128 https://www.mass.gov/doc/notice-of-funding-availability-commonwealths-sustainable-development-principles.

VIII. ANALYSIS UNDER G.L. C. 40A, § 3 – ZONING EXEMPTIONS

Pursuant to G.L. c. 40A, § 3, PCW requests certain individual zoning exemptions and a comprehensive zoning exemption from the Barnstable Zoning Ordinance, to allow construction and operation of the Onshore Substation and the Onshore Cables (Exh. VW-4).

A. Standard of Review

G. L. c. 40A, § 3, provides, in relevant part, that:

> Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [Department] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public.

Thus, a petitioner seeking exemption from a local zoning by-law under G.L. c. 40A, § 3, must meet three criteria.[129] First, the petitioner must qualify as a public service corporation ("PSC"). Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975) ("Save the Bay"). Second, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public. Sudbury-Hudson at 193; Vineyard Wind at 132; NRG Canal 3 Development LLC, EFSB 15-06/D.P.U. 15-180, at 140-141 (2017) ("NRG"). Finally, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. Mid Cape Reliability Project at 98; Sudbury-Hudson at 193; Vineyard Wind at 132.

Additionally, the Siting Board favors the resolution of local issues on a local level whenever possible, to reduce concern regarding any intrusion on home rule. The Siting Board

---

[129] G.L. c. 40A, § 3, applies to the Department. The Department refers zoning exemption petitions to the Siting Board for hearing and decision pursuant to G.L. c. 25, § 4. In accordance with G.L. c. 164, § 69H, when deciding matters under a Department statute, the Siting Board applies Department and Board standards "in a consistent manner." Thus, the Siting Board and the Department implement G.L. c. 40A, § 3, using consistent standards of review, and this Decision cites to both Siting Board decisions and Department orders interpreting G.L. c. 40A, § 3. On June 16, 2020, the Chair of the Department referred the PCW Zoning Petition to the Siting Board for review and decision pursuant to G.L. c. 25, § 4.

believes that the most effective approach for doing so is for a petitioner to consult with local officials regarding its project before seeking zoning exemptions pursuant to G.L. c. 40A, § 3. Sudbury-Hudson at 193; Vineyard Wind at 132; Russell Biomass LLC and Western Massachusetts Electric Company, EFSB 07-4/D.P.U. 07-35/07-36, at 61-62 (2009) ("Russell Biomass"). Thus, the Siting Board encourages petitioners to consult with local officials, and in some circumstances, to apply for local zoning permits, prior to seeking zoning exemptions from the Department under G.L. c. 40A, § 3. Sudbury-Hudson at 193; Vineyard Wind at 132; Russell Biomass at 68.

B. Public Service Corporation

1. Standard of Review

In determining whether a petitioner qualifies as a "public service corporation" ("PSC") for the purposes of G.L. c. 40A, § 3, the Massachusetts SJC has stated:

> among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, 366 Mass. at 680; Mid Cape Reliability Project at 99; Sudbury-Hudson at 194; see also Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997) ("Berkshire Power").[130]

---

130 The Department interprets this list not as a test, but rather, as guidance to ensure that the intent of G.L. c. 40A, § 3, will be realized, i.e., that a present or proposed use of land or structure that is determined by the Department to be "reasonably necessary for the convenience or welfare of the public" not be foreclosed due to local opposition. Berkshire Power at 30; Save the Bay, 366 Mass. at 685-686; Town of Truro, 365 Mass. at 410 (1974); Exelon West Medway at 135 n.117; New England Power Company d/b/a National Grid, D.P.U 15-44/15-45. at 5-6 (2016) ("MVRP"). The Department has interpreted the "pertinent considerations" as a "flexible set of criteria which allow the Department to respond to changes in the environment in which the industries it regulates operate and still provide for the public welfare." Berkshire Power at 30; MVRP at 6; see also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59B/95-80/95-112/96-113, at 6 (1998). The Department has

2. Company's Position

The Company argues that it constitutes a PSC pursuant to the standard articulated by the Siting Board in Vineyard Wind (Company Brief at 198, citing Vineyard Wind at 134-136). The Company asserts that in Vineyard Wind, the Board held that the Vineyard Wind LLC constituted a PSC because it met "the most salient aspects of the current Siting Board and Department standard for PSC status in Massachusetts" (Company Brief at 198, quoting Vineyard Wind at 135) (internal quotation marks omitted)). These "salient aspects" include that the Project would deliver electric power to "the New England electric market" and that the corporation had a physical presence in Massachusetts (Company Brief at 198, quoting Vineyard Wind at 135).

The Company also argues that it is a PSC under Massachusetts law even though it is proposing the Project in response to a Connecticut solicitation and its energy output would be sold pursuant to a Connecticut statute (Company Brief at 199). In support of this assertion, the Company argues that the Project would advance the "Commonwealth's core climate goals and objectives" (Company Brief at 199). The Project would advance the Commonwealth's goals and objectives, the Company argues, through its consistency with Massachusetts statues such as the GWSA and the Climate Roadmap Act, and recent policy statements such as those contained in the Decarbonization Roadmap and Interim CECP (Company Brief at 199-200). In addition, the Company notes that the electric grid in New England is interconnected, and its operations are coordinated across all six New England states (Company Brief at 204, citing Exh. VW-1 at 1-9; VW-7, at 1-9). Therefore, the Company argues that adding the Project's renewable energy to the New England electric grid will displace dirtier, more expensive power, providing economic and environmental benefits across the region, including in Massachusetts (Company Brief at 204, citing Exhs. VW-1 at 1-9, 1-45; VW-7 at 1-9, 1-24).

---

determined that it is not necessary for a petitioner to demonstrate the existence of "an appropriate franchise" in order to establish PSC status. Berkshire Power at 31; MVRP at 6; NSTAR Electric Company, D.P.U. 15-02, at 4-5 (2015).

3. Analysis and Findings on Public Service Corporation

In a number of proceedings, the Department and the Siting Board have held that a generator that owns generating assets in Massachusetts and makes those assets available to serve the New England market is a PSC. Vineyard Wind at 135, citing NRG Canal at 142-143, Exelon West Medway at 136, Russell Biomass LLC, D.T.E./D.P.U. 06-60, at 15 (2008) ("Russell Biomass"), and USGen New England, Inc., D.T.E. 03-83, at 15 n.9 (2004) ("USGen"). But PCW, like Vineyard Wind LLC, does not own generation assets located in Massachusetts. The generation assets associated with PCW, like the generation assets associated with Vineyard Wind LLC, are located offshore, beyond Massachusetts's jurisdictional boundaries. There is, therefore, a question as to whether PCW can be deemed a PSC in accordance with the precedent established by NRG Canal, Exelon West Medway, Russell Biomass, and USGen.

The Siting Board addressed this same question in Vineyard Wind. In that decision, the Board found that the Vineyard Wind Connector transmission facility should not be considered separately from the Vineyard Wind generating facility. Vineyard Wind at 135. Rather, the Vineyard Wind Connector transmission facility should be viewed as "one component" of a larger entity that both generates and transmits electricity. Vineyard Wind at 135. Therefore, the Board considered the Vineyard Wind project "as a generator for purposes of determining whether the Company qualifies as a PSC." Vineyard Wind at 135. Considering the Vineyard Wind project as a generator, for purposes of G.L. c. 40A, §3, the Board found that Vineyard Wind LLC qualified as a PSC even though the generating component of the Vineyard Wind project would not be located in Massachusetts. Vineyard Wind at 136.

The same reasoning applies here. Pursuant to the precedent set by Vineyard Wind, the Board should view Project as "one component" of a larger entity, one that both generates and transmits electricity. See Vineyard Wind at 135. Therefore, the Project, like the Vineyard Wind project, should be considered "as a generator for purposes of determining whether the Company qualifies as a PSC." Vineyard Wind at 135. Viewed as a generator, the PCW Project clearly falls within the definition of a PSC as articulated in NRG Canal, Exelon West Medway, Russell Biomass, and USGen: i.e., the Project's "generating assets" are made "available to serve the New England market." Vineyard Wind at 135.

The Department also requires that the proponent establish the existence of an "appropriate nexus" with Massachusetts. Vineyard Wind at 135-136. In finding that such a nexus had been established, the Siting Board in Vineyard Wind noted that while Vineyard Wind was incorporated in Delaware it was registered and doing business in Massachusetts, and thus is subject to a degree of business regulation under Massachusetts law. See G.L. c. 156C, § 48; 950 CMR 101.00-112.00. Additionally, the Siting Board noted that the generation component of Vineyard Wind would be located outside of Massachusetts, other major components of Vineyard Wind would have a physical presence within Massachusetts, including approximately offshore cables; the landfall site for the transition between the Offshore and Onshore Cables; the onshore cables from the landfall to a new Substation; and a new Substation. Vineyard Wind at 135-136.

PCW, like the petitioner in Vineyard Wind, is a limited liability company incorporated in Delaware and registered to do business in Massachusetts (Exh. VW-3, at 2). As a foreign corporation registered in Massachusetts, it is subject to the provisions of G.L. c. 156C, the "Limited Liability Company Act," Section 48, "Registration of Foreign Limited Liability Company." This statute requires foreign corporations to submit an application for registration to the Secretary of the Commonwealth within ten days after it commences doing business in Massachusetts. In addition, PCW, like the petitioner in Vineyard Wind, is also subject to the provisions of 980 CMR 101.01 through 101.12. These regulations govern adjudicatory proceedings within the Corporations Division of the Office of the Secretary of the Commonwealth. 980 CMR 101.01 – 101.12. In addition, PCW has its principal place of business in Massachusetts, and it owns significant assets located within the Commonwealth (Exhs. VW-1, at 1-57; VW-3, at 2). The PCW Project would include physical assets similar to those in Vineyard Wind. Therefore, we find that the Company has established a legal and physical nexus with the Commonwealth.

The Company correctly notes that the Project would deliver electric power to the New England electricity market. The Company is correct in stating that the electric grid in New England is interconnected, and that its operations are coordinated across all six New England states. Once electric power is delivered to the grid in New England, it can be transacted anywhere throughout New England. The reciprocal nature of benefits throughout such a regional

market warrants treating companies located in Massachusetts, which provide electricity to the New England market, in a similar manner – regardless of where their power is ultimately sold. Accordingly, we find that PCW qualifies as a Massachusetts public service corporation for purposes of G.L. c. 40A, §3.[131]

C. Public Convenience and Welfare

1. Standard of Review

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. Save the Bay, 366 Mass. at 680; Town of Truro v. Department of Public Utilities, 365 Mass. 407, 409 (1974) ("Town of Truro"). Specifically, the Department is empowered and required to undertake "a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964) ("NY Central Railroad"). When reviewing a petition for a zoning exemption under G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in Massachusetts as a whole and upon the territory served by the applicant. Save the Bay at 685; NY Central Railroad at 592.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Department examines: (1) the need for, or public benefits of, the present or proposed use; (2) the present or proposed use and any alternatives or alternative sites identified;[132] and (3) the environmental impacts or

---

131 In two recent Orders, the Department held that a non-generator entity that furnishes energy services to the New England electric grid may qualify as a PSC for the purposes of G.L. c. 40A, § 3. Medway Grid LLC, D.P.U. 22-18/22-19, at 28-32 (2023); Cranberry Point Energy Storage LLC, D.P.U. 22-59, at 38 (2023).

132 With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its primary site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are

any other impacts of the present or proposed use. The Department then balances the interests of the general public against the local interest and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public. Mid Cape Reliability Project at 100-101; Sudbury-Hudson at 195; Vineyard Wind at 136-137.

2. Company's Position

The Company asserts that the Project is needed in order to "bring up to 800 MW of clean, renewable offshore wind energy from a facility located in federal waters to the New England electric grid" (Company Brief at 202, citing Exhs. VW-1, at 2-1; VW-7, at 1-1). According to the Company, the existing infrastructure is inadequate to connect the Project to the grid (Company Brief at 202, citing Exhs. VW-1, at 2-3 to 2-4, VW-7, at 3-1). Consequently, the Company argues, the Project's transmission infrastructure is necessary for accomplishing this interconnection (Company Brief at 202, citing Exhs. VW-1, at 2-3 to 2-4; VW-7, at 3-1). Furthermore, the Company argues that in cases in which a Project consists of transmission facilities that are necessary to interconnect proposed generating facilities with the grid, that necessity has supported a finding of need pursuant to G.L. c. 40A, § 3 (Company Brief at 203, citing Vineyard Wind at 138-139; Russell Biomass/WMECO at 68-69).

The Company also argues that "the priority placed on reducing greenhouse gas emissions embodied in Massachusetts law" establishes that "the legislature has determined that there is an urgent public need for action to reduce the emissions of greenhouse gases, including by development of renewable generation resources to serve the region" (Company Brief at 203, citing GWSA, St. 2008, c. 298, and Climate Roadmap Act, St. 2021, c. 8). The Company asserts that the Project would help reduce greenhouse gas emissions by delivering renewable wind-generated energy to the grid (Company Brief at 202-204).

No party contested the public convenience and welfare issue in their brief.

---

matters of fact bearing solely upon the main issue of whether the primary site is reasonably necessary for the convenience or welfare of the public. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); NY Central Railroad at 591.

3. Analysis and Findings on Public Convenience and Welfare

Through legislation, executive action, and regulations, the Commonwealth has established that there is an urgent need to reduce greenhouse gas emissions. See, e.g., Climate Roadmap Act, St. 2021, c. 8; An Act to Promote Energy Diversity, St. 2016, c. 188 ("Energy Diversity Act"); GWSA, St. 2008, c. 298. As noted above in Section VII.D.2, we find that the Project would help reduce regional GHG emissions by connecting the Offshore Generator Facility to the New England grid and would also reduce regional reliance of fossil fuels in favor of increasing use of renewable energy sources, such as offshore wind power. These outcomes are broadly consistent with Commonwealth statutory objectives. As found above, the PCW project would provide a number of benefits to Massachusetts including additional energy supply to the New England market area, economic development and employment opportunities, reduced regional reliance on fossil fuels, and collaborative and mutually beneficial efforts with other New England states in jointly developing offshore wind energy resources. See Section VII.D.

Furthermore, the benefits of the PCW Project would be similar to the benefits identified in Vineyard Wind. Both projects consist of transmission facilities that would link an offshore wind turbine generation facility to the grid in Massachusetts (Exhs. VW-1, at 1-2; VW-3, at 3). Vineyard Wind at 1-2. In Vineyard Wind, the Siting Board articulated the many benefits of that project, noting:

> the importance of the Project in providing an abundant and wide range of energy and environmental benefits, critical to meeting the Commonwealth's statutory and regulatory policy objectives. Such benefits include substantial avoidance of GHG and other air pollutant emissions, progress towards the Commonwealth's climate mitigation and renewable energy objectives, increasing the reliability and diversity of the state-wide energy supply, and providing energy-consumer benefits in the form of a new, clean energy supply that offers ratepayer savings.

Vineyard Wind at 138-139.

Based on the above, the Siting Board finds that the Company has established that the Project will promote the public convenience or welfare. With respect to the present or proposed use and any alternatives or alternative sites identified, we note that in Section IV, the Siting Board analyzed different project approaches that the Company might use to meet the reliability need. The Board found that the Project is superior to the other alternatives evaluated with

respect to meeting the identified need and providing a reliable energy supply for the Commonwealth with minimum impact on the environment at the lowest possible cost. The Siting Board also reviewed the Company's route selection process in Section V. In that section, the Board found that the Company demonstrated that it: (1) developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are clearly superior to the proposed project; and (2) identified a range of practical transmission line routes with some measure of geographic diversity. Finally, regarding environmental and other impacts, in Section VI the Siting Board found that the Project achieved a proper balance among costs, reliability, and environmental impacts. The Siting Board based this conclusion on its findings that the Shootflying Hill Road Route is superior to the Oak Street Route and the Craigville Beach landfall is superior to the Covell Beach landfall when both choices are evaluated using the criteria of providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment, at the lowest possible cost.

Based on the foregoing, the Siting Board finds that the general public interest in constructing the Project far outweighs any identifiable adverse local impacts. Therefore, we find that the Project is reasonably necessary for the convenience or welfare of the public.

D. Individual Exemptions Required

1. Standard of Review

In determining whether an exemption from a particular provision of a zoning bylaw is "required" for purposes of G.L. c. 40A, § 3, the Department determines whether the exemption is necessary to allow construction or operation of the petitioner's project. Beverly-Salem at 116; Sudbury-Hudson at 196; Vineyard Wind at 139. The Petitioner bears the burden to identify the individual zoning provisions applicable to the project and to establish on the record that exemption from each of those provisions is required:

> The Company is both in a better position to identify its needs, and has the responsibility to fully plead its own case . . . The Department fully expects that, henceforth, all public service corporations seeking exemptions under [G.L.] c. 40A, § 3 will identify fully and in a timely manner all exemptions that are necessary for the corporation to proceed with its proposed activities, so that the

Department is provided ample opportunity to investigate the need for the required exemptions.

Mid Cape Relibility Project at 102-103; Vineyard Wind at 139; Beverly-Salem at 120-121; New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995).

2. Description

PCW seeks multiple individual zoning exemptions from the Barnstable Zoning Ordinance. The exemptions requested are grouped below according to the physical portion of the Project to which they relate: (1) the Company's proposed Onshore Substation; (2) the Onshore Cables from landfall to the Onshore Substation; and (3) the Grid Interconnection which go from the Onshore Substation to Eversource's West Barnstable Substation, including Parcel 214-001.

Tables 14, and 15 below summarize: (1) each of the specific provisions of the Barnstable Zoning Ordinance from which the Company seeks exemptions: (2) the relief available (if any) under the respective ordinances; and (3) the Company's argument as to why it cannot comply with the identified zoning provision and/or why the available zoning relief is inadequate.

a. Onshore Substation

In the Zoning Petition, the Company requests relief from the following provision to construct the Onshore Substation (Exh. VW-4, at 51-55).[133]

[133] The zoning exemptions addressed in this section apply only to the property located at 8 Shootflying Hill Road. That was the location of the Onshore Substation as described in the Notice of Adjudication, and in the Zoning Petition filed on May 28, 2020. More than one year later, the Company filed the Substation Site Design Update, Exh. VW-10. The update states that the Company has secured an option to purchase the one-acre parcel at 6 Shootflying Hill Road and that this parcel could be used for part of the Onshore Substation. The Company's update did not request a zoning exemption for this parcel; that request came on brief (Company Brief at 212). See Vineyard Wind, D.P.U. 21-08 (2021).

Table 14. Onshore Substation – Requested Individual Exemptions from the Town of Barnstable Zoning Ordinance: Summary of Company's Position. [134]

Section of the Zoning Ordinance from which Exemption is Requested	Available Relief	Why Exemption is Required: Company's Position
Use Regulations Section 240-13	Use Variance	A use variance is or may be required because Section 240-13 does not expressly allow public utility uses in the RF-1 (Residential) district, the district in which the Onshore Substation would be located. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-14	Use Variance	A use variance is or may be required because Section 240-14 does not expressly allow public utility uses in the RF and RF-1 (Residential) districts, the districts in which the Onshore Substation would be located. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-7.A	Use Variance	A use variance is or may be required because Section 240-7.A prohibits the use of any building or premises "for any purpose except in conformity with all of the regulations herein specified for the district in which it is located," and public utility uses are not expressly allowed in the RF or RF-1 district. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Groundwater Protection Overlay District	Use Variance	The Onshore Substation is located in the Groundwater Protection Overlay District. Public utility uses are not expressly allowed in the underlying RF or RF-1 districts. Therefore, a use variance would be required to allow such a use in the Groundwater Protection Overlay

134 In the portion of the Company Brief that addresses the exemptions required to construct the Onshore Substation, PCW requests exemption from two sections of the Barnstable Zoning Ordinance that are not mentioned in the Zoning Petition: Sections 240-35.E(2) and 240-36 (Company Brief at 214). In response to a request to clarify this ambiguity, the Company has withdrawn its request for exemption from Sections 240-35.E(2) and 240-36, representing that the inclusion of these two section in the Company Brief was inadvertent (RR-EFSB-87).

Section of the Zoning Ordinance from which Exemption is Requested	**Available Relief**	**Why Exemption is Required: Company's Position**
Section 240-35.F(2), (3), and (4)		District. In addition, in the Groundwater Protection Overlay District, uses that generate, treat, store, or dispose of hazardous waste that is subject to G.L. c. 21C and 310 C.M.R. § 30.000 are prohibited. Furthermore, the Groundwater Protection Overlay District limits the total area of a lot that can rendered impervious by the installation of buildings, structures and paved surfaces (i.e., not more than 50% of the upland area if all runoff is recharged on site, or the greater of 15% of the lot areas or 2,500 square feet if less than all runoff is recharged on site), and requires that a minimum of 30% of the total upland area be retained in its natural state. To the extent the Onshore Substation could be found not to comply with these requirements relating to hazardous waste and substances, a use variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Prohibited Uses Section 240-10.A	Use Variance	Any use that is "injurious, noxious, or offensive" by reason of odor, fumes, dust, smoke, vibration, noise, lighting, or other cause is prohibited. The Project may emit sound, light, or vibration that subjectively may be deemed injurious, noxious, or offensive. Thus, a variance would or may be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Structure Height Sections 240-13 and 240-14	Dimensional Variance	It is unclear whether the 30-foot height restriction applies to the Project's lightning masts and transformers, which would exceed 30 feet in height. If the height restriction is applicable, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted subject to appeal.
Minimum Yard Setbacks Sections 240-13 and 240-14	Dimensional Variance	It is unclear whether the Project will comply with the minimum yard setbacks under the Barnstable Zoning Ordinance which are 30 feet from the front lot line and 15 feet from the side and rear lot lines. If the Project does not comply with the minimum yard setbacks, a

Section of the Zoning Ordinance from which Exemption is Requested	Available Relief	Why Exemption is Required: Company's Position
		variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted subject to appeal.
Signs Article VII, Sections 240-61.D, and 240-63[135]	Variance	Danger and warning signs are prohibited in any district; thus, a variance would be required for the necessary danger and safety signs normally posted on property used for similar purposes. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Site Plan Review Article IX Sections 240-98 through 240-105	Site Plan Approval	Site plan approval requires Project compliance with all applicable requirements of the Barnstable Zoning Ordinance, and the Project cannot meet all such requirements or is subject to significant uncertainty with respect to its ability to meet such requirements. The Company must have the discretion to design the Project and site layout in a manner consistent with established industry standards. Site plan approval is discretionary and, even if granted, subject to appeal.
Performance Bonds Section 240-124.A	Variance	The performance bond requirements are not defined in the Barnstable Zoning Ordinance and are set on a project-by-project basis by the Building Commissioner. Because the amount of the bonds is unfixed and there is no process for how these determinations are to be made, the potential for delay is great. The final sentence of this section requires certification of compliance with yard requirements by a registered land surveyor. Therefore, a variance would be required; but the legal standard for obtaining a variance is difficult to meet. Variances are a

[135] The Zoning Petition requests relief from the signage restrictions in Sections 240-61.D and 240-63 (Exh. VW-4, at 53). The Company Brief, on the other hand, requests relief from the signage restrictions in Sections 240-61.D, 240-65, 240-66 (Company Brief at 220). In its response to RR-EFSB-88, the Company stated that it "inadvertently listed Sections 240-65 and 240-66, instead of 240-63, in its request for individual exemptions to the Barnstable Zoning Ordinance's signage restrictions."

Section of the Zoning Ordinance from which Exemption is Requested	Available Relief	Why Exemption is Required: Company's Position
		disfavored form of relief and, even if granted, subject to appeal.
Occupancy Permits Section 240-124.B	Variance	An occupancy permit cannot be granted unless a structure or use complies in all respects with the Barnstable Zoning Ordinance. If any exemptions or variances are granted, the Project would not be in compliance with those provisions of the Barnstable Zoning Ordinance. In that case, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Off-Street Parking Article VI Section 240-48 through 240-58	Variance/ Special Permit	Under the Barnstable Zoning Ordinance, the minimum number of parking spaces is determined by the Building Commissioner. Because the Building Commissioner has discretion to impose parking requirements inconsistent with the proposed Onshore Substation, a special permit (with respect to number of parking spaces) or variance (with respect to other requirements) may be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal. A special permit can only be issued after a public hearing, is discretionary, and if granted, is subject to appeal.

Sources: Exhs. VW-4; EFSB-Z-4; Company Brief at 214–222; RR-EFSB-87.

i. Use Variances - Public Utility Uses

The Company argues that any use not specifically allowed in a district by the Barnstable Zoning Ordinance is prohibited because "[t]he default presumption is that a use is prohibited unless it is expressly authorized in the zoning district(s) where it would be located" (Company Brief at 214, citing Exh. EFSB-Z-8).

The Onshore Substation would be located in RF and RF-1 (Residential) districts and a Groundwater Protection Overlay District, (Company Brief at 214, citing Exh. VW-4, at 36 & Ex. A; RR-EFSB-87). Public utility uses are not allowed as of right in said districts (Company Brief at 214, citing Exh. VW-4, at 37 & Ex. A; RR-EFSB-87). Therefore, the Company asserts that it

would or might be required to obtain variances from the following sections in order to construct the Project: 240-13 (public utility uses not specifically allowed in RF-1 district); 240-14 (public utility uses not expressly allowed in RF districts);[136] 240-7.A (requiring conformity with all use restrictions); 240-35.F(2) (both public utility use and the generation, treatment, storage, or disposal of hazardous waste are not allowed in Groundwater Overlay Protection District); 240-35.F(3) (limits the area of a lot that can be made impervious through construction); 240-35.F(4) (sets a limit on what percentage of a lot's area may be developed);) (Exh. VW-4, at 51-55; Company Brief at 214, citing Exh. VW-4 at 36 & Ex. A; Company Brief at 215, citing Exh. EFSB-Z-10; RR-EFSB-87.

With respect to the problems posed by the need to obtain variances, the Company argues: (1) variances are a "disfavored" form of relief (Company Brief at 216, citing Cornell v. Board of Appeal of Dracut, 453 Mass. 888, 895 (2009) and NRG Canal at 149-150); (2) variances should be granted only "sparingly" (Company Brief at 216, citing Lussier v. Zoning Board of Appeals of Peabody, 447 Mass. 531, 534 (2006) and NRG Canal at 149-150); and (3) the grant of a variance may be appealed (Company Brief at 216, citing G.L. c. 40A, § 17, and Mass. Prac. Series, Real Estate Law, § 23.24 (4th Ed.) ("It is not surprising that few variances stand up when challenged in court"). In further support, the Company notes that the Siting Board has stated that "the need to obtain variances is likely to result in an adverse outcome, a burdensome requirement, or an unnecessary delay" (Company Brief at 216, citing NSTAR Elec. Co., EFSB 14-2/D.P.U. 14-73/14-74, at 97 (2017) ("Walpole-Holbrook")).[137]

---

136 In this section, we address only the requested exemptions from the use provisions of Barnstable Zoning Ordinance section 240-13 and 240-14. Below we address the Company's requested exemptions from the dimensional requirements of these two sections. See Section VIII.D.2.a.iii, supra.

137 Barnstable Zoning Ordinance does allow the Zoning Board of Appeals to grant variances, but only under specific conditions which are not present in this case. The Barnstable Zoning Board of Appeals has the right to grant a variance only if it can find that : 1. "owing to conditions especially affecting . . . [a]parcel or such building but not affecting generally the zoning district in which it is located, a literal enforcement of the provisions of this chapter would involve substantial hardship, financial or otherwise to the appellant"; and 2. "desirable relief may be granted without substantial detriment to the

The Barnstable Zoning Ordinance expressly states: "No building shall be erected or altered and no building or premises shall be used for any purpose *except in conformity with all of the regulations herein specified* for the district in which it is located" (Exh. EFSB-Z-8, citing Barnstable Zoning Ordinance § 240-7.A) (emphasis added). The Massachusetts Court of Appeals has characterized this type of zoning bylaw as "prohibitive rather than permissive" (Exh. EFSB-Z-8). Tanner v. Board of Appeals of Boxford, 61 Mass.App.Ct. 647, 648 (2004) (internal quotation marks omitted) citing APT Asset Mgmt. Inc. v. Board of Appeals of Melrose, 50 Mass.App.Ct. 133, 138 (2000). A prohibitive zoning bylaw is one in which "uses not expressly authorized by its terms are prohibited." APT Asset Mgmt. Inc. v. Board of Appeals of Melrose, 50 Mass.App.Ct. at 138. Therefore, the Siting Board finds that the Company requires exemptions within the meaning of G.L. c. 40A, § 3 from Barnstable Zoning Ordinance sections 240-13, 240-14, 240-7.A, 240-35.F(2), (3), and (4) to construct and operate the Project.

ii. Use Variances - Prohibited Uses

The Company also seeks an exemption from Barnstable Zoning Ordinance Section 240-10.A, which prohibits from all zoning districts "[a]ny use which is injurious, noxious or offensive by reason of the emission of odor, fumes, dust, smoke, vibration, noise, lighting or other cause" (Company Brief at 217, citing Exh. VW-4, at 43 & Ex. A). The Company describes this standard as "subjective and discretionary"; and the Company asserts that to the extent that the Project could not meet this standard, "a variance would be required" (Company Brief at 217). The Company notes that the Siting Board granted an exemption from this same section of the Barnstable Zoning Ordinance in Vineyard Wind (Company Brief at 218). The Company also argues that variances are subject to legal uncertainty, they may impose undue burdens and contain adverse interpretation of the law or facts, and that obtaining a variance may cause delay (Company Brief at 218).

In the Vineyard Wind decision, the Siting Board held that section 240-10.A "contains no objective standards, nor does it limit the discretion of the building commissioner," and this

---

public good and without nullifying or substantially derogating from the intent or purpose of this chapter." Exh. VW-4, Ex. A at § 240-125.B(1)(c).

reasoning applies to this Project. See Vineyard Wind at 143. In the present case, furthermore, the Siting Board finds that the Company's arguments regarding the disadvantages of obtaining variances have merit. Therefore, the Siting Board finds that the Company requires an exemption within the meaning of G.L. c. 40A, § 3 from Barnstable Zoning Ordinance 240-10.A to construct and operate the Project.

iii. Dimensional Restrictions

The Company asserts that sections 240-13 and 240-14 impose a 30-foot (or two story) height restriction on buildings located in the RF and RF-1 (residential) district, which is the district in which the Onshore Substation would be located (Company Brief at 214, 218, citing Exh. VW-4, at 44 & Ex. A). The Company asserts that the Barnstable Building Inspector could interpret this limitation as applying to substation equipment such as lightning masts, transformers, and sound walls, all of which are required to operate the Onshore Substation (Company Brief at 218-219, citing Exh. VW-4, at 44; RR-EFSB-4(1)). If that happened, the Company argues, then it would need to obtain a variance to construct and operate the Project (Company Brief at 219, citing Exh. VW-4, at 44).

As described above, the Company argues that variances are a disfavored form of relief and, even when granted, are subject to appeal (Company Brief at 219). Because of the legal uncertainty involved in obtaining variances, the potential for adverse interpretation of the law or facts, and the potential for delay, the Company seeks an exemption from the height restrictions of Barnstable Zoning Ordinance sections 240-13 and 240-14 (Company Brief at 219). See also, Walpole-Holbrook at 97 ("The Siting Board concurs with the Company that variances are difficult to obtain, constitute a disfavored form of relief, and are susceptible to being overturned on appeal").

We find that some of the Onshore Substation structures may exceed the dimensional restrictions in the Barnstable Zoning Ordinance. See Walpole-Holbrook at 97 ("The Siting Board concurs with the Company that variances are difficult to obtain, constitute a disfavored form of relief, and are susceptible to being overturned on appeal"). Therefore, the Siting Board finds that the Company requires, within the meaning of G.L. c. 40A, § 3, exemptions from

Barnstable Zoning Ordinance Sections 240-13 and 240-14 for the construction and operation of the Onshore Substation.

iv. Signs

Sections 240-61.D and 240-63 of the Barnstable Zoning Ordinance, taken together, prohibit danger and warning signs in all districts, limit the total number of signs, and limit the size of signs individually and in total (Exh. VW-4 at 53; RR-EFSB-88). The Company, however, plans to post signage at intervals along the perimeter of the Onshore Substation (Exh. VW-4, at 45-46). Said signs would contain warnings of high voltage and would provide emergency contact information (Exh. VW-4 at 45-46). Additional signs with safety information would be posted at each access point (Exh. VW-4, at 46). Consequently, the Company argues, it would need to obtain a variance to post the necessary safety and warning signs (Exh. VW-4 at 46).

As described above, variances are a legally disfavored form of relief and, even if granted, can be susceptible to appeal (Company Brief at 219; Exh. VW-4, at 46). In support of this request, the Company notes that the Siting Board and the Department both granted an exemption from these three sections of the Barnstable Zoning Ordinance in substantially similar factual and legal circumstances for the Vineyard Wind Connector project (Company Brief at 220-221, citing Vineyard Wind at 144-145, and Vineyard Wind 1 LLC, D.P.U. 21-08, at 15).

The Siting Board finds that because the Company's signage will not comply with the Barnstable Zoning Ordinance, the Company requires within the meaning of G.L. c. 40A, § 3 exemptions from Barnstable Zoning Ordinance Sections 240-61.D and 240-63 for the construction and operation of the proposed Onshore Substation.

v. Off-Street Parking

Article VI of the Barnstable Zoning Ordinance is entitled "Offstreet Parking Regulations," and it encompasses Sections 240-48 through 240-58 (Exh.VW-4, Ex. A). The Company seeks an exemption from these zoning provisions (Exhs. VW-4, at 55; EFSB-Z-12).

Barnstable Zoning Ordinance Section 240-48, entitled "Purpose," states: "It is the purpose of this article that all new, expanded or intensified uses within the Town provide

adequate off-street parking" (Exh. VW-4, Ex. A). Section 240-49 states: "No use shall be intensified . . . without providing adequate off-street parking as provided herein (Exh. VW-4, at 50 & Ex. A). The Barnstable Zoning Ordinance regulates several aspects of parking, including, among other things, the minimum number of parking spaces required (Exh. VW-4, at 50 & Ex. A). The number of parking spaces required for the Onshore Substation appear to fall into the catch-all category of "[a]ll other uses" where the number of spaces required is discretionary, i.e., "[a]s determined by the Building Commissioner" (Exhs. VW-4, at 50 & Ex. A; EFSB-Z-12).

The Company represents that parking at the Onshore Substation would be infrequent because Substation operations do not require a continuous staff presence (Company Brief at 221, citing Exhs. VW-4 at 50; EFSB-Z-12). Although the Barnstable Zoning Board of Appeals may reduce the number of parking spaces required by the Building Commissioner by special permit (Barnstable Zoning Ordinance Section 240-57), the Company argues that seeking such a special permit would be burdensome and unnecessary in light of the other exemptions required and would be subject to appeal (Company Brief at 221, citing Exhs. VW-4 at 50; EFSB-Z-12). Moreover, PCW represents that it would incorporate adequate loading space on the site to conform to proper construction techniques for electric transmission facilities (Company Brief at 221, citing Exh. VW-4 at 50). The Company also argues that the uncertainty caused by a discretionary requirement with respect to parking spaces creates the potential for adverse interpretations, delay, burden, and undue expense (Company Brief at 221). Finally, the Company notes that the Siting Board granted the same exemption in Vineyard Wind under the same circumstances (Exh. EFSB-Z-12). Vineyard Wind at 147 (concluding that where "the Substation generally will not have personnel working on-site," it "is appropriate to allow the Company to design the Substation layout in accordance with [industry] standards" and declining to "require as a condition to this Decision that a certain number of parking spaces be included on the Substation site").

The Company must design the Onshore Substation consistently with industry standards, and the Onshore Substation would not have personnel on site most of the time. Therefore, the Siting Board finds that the Company requires within the meaning of G.L. c. 40A, §3 exemptions

from Sections 240-48 through 240-58 of the Barnstable Zoning Ordinance for the construction and operation of the Onshore Substation.

vi. Site Plan Review

The Company seeks exemption on a number of grounds from Sections 240-98 through 240-105 of the Barnstable Zoning Ordinance, all of which pertain to site plan review (Company Brief at 229-231; Exh. VW-4, at 54). Site plan review would be required, the Company asserts, because construction of the Onshore Substation would involve "construction, demolition, grading, clearing or other land development activity" and/or "[e]stablishment of any new use or new construction of any building or structure, including any grading or land development activity" (Exh. VW-4, at 46; Company Brief at 229, citing Exh. VW-4, at 46 & Ex. A). Furthermore, the Company notes that Section 240-101 prohibits issuance of building permits or occupancy permits or the carrying out of any activity for which site plan review is required until site plan review approval has been obtained (Company Brief at 229, citing Exh. VW-4, at 46 & Ex. A). Site plan review requires compliance "with zoning and other applicable regulations and standards" (Company Brief at 229, citing Exh. VW-4, at 46 & Ex. A). As described herein, the Company represents that the Onshore Substation either cannot meet all such requirements or may be subject to uncertainty with respect to its ability to meet such requirements (Company Brief at 229). Furthermore, the Company argues that it must have the discretion to design the Onshore Substation in a manner consistent with established industry standards (Company Brief at 229; Exh. VW-4, at 54).

The Company further argues that compliance with the site plan review requirements would be costly and burdensome, and such compliance would subject the Project to discretionary approvals and unclear requirements (Company Brief at 229, citing Exh. VW-4, at 47 & Ex. A). The process of obtaining site plan review approval, the Company argues, is potentially iterative and time consuming, and therefore creates the threat of significant delays for the Project (Company Brief at 229, citing Exh. VW-4, at 47 & Ex. A).

Even if discretionary site plan review approval were obtained, the Company argues, it would be subject to appeal (Company Brief at 230, citing Exh. VW-4, at 47 & Ex. A). In order to avoid the delay, cost, potential inconsistency with industry standards, and uncertainty

associated with obtaining site plan review approval, and the prospect of appeal, the Company requests an exemption from Sections 240-98 through 240-105 of the Barnstable Zoning Ordinance for the Onshore Substation (Company Brief at 230; Exh. VW-4, at 46, 54). Finally, the Company notes that the Siting Board granted an exemption from site plan review for the Vineyard Wind Connector project components in substantially similar factual and legal circumstances (Company Brief at 230, citing Vineyard Wind at 146 and Vineyard Wind I LLC, D.P.U. 21-08, at 15).

The Siting Board finds that the site plan review approval requirements could conflict with industry design standards and introduce unacceptable delay for the Project. Therefore, the Company requires within the meaning of G.L. c. 40A, § 3 an exemption from Sections 240-98 through 240-105 of the Barnstable Zoning Ordinance to construct and operate the Onshore Substation.

vii. Performance Bond and Certification of Compliance with Yard Requirements

Section 240-124.A of the Barnstable Zoning Ordinance, entitled "Performance bonds required" reads as follows:

> A performance bond of not less than $4 per foot of frontage against possible costs due to erosion or damage within passable street rights-of-way shall be required by the Building Commissioner prior to authorization of any new building, and a bond or cash security may be required by the Building Commissioner for other construction, such bond or cash security to be held by the Town Treasurer until an occupancy permit is granted as provided for in Subsection B herein.

According to the Company, this Section could be interpreted to apply to the Onshore Substation (Company Brief at 231, citing Exh. VW-4 at 48).[138] The Company is concerned that this section "grants unlimited discretion to the Building Commissioner to set the upper amount of the performance bond" (Exh. EFSB-Z-4; see also Exh. VW-4, at 48). If the Building

[138] The Company Brief addresses the exemption from this section in the context of both its effect on construction of the Onshore Substation and on the construction of the Onshore Cables (Company Brief at 231-232). In this section of the Decision, however, the Siting Board addresses only the effect of the section on the construction of the Onshore Substation. For that reason, we have omitted any arguments that relate primarily to the effect of the Section on the construction of the Onshore Cables.

Commissioner were to set a performance bond at "a level that is excessive," such an action would create "a material financial obstacle to the implementation of the Project" (Exh. EFSB-Z-4, at 2). "While the Company would be entitled to appeal" such a decision, "the potential length of time to resolve such an appeal [would be] significant" (Exh. EFSB-Z-4, at 3).

The last sentence of Section 240-124.A states: "Prior to the proceeding with construction above the foundation, a registered land surveyor shall certify that the structure has been located in compliance with all yard requirements" (Exh. VW-4 & Ex. A at 240:267). The Company argues that this requirement of a certification of compliance with yard requirements by a registered land surveyor is an additional reason to conclude that a variance from this section is or may be required (Exh. EFSB-4, at 48). As stated above, variances are a legally disfavored form of relief and, even if granted, can be susceptible to appeal (Company Brief at 231). Because of the legal uncertainty in obtaining variances and the potential for adverse interpretations, and the delay, burden, and expense associated with the permitting process and appeals therefrom, PCW seeks an exemption from Section 240-124.A of the Barnstable Zoning Ordinance for the Onshore Substation.

The Onshore Substation may not meet the yard requirements in the Barnstable Zoning Ordinance and the performance bond provision could result in delay for the Project. Therefore, for the reasons stated above, the Siting Board finds that the Company requires, within the meaning of G.L. c. 40A, § 3, an exemption from the provisions of Barnstable Zoning Ordinance Section 240-124.A.

viii. Occupancy Permits

Section 240-124.B of the Barnstable Zoning Ordinance states:

> No premises and no building or structure erected, altered or in any way changed as to construction or use, under a permit or otherwise, shall be occupied or used without an occupancy permit signed by the Building Commissioner. Such permit shall not be issued until the premises, building or structure and its uses and accessory uses comply in all respects with this chapter.

The Onshore Substation would contain: a control room located inside two metal enclosures; lightning protection masts; two 275/345-kV step-up transformers; GIS; shunt

reactors; STATCOMs; harmonic filters; associated bus work and support structures; and electrical service equipment (Exh. VW-1, at 1-17). One or more of these items may be considered to constitute a "structure," and the construction of said item or items may be considered the erecting of said structure (see Company Brief at 232, citing Exh. VW-4, at 49). Therefore, the Company asserts, it is possible that Section 240-124.B of the Barnstable Zoning Ordinance could be applied to the Onshore Substation (Company Brief at 232, citing VW-4, at 49). If Section 240-124.B were so applied, then the Project might not be in compliance with the Barnstable Zoning Ordinance, and the Company would need to seek a variance (Company Brief at 232, citing Exh. VW-4, at 49).

As described above, variances are a legally disfavored form of relief and, even if granted, can be susceptible to appeal. Because of the legal uncertainty in obtaining variances, and the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and appeals therefrom, PCW has requested an exemption from Section 240-124.B of the Barnstable Zoning Ordinance for the Onshore Substation (Company Brief at 232; Exh. VW-4, at 49-50). The Company argues that the Siting Board and Department granted an exemption from this section of the Barnstable Zoning Ordinance in substantially similar factual and legal circumstances (Company Brief at 232, citing Vineyard Wind at 146 and Vineyard Wind 1 LLC, D.P.U. 21-08, at 15).

In granting an exemption from Section 240-124.B in Vineyard Wind, the Siting Board focused on the language in the second sentence of the section: "Such permit shall not be issued until the premises, building or structure and its uses and accessory *uses comply in all respects* with this chapter" (emphasis added). See Vineyard Wind at 146. The Onshore Substation, consistent with Vineyard Wind, will not comply with all aspects of the Zoning Ordinance for reasons articulated in this zoning exemption section. See Vineyard Wind at 146. Accordingly, the Siting Board finds that the Company requires, within the meaning of G.L. c. 40A, § 3, an exemption from Section 240-124.B of the Barnstable Zoning Ordinance to construct and operate the Onshore Substation.

ix. Conclusion on Individual Zoning Exemptions for the Onshore Substation

The Siting Board finds that the Company has demonstrated that exemption from certain sections of the Barnstable Zoning Ordinance is required within the meaning of G.L. c. 40A, § 3 for construction and operation of the Onshore Substation. Specifically, the Siting Board grants the Company's requests for exemption from the use restrictions in Sections 240-13, 240-14, 240-7.A, 240-35.F(2), (3), and (4), and 240-10.A; the dimensional restrictions in 240-13 and 240-14 (i.e., restrictions on both structure height and minimum yard setbacks); the signage restrictions in Sections 240-61.D and 240-63; the off-street parking restrictions in Sections 240-48 through 240-58; the site plan approval restrictions in Sections 240-98 through 240-105; the performance bond requirement and certificate of compliance with yard requirements found in Section 240-124.A; and the occupancy permit requirement of Section 240-124.B.

b. Onshore Cables from Landfall to the Onshore Substation

In the Zoning Petition, the Company requests relief from the following provisions of the Barnstable Zoning Ordinance to construct the Onshore Cables from the landfall to the Onshore Substation (Exh. VW-4, at 58-70). Below, the Siting Board identifies zoning exemptions sought by the Company for (1) the Preferred Route and variants; (2) the Noticed Alternative Route and variants; and (3) those exemptions that apply to all proposed routes and variants.

Table 15. Onshore Cables from Landfall to the Onshore Substation – Requested Individual Exemptions from the Barnstable Zoning Ordinance: Summary of Company's Position

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
A. Preferred Route and Variants[139,140]		
Use Regulations Section 240-131	Use Variance	This portion of the Onshore Cables will pass through the Craigville Beach (CBD) district, Craigville Beach

139 Variant 2 of the Preferred Route does not pass through a HB (Highway Business) district and would, therefore, not require an exemption from the corresponding section (Exh. VW-4, at 59 n.18).

140 Only Variant 2 of the Preferred Route passes through a RC-2 (Residential) district and a HO (Highway Office) district (Exh. VW-4 at 59 n.19).

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		Neighborhood Overlay (CBNOD) district, Long Beach/Short Beach Neighborhood Overlay (LBSBNOD) district, and Craigville Village Neighborhood Overlay (CVNOD) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cables is uncertain, and a use variance may be required because Section 240- 131 does not expressly allow public utility uses in the CBD, CBNOD, LBSBNOD or CVNOD aid districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal. Moreover, a use variance may be not available for three reasons: (1) Section 240-131.4(A)(1) affirmatively prohibits "any use not expressly allowed herein"; (2) Section 240-131.8(A) does not incorporate Section 240-125 (the provision of the Ordinance authorizing use variances); and (3) Section 240.131.8(B) states that in the event of a conflict with other provisions of the Ordinance, Section 240-131 shall control.
Minimum Yard Setbacks Section 240-131.5	Dimensional Variance	It is unclear whether the portion of the Onshore Cable that passes through 2 Short Beach Road will comply with the minimum yard setbacks under the Barnstable Zoning Ordinance which are 20 feet from the front lot line and 15 feet from the side and rear lot lines. If the Project does not comply with the minimum yard setbacks, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Minimum Lot Frontage Section 240-131.5	Dimensional Variance	The Project site has 100 feet of frontage on 2 Short Beach Road and does not comply with the 125 foot minimum lot frontage under the Barnstable Zoning Ordinance. A variance is required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Minimum Lot Area Section 240-131.5	Dimensional Variance	The Project site located at 2 Short Beach Road has a lot area of approximately 0.28 acres and does not comply with the minimum lot area under the Barnstable Zoning Ordinance which is 87,120 square feet. A variance is required. The legal standard for obtaining a variance is

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Performance Standards Sections 240-131.7.D and 240-131.7.E	Variance	The portion of the Project located at 2 Short Beach Road may not comply with the general and special performance standards applicable to development in the CBD and LBSBNOD districts, including the following; (1) new non-water-dependent development must be set back at least 50 feet from the top of the coastal bank resource area, and (2) no development is permitted in the V (Velocity) Zone. If the Project does not comply with the performance standards, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-130	Use Variance	This portion of the Onshore Cable will pass through CVD (Centerville Village) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Export Cable is uncertain, and a regulatory agreement with the Town may be required because Section 240-130 does not expressly allow public utility uses in the CVD district. A regulatory agreement is discretionary and subject to appeal. In the event that Vineyard Wind and the Town are unable to agree upon a regulatory agreement to permit a public utility use in the CVD district, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal. Moreover, because Section 240-130.5(A) does not incorporate Section 240-125 (the provision of the Ordinance authorizing use variances), and because Section 240.130.5(B) states that in the event of a conflict with other provisions of the Ordinance, Section 240-130 shall control, a use variance may not be available.
Use Regulations Section 240-11	Use Variance	This portion of the Onshore Cable will pass through RD-1 (Residential) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240-11 does not expressly allow public utility uses in the RD-1 district. The legal

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-13	Use Variance	This portion of the Onshore Cable will pass through RC (Residential) and RF-1 (Residential) districts. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240- 13 does not expressly allow public utility uses in the RC or RF-1 districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-14	Use Variance	This portion of the Onshore Cable will pass through RF (Residential) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240-14 does not expressly allow public utility uses in the RF district. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-25	Use Variance	This portion of the Onshore Cable will pass through HB (Highway Business) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240-25 does not expressly allow public utility uses in the HB district. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal
Use Regulations Section 240-26[141]	Use Variance	This portion of the Onshore Cable will pass through HO (Highway Office) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240-25 does not expressly allow public utility uses in the HO district. The legal standard for obtaining a variance is difficult to meet.

[141] As mentioned previously, only Variant 2 of the Preferred Route passes through a RC-2 (Residential) district and a HO (Highway Office) district.

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-15	Use Variance	This portion of the Onshore Cable will pass through RC-2 (Residential) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240-14 does not expressly allow public utility uses in the RC-2 district. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-7.A	Use Variance	Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, a use variance may be required because Section 240-7 prohibits the use of any premises "for any purpose except in conformity with all of the regulations herein specified for the district in which it is located," and public utility uses are not expressly allowed in the CBD, CBNOD, CVNOD, LBSBNOD, CVD, RC, RC-2, RD-1, RF, RF-1, HB or HO districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Aquifer Protection and Groundwater Protection Overlay Districts Sections 240-35.E(2), 240-35.F(2)	Use Variance	This portion of the Onshore Cable will pass through Aquifer Protection and Groundwater Protection Overlay Districts. Public utility uses are not expressly allowed in the underlying CBD, CBNOD, CVNOD, LBSBNOD, CVD, RC, RC-2, RD-1, RF, RF-1, HB or HO districts. Therefore, although applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, a use variance may be required to allow such a use in the Aquifer Protection and Groundwater Protection Overlay Districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Resource Protection Overlay District Section 240-36	Use Variance	This portion of the Onshore Cable will pass through a Resource Protection Overlay District. Public utility uses are not expressly allowed in the underlying RC, RC-2, RD-1, RF or RF-1 districts. Therefore, although the

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, a use variance may be required to allow such a use in the Resource Protection Overlay District. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
B. Noticed Alternative Route And Its Variants		
Use Regulations Section 240-131	Use Variance	This portion of the Onshore Cable will pass through the Craigville Beach (CBD) district, Craigville Beach Neighborhood Overlay (CBNOD) district, Long Beach/Short Beach Neighborhood Overlay (LBSBNOD) district, and Craigville Village Neighborhood Overlay (CVNOD) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and a use variance may be required because Section 240- 131 does not expressly allow public utility uses in the CBD, CBNOD, LBSBNOD or CVNOD districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal. Moreover, a use variance may not be available because: (1) Section 240-131.4(A)(1) affirmatively prohibits "any use not expressly allowed herein"; (2) Section 240-131.8(A) does not incorporate Section 240-125 (the provision of the Ordinance authorizing use variances); and (3) Section 240.131.8(B) states that in the event of a conflict with other provisions of the Ordinance, Section 240-131 shall control.
Minimum Yard Setbacks Section 240-131.5	Dimensional Variance	It is unclear whether the portion of the Onshore Cable that passes through 2 Short Beach Road will comply with the minimum yard setbacks under the Barnstable Zoning Ordinance which are 20 feet from the front lot line and 15 feet from the side and rear lot lines. If the Project does not comply with the minimum yard setbacks, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Minimum Lot Frontage	Dimensional Variance	The Project site has 100 feet of frontage on 2 Short Beach Road. The minimum lot frontage under the

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
Section 240-131.5		Barnstable Zoning Ordinance, however, is 125 feet. Therefore, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Minimum Lot Area Section 240-131.5	Dimensional Variance	The Project site located at 2 Short Beach Road has a lot area of approximately 0.28 acres, approximately 12,196.80 square feet. The minimum lot area under the Barnstable Zoning Ordinance is 87,120 square feet. Therefore, the 2 Short Beach Road site does not comply with the zoning ordinance and a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Performance Standards Sections 240-131.7.D and 240-131.7.E	Variance	The portion of the Project located at 2 Short Beach Road may not comply with the general and special performance standards applicable to development in the CBD and LBSBNOD districts, including the following; (1) new non-water-dependent development must be set back at least 50 feet from the top of the coastal bank resource area, and (2) no development is permitted in the V (Velocity) Zone. If the Project does not comply with the performance standards, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-130	Use Variance	This portion of the Onshore Cable will pass through CVD (Centerville Village) district. The applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, and Section 240-130 does not expressly allow public utility uses in the CVD district. Therefore, a regulatory agreement with the Town may be required. A regulatory agreement is discretionary and subject to appeal. If the Company and the Town are unable to agree upon a regulatory agreement to permit a public utility use in the CVD district, then a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal. Moreover, because Section

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		240-130.5(A) does not incorporate Section 240-125 (the provision of the Ordinance authorizing use variances), and because Section 240.130.5(B) states that in the event of a conflict with other provisions of the Ordinance, Section 240-130 shall control, a use variance may not be available.
Use Regulations Section 240-11	Use Variance	This portion of the Onshore Cable will pass through RD-1 (Residential) district. Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, we nevertheless note that Section 240-11 does not expressly allow public utility uses in the RD-1 district. Therefore, a use variance may be required. The legal standard for obtaining a variance is difficult to meet. Furthermore, variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-13	Use Variance	This portion of the Onshore Cable will pass through RC (Residential) and RF-1 (Residential) districts. Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, we nevertheless note that Section 240-13 does not expressly allow public utility uses in the RC or RF-1 districts. Therefore, a use variance may be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-14	Use Variance	This portion of the Onshore Cable will pass through RF (Residential) district. Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, we nevertheless note that Section 240-14 does not expressly allow public utility uses in the RF district. Therefore, a use variance may be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-26	Use Variance	This portion of the Onshore Cable will pass through HO (Highway Office) district. Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, we nevertheless note that Section 240-25 does not expressly allow public utility

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		uses in the HO district. Therefore, a use variance may be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-15	Use Variance	This portion of the Onshore Cable will pass through RC-2 (Residential) district. Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, we nevertheless note that Section 240-14 does not expressly allow public utility uses in the RC-2 district. Therefore, a use variance may be required. The legal standard for obtaining a variance is difficult to meet. Furthermore, variances are a disfavored form of relief and, even if granted, are subject to appeal.
Use Regulations Section 240-7.A	Use Variance	Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, Section 240-7 prohibits the use of any premises "for any purpose except in conformity with all of the regulations herein specified for the district in which it is located," and public utility uses are not expressly allowed in the CBD, CBNOD, CVNOD, LBSBNOD, CVD, RC, RC-2, RD-1, RF, RF-1 or HO districts. Therefore, a use variance may be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Aquifer Protection and Groundwater Overlay Districts Sections 240-35.E(2), 240-35.F(2)	Use Variance	Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, (1)This portion of the Onshore Cable will pass through Aquifer Protection and Groundwater Protection Overlay Districts; and (2) Public utility uses are not expressly allowed in the underlying CBD, CBNOD, CVNOD, LBSBNOD, CVD, RC, RC-2, RD-1, RF, RF-1 or HO districts. Therefore, a use variance may be required to allow such a use in the Aquifer Protection and Groundwater Protection Overlay Districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
Resource Protection Overlay District Section 240-36	Use Variance	This portion of the Onshore Cable will pass through a Resource Protection Overlay District. Although the applicability of the Barnstable Zoning Ordinance to this portion of the Onshore Cable is uncertain, public utility uses are not expressly allowed in the underlying RC, RC-2, RD-1, RF or RF-1 districts. Therefore, a use variance may be required to allow such a use in the Resource Protection Overlay District. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
C. **All Routes**		
Site Plan Review Article IX Sections 240-98 through 240-105	Site Plan Approval	Site plan approval requires Project compliance with all applicable requirements of the Barnstable Zoning Ordinance. The Project either cannot meet all such requirements or is subject to significant uncertainty with respect to its ability to meet such requirements. The Company must have the discretion to design the Project and site layout in a manner consistent with established industry standards. Site plan approval is discretionary and, even if granted, is subject to appeal.
Performance Bonds Section 240-124.A	Variance	The performance bond requirements are not defined in the Barnstable Zoning Ordinance and are set on a project-by-project basis by the Building Commissioner. Because the amount of the bonds is unfixed and there is no process for how these determinations are to be made, the potential for delay is great. The final sentence of this section requires certification of compliance with yard requirements by a registered land surveyor. Therefore, a variance would be required; but the legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.
Occupancy Permits Section 240-124.B	Variance	An occupancy permit cannot be granted unless a structure or use complies in all respects with the Barnstable Zoning Ordinance. If any exemptions or variances are granted, the Project would not be in compliance with those provisions of the Barnstable Zoning Ordinance. In that case, a variance would be required. The legal standard for obtaining a variance is

Section of the Zoning Ordinance	Available Relief	Why Exemption is Required: Company's Position
		difficult to meet. Variances are a disfavored form of relief and, even if granted, are subject to appeal.

Sources: Exhs. VW-4; EFSB-Z-4; Company Brief at 222-226.

i. Analysis and Findings of Individual Zoning Exemption Requests for Onshore Cables from Landfall to the Onshore Substation.

In the present case, as in Vineyard Wind, the Company seeks zoning exemptions for the installation of cable that would occur within the public ways of the Town of Barnstable (Exh. EFSB-Z-5; Company Brief at 211, 224).[142] In Vineyard Wind, the Siting Board cited to the SJC's opinion in Harrison v. Textron, 367 Mass. 540 (1975), for the proposition that public ways are exempt from zoning restrictions. Vineyard Wind at 150, citing Harrison v. Textron, 367 Mass. 540, 549 (1975). Therefore, the use restrictions in municipal zoning ordinances do not limit the uses allowed in public ways. Vineyard Wind at 150, citing Harrison at 549. Relying on the holding in Harrison, the Siting Board in Vineyard Wind found that the Company had not met its burden of demonstrating that the exemptions from the Barnstable Zoning Ordinance were necessary to construct the onshore cables in the public roadways of Barnstable. Vineyard Wind at 150. Therefore, the Siting Board declined Vineyard Wind's requested exemptions for the onshore cables in the public roadways of Barnstable. Vineyard Wind at 150.

142 The Company acknowledges that it seeks exemptions to place transmission lines beneath public rights of way (Exh. EFSB-Z-5; Company Brief at 224). The Zoning Petition, however, does not distinguish between the applicability of zoning restrictions to transmission lines beneath public ways and the applicability of the restrictions to any other type of land interest (Exh. EFSB-Z-6). The Zoning Petition identifies one short distance in which the Onshore Cables might not lie within a public way, although no explanation is given, and states that "the final 0.2 miles approaching the Substation . . . is within the Eversource" ROW (Exh. VW-4, at 11). As mentioned above, "[i]t is a petitioner's burden to identify the individual zoning provisions applicable to the Project and then to establish on the record that exemption from each of those provisions is required" (Section VIII.C.1, supra). Consequently, to the extent that any exemptions sought in the Zoning Petition pertain only to private ROW or utility easements or any other ROW conceivably outside the scope of the Harrison decision, it was the Company's burden to specifically identify said exemptions.

The Company's arguments focused on concerns for possible delay of construction of the Project. First, it states that the Harrison case "does not prevent a zoning board or Project opponent from asserting a different conclusion, requiring time-consuming litigation" (Exh. EFSB-Z-5, at 1). Along the same lines, the Company asserts that there is no "conclusive legal determination regarding the applicability of the Town's local zoning" provisions to the Project (Exh. EFSBZ-5, at 2). Furthermore, "there are over 1,000 entities whose proximity to the proposed location of the transmission line would entitle them to a rebuttable presumption of standing" to object on the basis of zoning restrictions to the location of the transmission lines, which creates "a significant risk of substantial project delay absent an exemption" (Exh. EFSB-Z-5, at 2).

The Siting Board is unpersuaded by these arguments. We disagree with the Company's assertion that there is no "conclusive legal determination regarding the applicability of the Town's local zoning" provisions to the Project, as the SJC in Harrison and the Siting Board in Vineyard Wind provides the legal determination necessary on this issue. The mere possibility does not rise to the level that would lead us to conclude that the exemptions sought are "required" as that term is used in G.L. c. 40A, § 3. The words "possible" and "required" are not synonymous. Furthermore, in its brief, PCW does not cite to any Siting Board or Department precedent in which the Board or Department granted zoning exemptions for transmission lines that lie beneath public roadways.

Therefore, the Siting Board concludes that there is no reason to issue a finding in the present case that would be contrary to the finding made in Vineyard Wind under substantially the same circumstances. See Vineyard Wind at 149-151. PCW has not established zoning exemptions for the Onshore Cables in the public roadways are required within the meaning of G.L. c. 40A, § 3 for construction and operation of the Project.

ii. Conclusion on Individual Zoning Exemptions for Onshore Cables from Landfall to the Onshore Substation

The Siting Board finds that the Company has not sufficiently demonstrated that construction and operation of the Onshore Cables as described in the record requires exemptions from the specified individual local zoning provisions. Rather we conclude that exemptions from

local zoning are not necessary within the meaning of G.L. c. 40A, § 3 for construction and operation of the Onshore Cables from landfall to the Onshore Substation.

Accordingly, the Siting Board denies all of the Company's requests for exemptions from the Barnstable Zoning Ordinance as they relate to the installation of the Onshore Cables. Specifically, the Siting Board denies the Company's requests for exemption from: Sections 240-131; 240-131.5; 240-131.7.D; 240-131.7.E; 240-130; 240-11; 240-13; 240-14; 240-25; 240-26; 240-15; 240-7.A; 240-35.E(2); 240-35.F(2); 240-36; 240-13; 240-14; 240-26;; 240-98 through 240-105; 240-124.A; and 240-124.B as they relate to the installation of the Onshore Cables (Exh. VW-4, at 58-70).

c. Grid Interconnection Cable

Pursuant to the Section 69J Petition filed in this case, the Company originally proposed to construct and operate the Grid Interconnection (Exh. VW-3, at 1).[143] During this proceeding, the Company and Eversource entered into the TSA, which provides for Eversource to construct and own the Grid Interconnection (Section 1.B.1, supra; Exh. EFSB-G-37(S); RR-EFSB-27(S)). In this decision, the Siting Board has concluded that the TSA does not deprive the Board of jurisdiction over the Project (Section II.B.2, supra). Therefore, approval of this Project by the Siting Board includes approval of Eversource's role as the entity that will construct, own, and operate the Grid Interconnection, with conditions.[144] The Company has represented that: "In the event that the Siting Board approves the Project with Eversource as the party that will construct, own, and operate the Grid Interconnection, then Park City Wind would no longer seek zoning exemptions for the Grid Interconnection" (RR-EFSB-66). Consequently, the Company is no longer seeking zoning exemptions that pertain to Parcel 214-001 and the Grid Interconnection

---

143 The Company originally requested individual zoning exemptions for the Grid Interconnection from the following sections of the Barnstable Zoning Ordinance: Sections 240-14; 240-7.A; 240-35.E(2); 240-36; 240-10.A; 240-61.D; 240-63; 240-98 through 240-105; 240-124.A; 240-124.B; 240-48 through 240- 58; 240-13; 240-35.F(2).

144 Construction for the Grid Interconnection consists of potential construction on Parcel 214-001.

Substation (Company Brief at 227-229; RR-EFSB-86). Accordingly, the Siting Board deems the Company's request for zoning exemptions relating to the Grid Interconnection to be withdrawn.

3. Consultation with the Municipality

Vineyard Wind, the predecessor to PCW, negotiated a Host Community Agreement ("Vineyard Wind HCA") with Barnstable regarding the Vineyard Wind project which was executed on October 3, 2018 (Exh. VW-1, at 2-6). Vineyard Wind at 151. The Vineyard Wind HCA addressed issues arising pursuant to the Vineyard Wind project and subsequent transmission projects such as the present Project (Exh. VW-1, at 2-6). In the initial filing, the Company represented that Barnstable would "receive substantial payments in accordance with the Vineyard Wind HCA" (Exh. VW-1, at 1-6, citing the Vineyard Wind HCA "second project provision"). These payments would "include the agreed-upon [Vineyard Wind] HCA payment and local real estate and personal property taxes on the Vineyard Wind Connector 2" (Exh. VW-1, at 1-6).

The Company and Barnstable subsequently negotiated and executed an HCA specific to the Project on May 6, 2022 (Exhs. EFSB-G-14(S)(1) (copy of the HCA); EFSB-Z-9(S)). The HCA addresses a host of issues, including: (1) the Town's support for the Project overall, and in particular, the route approved by the Siting Board, any individual and comprehensive zoning exemptions requested in this proceeding, and any Article 97 approvals that may be required for the Project; (2) the Town's commitment to grant any necessary easements, other instruments or approvals necessary for the Company to adequately utilize in-road cable locations and Town-owned landing locations; (3) the Company's commitments regarding Substation design and construction; (4) the Company's financial agreements regarding taxes and host community payments; and (5) the Company's commitments with respect to roadway construction matters, including restoration of roadways following construction, and restoration of the parking lot at the landfall site (Exh. EFSB-G-14(S)(1) at 4 - 6 (addressing easements and grants of location), 7 (addressing Substation construction and design), 7 - 9 (addressing Town support for the project, including in pursuing regulatory and Article 97 approvals and zoning relief), 10-13 (addressing the Company's financial agreements), 13 (addressing repaving of parking lots at the landfall

sites), and 14 (addressing roadway construction matters, including restoration following construction)).

The Company represents that the HCA is the culmination of extensive consultation between PCW and Town officials regarding the Project, including zoning (Company Brief at 208). The record supports this representation. In particular, Table 1-4 of the Analysis lists four separate consultations between Town officials and the Company, along with Company consultations with three separate American Indian tr0ibes and eight state and regional boards, agencies, or councils (Exh. VW-1, at 1-50, 1-51). The HCA memorializes a high level of cooperation between the Company and the Town; a high degree of municipal support for the Project, particularly with respect to municipal and state permitting; and specific support for the Company's requested individual and comprehensive zoning exemptions (Exh. EFSB-G-14(S)(1)).[145] In addition, the Company has reached out to Town residents and state and local officials (Exh. EFSB-G-15).

Based on the foregoing, the Siting Board finds that the Company made a good faith effort to consult with the Town of Barnstable, the Project's host community, regarding the Company's request for zoning relief under G.L. c. 40A, § 3, and that the Company's communications have been consistent with the spirit and intent of Russell Biomass/WMECo.

E. Conclusion on Request for Individual Zoning Exemptions

The Siting Board found above that: (1) the Company is a PSC; (2) the proposed use is reasonably necessary for the public convenience or welfare; and (3) certain specifically named zoning exemptions, set forth above, are required within the meaning of G.L. c. 40A, § 3 for construction and operation of the proposed Onshore Substation. Additionally, the Siting Board found that the Company engaged in good faith consultation with the Town of Barnstable, the host community for the Project.

With respect to the Onshore Substation, the Siting Board grants all of the Company's requested exemptions. Specifically, the Siting Board grants the Company's requests for

---

145 See e.g., Exhs. PCW-12 (FEIR Certificate); VW-9 (DEIR Certificate); EFSB-G-5(S)((grant of Article 97 approval for use of Craigsville Beach and Aaron S. Crosby Park).

exemption from the following sections of the Barnstable Zoning Ordinance: the use restrictions in Sections 240-13, 240-14, 240-7.A, 240-35.F(2), (3), and 4), and 240-10.A; the dimensional restrictions in 240-13 and 240-14; the signage restrictions in Sections 240-61.D and 240-63; the off-street parking restrictions in Sections 240-48 through 240-58; the site plan approval restrictions in Sections 240-98 through 240-105; the performance bond requirement and certificate of compliance with yard requirements found in Section 240-124.A; and the occupancy permit requirement of Section 240-124.B.

With respect to the Onshore Cables to be installed from the landfall to the Onshore Substation, the Siting Board has found that the Company has not sufficiently demonstrated that construction and operation of the Onshore Cables as described in the record requires exemptions from the specified individual local zoning provisions. Instead, the Siting Board has concluded that exemptions from local zoning are not necessary within the meaning of G.L. c. 40A, § 3 for construction and operation of the Onshore Cables from landfall to the Onshore Substation. Accordingly, the Siting Board denies all of the Company's requests for exemptions from the Barnstable Zoning Ordinance as they relate to the installation of the Onshore Cables. Specifically, the Siting Board denies the Company's requests for exemption from: Sections 240-131; 240-131.5; 240-131.7.D; 240-131.7.E; 240-130; 240-11; 240-13; 240-14; 240-25; 240-26; 240-15; 240-7.A; 240-35.E(2); 240-35.F(2); 240-36;; 240-130; 240-7.A; 240-98 through 240-105; 240-124.A; and 240-124.B as they relate to the installation of the Onshore Cables (Exh. VW-4, at 58-70).

With respect to the Grid Interconnection, the Company is no longer seeking zoning exemptions for the Grid Interconnection and the Siting Board deemed those requests as withdrawn.

IX. COMPREHENSIVE ZONING EXEMPTION

A. Standard of Review

PCW requests a comprehensive exemption from the Barnstable Zoning Ordinance (Exh. VW-4, at 1). The Siting Board grants such requests "on a case-by-case basis where the applicant demonstrates that issuance of a comprehensive exemption could avoid substantial public harm by

serving to prevent a delay in the construction and operation of the proposed use." Beverly-Salem at 126-127; Sudbury-Hudson at 215; Vineyard Wind at 109-110.

In order to make a determination regarding substantial public harm, the Department and the Siting Board have articulated relevant factors, including, but not limited to, whether: (1) the proposed project contributes to a reliable energy supply for the Commonwealth; (2) the project is time-sensitive; (3) the project involves multiple municipalities that could have conflicting zoning provisions that might hinder the uniform development of a large project spanning these communities; (4) the proponent of the project has actively engaged the communities and responsible officials to discuss the applicability of local zoning provisions to the project and any local concerns; and (5) the affected communities do not oppose the issuance of the comprehensive exemption. Mid Cape Reliability Project at 109-110; Sudbury-Hudson at 215; Vineyard Wind at 153.

B. Company Position

The Company asserts that the Project satisfies all criteria for granting a comprehensive zoning exemption (Company Brief at 234-240).

The Company represents that the Project would contribute to a reliable energy supply for the Commonwealth (Company Brief at 89, citing Exh. EFSB-G-29(S)). The Company further maintains that any delays in construction or operation of the Project would also cause delays in delivery of the Project's benefits including "the significant reductions in GHG emissions" (Company Brief at 234, citing Exhs. VW-1, at 6-5 to 6-6; VW-7, at 2-58 to 2-59).

The Project is multi-jurisdictional, the Company argues, in the sense that it "is subject to an extensive set of overlapping and independent regulatory reviews and approvals" (Company Brief at 235, citing Exh. EFSB-G-4(S) (table of permits and approvals required for the Project)). Although the Project is primarily located in Barnstable, it also includes components within the jurisdictions of Edgartown and Nantucket as well as Massachusetts-jurisdictional offshore waters (Company Brief at 235, citing EFSB-G-4(S)). The Project is, therefore, "subject to an extensive set of independent regulatory reviews and approvals that must be harmonized with all applicable zoning requirements" (Company Brief at 235, citing Exh. EFSB-G-4(S)). Therefore, the Company argues, the need for uniform development of the Project as it spans jurisdictional

boundaries is just as critical as it would be if the Project were subject to multiple sets of municipal zoning (Company Brief at 235). The Company also notes that the Siting Board has previously granted a comprehensive zoning exemption in similar circumstances: i.e., where the onshore portion of a transmission project serving an offshore generation facility was located in only one municipality (Company Brief at 236, citing Commonwealth Elec. Co., D.T.E. 03-7, at 52-53 (2003)). See also Vineyard Wind at 156; Vineyard Wind 1 LLC, D.P.U. 21-08, at 17.

The Company asserts that its negotiation and execution of the HCA is evidence that it successfully engaged with the Town (Company Brief at 236, citing Exhs. EFSB-Z-9; EFSB-G-14(S)(1) (copy of the HCA)). In the HCA, the Town agrees to publicly support the grant of a comprehensive zoning exemption (Company Brief at 236, citing Exh. EFSB-G-14(S)(1)).

C. Analysis and Findings on Comprehensive Zoning Exemption

The Siting Board finds that the Project would help reduce regional GHG emissions by connecting the Offshore Generator Facility to the New England grid and would also reduce regional reliance of fossil fuels in favor of increasing use of renewable energy sources, such as offshore wind power. These outcomes are broadly consistent with Commonwealth statutory objectives. Furthermore, the Project would provide a number of benefits to Massachusetts including additional energy supply to the New England market area, economic development and employment opportunities, reduced regional reliance on fossil fuels, and collaborative and mutually beneficial efforts with other New England states in jointly developing offshore wind energy resources.

With respect to required consultation with and support from the affected municipality, we have found above that the Company consulted extensively with the Town in connection with the drafting of the HCA and has engaged in additional outreach. The HCA provides a statement of the Town's support for issuance of the individual and comprehensive zoning exemptions the Company is seeking from the Siting Board in this proceeding.

The Company has described the permitting challenges, complexities, and risks it faces, and the construction timing requirements that could cause delays in Project construction that would be costly and potentially detrimental to attainment of the Commonwealth's energy and

environmental objectives. Consequently, the potential for zoning impediments that may result in Project construction delays could result in substantial public harm.

Based on the record in this proceeding, the Siting Board finds that a grant of a comprehensive zoning exemption for the Project for the Onshore Substation is necessary and appropriate. With respect to the Onshore Cables, the Siting Board has concluded that exemptions from local zoning are not necessary for construction and operation of the Onshore Cables from landfall to the Onshore Substation within the meaning of G.L. c. 40A, § 3. Accordingly, the Siting Board denies the Company's requests for a comprehensive exemption from the Barnstable Zoning Ordinance as it relates to the installation of the Onshore Cables.

The Company is no longer seeking a comprehensive exemption from the Barnstable Zoning Ordinance for the Grid Interconnection. Therefore, the Grid Interconnection is not included in this grant of a comprehensive zoning exemption.

X. ANALYSIS UNDER G.L. C. 164, § 72

A. Standard of Review

General Laws, c. 164, § 72 requires, in relevant part, that an electric company seeking approval to construct a transmission line must file with the Department a petition for:

> authority to construct and use … a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric Company or to a municipal lighting plant for distribution and sale … and shall represent that such line will or does serve the public convenience and is consistent with the public interest …. The [D]epartment, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.[146]

The Department, in making a determination under G.L. c. 164, § 72, considers all aspects of the public interest. Boston Edison Company v. Town of Sudbury, 356 Mass. 406, 419 (1969).

---

146 Pursuant to G.L. c. 164, § 72, the electric company must file with its petition a general description of the transmission line, a map or plan showing its general location, an estimate showing in reasonable detail the cost of the line, and such additional maps and information as the Department requires.

Among other things, Section 72 permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420.

In evaluating petitions filed under G.L. c. 164, § 72, the Department examines: (1) the need for, or public benefits of, the present or proposed use; (2) the environmental impacts or any other impacts of the present or proposed use; and (3) the present or proposed use and any alternatives identified. Sudbury-Hudson at 219; East Eagle at 164; Mid Cape Reliability Project at 112. The Department then balances the interests of the general public against the local interests and determines whether the line is necessary for the purpose alleged and will serve the public convenience and is consistent with the public interest. Save the Bay, Inc. v. Department of Public Utilities, 266 Mass. 667, 680 (1975); Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974); New England Power Company d/b/a National Grid, D.P.U. 19-16 (2020).

B. Analysis and Findings

As described above in Sections III through VI, the Siting Board examined: (1) the need for, or public benefits of, the proposed Project; (2) the environmental impacts of the proposed Project; and (3) any identified alternatives. With implementation of the specified mitigation measures to which the Company has committed, and the conditions set forth by the Siting Board in Section XII, below, the Siting Board finds pursuant to G.L. c. 164, § 72, that the proposed Project is necessary for the purpose alleged, would serve the public convenience, and is consistent with the public interest. Thus, the Siting Board approves the Section 72 Petition.

XI. SECTION 61 FINDINGS

MEPA provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the Project and a finding that all feasible measures have been taken to avoid or minimize said impact" ("Section 61 Findings"). G.L. c. 30, § 61. Pursuant to 301 CMR 11.01(4), Section 61 Findings are necessary when an EIR is submitted to the Secretary of EEA and Section 61 Findings should be based on such EIR. Where an EIR is not required, Section 61 Findings are not necessary. 301 CMR 11.01(4).

The record shows that: the Company filed an ENF for the Project with MEPA in May of 2020 (Exh. VW-1, at 1-51); the Secretary issued a Certificate on the ENF on August 20, 2020

(Exh. EFSB-G-2); the Company filed a DEIR on March 19, 2021 (Exh. VW-7); the Secretary issued a certificate on the DEIR on June 25, 2021 (Exh. VW-9); and the Company filed a FEIR on November 15, 2021. Therefore, a finding under G.L. c. 30, § 61 is necessary in this proceeding.[147]

The Secretary issued a Certificate on the FEIR on January 28, 2022, determining that the FEIR adequately and properly complied with MEPA and its implementing regulations (Exh. PCW-12, at 1). The record contains, and the Siting Board has reviewed, the MEPA documents submitted by the Company, including the ENF, DEIR, and FEIR for the Project, as well as the Secretary's Certificates and comments filed by the public and by other reviewing agencies regarding these documents. Additionally, as set forth in Section VI, above, the Siting Board has conducted a comprehensive analysis of the potential environmental impacts of the Project, including GHG impacts.[148]

As specifically required by MEPA, the Siting Board has: reviewed the FEIR for the Project; evaluated, and determined the impact of the Project on the natural environment; and specified in detail in this Decision measures to be taken by the Company to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable. The Secretary has determined that the FEIR for the Project adequately and properly complies with MEPA

---

147 The Siting Board generally is not required to make a G.L. c. 30, § 61 finding in a G.L. c. 164, § 69J proceeding, as the Siting Board is exempt by statute from MEPA. G.L. c. 164, § 69I. However, the Board must comply with MEPA with respect to review of the Company's Section 72 Petition and Zoning Petition, both of which were filed under statutory provisions implemented by the Department, and the Department is not exempt from MEPA. Accordingly, in reviewing the Company's Section 72 Petition and Zoning Petition in this case, the Siting Board has conducted the review and made the findings required by MEPA.

148 With respect to GHG impacts, the Siting Board recognizes that the Commonwealth's policies relating to GHG emissions, including G.L. c. 30, § 61 and the MEPA Greenhouse Gas Emission Policy and Protocol ("GHG Policy") apply to the Project. The Secretary's Certificate on the FEIR states: "The project will generate clean renewable energy that will minimize GHG emissions" (Exh. PCW-12, at 9). Therefore, we find that all feasible measures have been taken to avoid or minimize GHG impacts.

(Exh. PCW-12, at 1). Accordingly, the Siting Board finds that all feasible measures have been taken to avoid or minimize the environmental impacts of the proposed Project. G.L. c. 30, § 61.

XII. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. An applicant must obtain Siting Board approval under G.L. c. 164, § 69J, prior to construction of a proposed energy facility.

In Section III, above, the Siting Board finds that, subject to a condition set forth in that section, PCW has demonstrated that there is a need for additional transmission resources to interconnect its Offshore Generation Facility to the regional transmission grid.

In Section IV, above, the Siting Board finds that the Project is superior to the other alternatives identified with respect to meeting the identified need and providing a reliable energy supply for the Commonwealth with minimum impact on the environment at the lowest possible cost.

In Section V, above, the Siting Board finds that the Company has: (1) developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that the Company has not overlooked or eliminated any routes that are clearly superior to the proposed Project; and (2) identified a range of practical transmission line routes with some measure of geographic diversity. Therefore, the Siting Board finds that the Company has demonstrated that it examined a reasonable range of practical siting alternatives while seeking to minimize cost and environmental impacts.

In Section VI, above, the Siting Board finds that the Shootflying Hill Route is superior to the Oak Street Route with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment, at the lowest possible cost; in addition, the Siting Board has found that the Craigville Beach landfall is superior to the Covell's Beach landfall site with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment, at the lowest possible cost.

In Section VI, above, the Siting Board reviewed environmental impacts of the Project and finds that with the implementation of the specified mitigation and conditions, and compliance with all applicable local, state and federal requirements, the environmental impacts of the Project along the Shootflying Hill Road Route would be minimized.

In Section VII, above, the Siting Board finds that subject to specified mitigation and conditions set forth in this Decision, the Project is consistent with the current health, environmental, and resource use and development policies of the Commonwealth.

In addition, the Siting Board finds and [approves], pursuant to G.L. c. 164, § 72, that the Project is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest, subject to the following Conditions A through R.

In addition, the Siting Board finds, pursuant to G.L. c. 40A, § 3, that construction and operation of the Company's proposed Project is reasonably necessary for the public convenience or welfare. Accordingly, the Siting Board [GRANTS] the Company's Zoning Petition to the extent that it seeks individual exemptions from the Barnstable Zoning Ordinance for the Onshore Substation. The Siting Board finds further that issuance of a comprehensive exemption could avoid substantial public harm. Accordingly, the Siting Board [GRANTS] a comprehensive zoning exemption for the Project for the Onshore Substation.

For reasons set forth above, the Siting Board [DENIES] the Zoning Petition to the extent that it seeks individual zoning exemptions for the Onshore Cables, and [DENIES] the Company's request for a comprehensive zoning exemption for the Onshore Cables.

Accordingly, the Siting Board [APPROVES] pursuant to G.L. c. 164, § 69J, the Company's Petition to construct the Project using the Shootflying Hill Road Route, as described herein, subject to the following Conditions A through R.

A. The Siting Board directs the Company to comply with all applicable federal, state, and local laws, regulations, and ordinances from which the Company has not received an exemption. The Company shall be responsible for ensuring such compliance by its contractors, subcontractors, or other agents.

B. The Siting Board directs the Company, within 90 days of Project completion, to submit a report to the Siting Board documenting compliance with all conditions contained in this Decision, noting any outstanding conditions yet to be satisfied and the expected date and status of compliance.

C. The Siting Board directs the Company to present to the Siting Board a legally binding attestation, in a form acceptable to the Siting Board, executed by Eversource by which Eversource submits itself and its successors in interest, to the ongoing direct jurisdiction of the Siting Board with respect to all matters involving the Grid Interconnection for the present and the future.

D. The Siting Board directs the Company to use the Craigville Beach landfall for the Project, absent extenuating circumstances.

E. The Siting Board directs the Company to discuss with the Town of Barnstable whether to place signage on Craigville Beach informing the public that the Onshore Cables are located under the beach, and to submit the results of such discussions to the Siting Board.

F. The Siting Board directs the Company to consult with the Division of Marine Fisheries and UMass-Dartmouth School for Marine Sciences and Technology in planning and implementing fisheries monitoring for the Project and to comply with applicable permit, license, and approval requirements that pertain to fisheries monitoring.

G. Given sound levels associated with HDD construction and the duration of the work, the Siting Board directs the Company to use noise barriers, such as acoustical blankets, when performing HDD installation activities.

H. The Siting Board approves the Company's proposed HDD construction schedule of Monday through Friday between the hours of 7.00 a.m. and 6.00 p.m. Should the Company need to extend construction work beyond those hours and days, with the exception of emergency circumstances on a given day that necessitate extended hours, the Siting Board directs the Company to seek prior written permission from the Town of Barnstable before commencing work and to provide the Siting Board with a copy of such permission.

I. The Siting Board directs the Company, in consultation with the Town of Barnstable, to develop a comprehensive public outreach plan for Town residents and businesses. The outreach plan should describe the procedures the Company will use to notify the public about: (1) the scheduled start, duration, and hours of construction in particular areas; (2) the methods of construction that will be used in particular areas (including any use of nighttime construction); and (3) anticipated street closures and detours. The outreach plan should also include information on complaint and response procedures; Project contact information; the availability of web-based Project information; and protocols for notifying schools and local and regional public transit operators of upcoming construction.

J. The Siting Board directs the Company to submit a copy of the final TMP(s) to the Siting Board and all other parties when available, four weeks prior to the commencement of construction, and to publish the TMP(s) on the Company's Project website.

K. The Siting Board directs PCW to use the quietest generators and portable heating ventilation and air conditioning units reasonably available to the Company. In addition, to reduce noise impacts at residences, when operating noisy equipment, such as whole tree chippers or compressors, the Company shall locate such equipment as far away as possible from nearby residences, where the flexibility exists to do so.

L. With respect to the Onshore Cables, the Siting Board accepts the standard construction hours of Monday to Friday, 7.00 a.m. to 6.00 p.m. Work requiring longer continuous duration than normal construction hours allow, such as cable splicing, is exempted from this requirement. Should the Company anticipate the need to extend construction work beyond the above-noted hours or days, with the exception of emergency circumstances on a given day necessitating extended hours, the Siting Board directs the Company to seek prior written permission from the Town of Barnstable before the commencing such work, and to provide the Siting Board with a copy of such permission.

M. Absent extenuating circumstances that would make it necessary to use one or more segments of the variants to this route, the Siting Board directs the Company to use the Shootflying Hill Road Route exclusively. Should such circumstances arise during permitting or construction, the Siting Board requires the Company to submit a notice of project change to the Siting Board for review and approval, describing the reasons necessitating the use of the proposed alternative routing.

N. The Siting Board directs the Company to notify the Siting Board should it not be able to construct the Onshore Substation at the lower elevation.

O. The Siting Board directs the Company to describe in its emergency response plan, at a minimum, specific steps to be taken in response to emergency situations including, but not limited to, flooding and fires. The plan shall also describe the structure of communication and authority that would be followed in the event of an emergency at the Onshore Substation, specifically identifying the public safety and emergency management officials with whom PCW would coordinate. In developing the emergency response plan, the Company shall consult appropriate municipal and/or state public safety and emergency management officials. The Company shall submit to the Siting Board the emergency response plan at least 30 days prior to the start of the operation of the Project, and indicate any evacuation-

related provisions of plan that are still in development with appropriate public safety and emergency management officials.

P. To avoid future harm to the environment, the Siting Board directs PCW to employ non-PFAS high-expansion foams at the Onshore Substation, to the extent such products are commercially available, efficacious, and compliant with the relevant requirements of 310 CMR 112.

Q. The Siting Board directs the Company to fulfill its commitment to work with the Town to mitigate the traffic related to re-grading the site, and to explore further mitigation of this work through any subsequent permitting processes with Town of Barnstable permitting agencies.

R. The Siting Board directs the Company to provide a compliance filing, within the first 180 days of commercial operation, demonstrating that the Substation's actual noise profile is consistent with the modeled results it has presented in this proceeding. In addition, to gain earlier visibility of the steps being taken by the Company to achieve this result, the Siting Board further directs the Company to provide a pre-construction compliance filing documenting the noise profiles of the Substation equipment types listed in Exh. VW-7, 7-12, Table 7-3, when the equipment is procured, and any additional noise mitigation measures, such as additional or taller sound walls, that the Company intends to take as a result.

Because issues addressed in this Decision relative to this facility are subject to change over time, construction of the proposed Project must be commenced within three years of the date of the Decision.

In addition, the Siting Board notes that the findings in this Decision are based upon the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires Company, and its successors in interest, to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. The Company or its successors in interest are obligated to provide the Siting Board with sufficient information on changes to the proposed Project to enable the Siting Board to make these determinations.

The Secretary of the Department shall transmit a copy of this Decision and the Section 61 Findings herein to the Executive Office of Energy and Environmental Affairs, and the Company

shall serve a copy of this Decision on the Town of Barnstable Board of Selectmen, the Town of Barnstable Planning Board, and the Town of Barnstable Zoning Board of Appeals, within five days of its issuance. The Company shall certify to the Secretary of the Department within ten business days of issuance that such service has been made.

Robert J. Shea
Presiding Officer

Dated this 22nd day of November, 2023

[APPROVED] by a vote of the Energy Facilities Siting Board at its meeting on Month Day, 2023, by the members present and voting. Voting [for/against/abstain] the Tentative Decision as amended: Rebecca L. Tepper, Secretary of Energy and Environmental Affairs and Chair, EFSB; James M. Van Nostrand, Chair, Department of Public Utilities; Cecile M. Fraser [OR], Staci Rubin, Commissioner of the Department of Public Utilities; Elizabeth Mahoney, Commissioner of the Department of Energy Resources; Bonnie Heiple, Commissioner, Department of Environmental Protection; Jonathan Cosco, General Counsel and designee for the Secretary of the Executive Office of Economic Development; Joseph C. Bonfiglio, Public Member; and Greg Watson, Public Member.

_____

Rebecca L. Tepper, Chair
Energy Facilities Siting Board

Dated this Xth day of X, 2023

Appeal as to matters of law from any final decision, order or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part. Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. Massachusetts General Laws, Chapter 25, Sec. 5; Chapter 164, Sec. 69P.