



**US Army Corps
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New England District

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New England District

Cape Wind Energy Project

**Draft Environmental
Impact Statement**

USACE NAE-2004-338-1
(Formerly #200102913)

**Draft Environmental
Impact Report**

EOEA #12643

**Development of
Regional Impact**

CCC #JR#20084

November 2004



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Website Version





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1.0 Executive Summary

- **Introduction and Coordinated Review**
- **Project Applicant, Name and USACE / EOEA / DRI Number**
- **Summary of Project Purpose and Need**
- **Summary of Alternatives Analysis**
- **Summary of Proposed Alternative**
- **Summary of Environmental Effects, Benefits and Mitigation**
- **List of Required Permits and Approvals**



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2.0 Project Purpose & Need

Project Purpose & Need

- *Provide utility scale renewable energy facility to provide power to the NE grid*

- **Purpose & Scope of the EIS/EIR/DRI**
 - *Section 10 of the Rivers & Harbors Act*
 - *National Environmental Policy Act*



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3.0 Alternatives Analysis

-
- **Geographic Scope & Primary Project Criteria**
 - ISO-NE transmission system
 - **Assessment of Energy Generating Technologies**
 - Photovoltaic/Solar, tidal, biomass, hydroelectric, wave & wind
 - **No Action Alternative/ Permit Denial**
 - **Wind Park Alternative Site Analysis**
 - **Submarine & Upland Cable Routes for the Proposed Site**

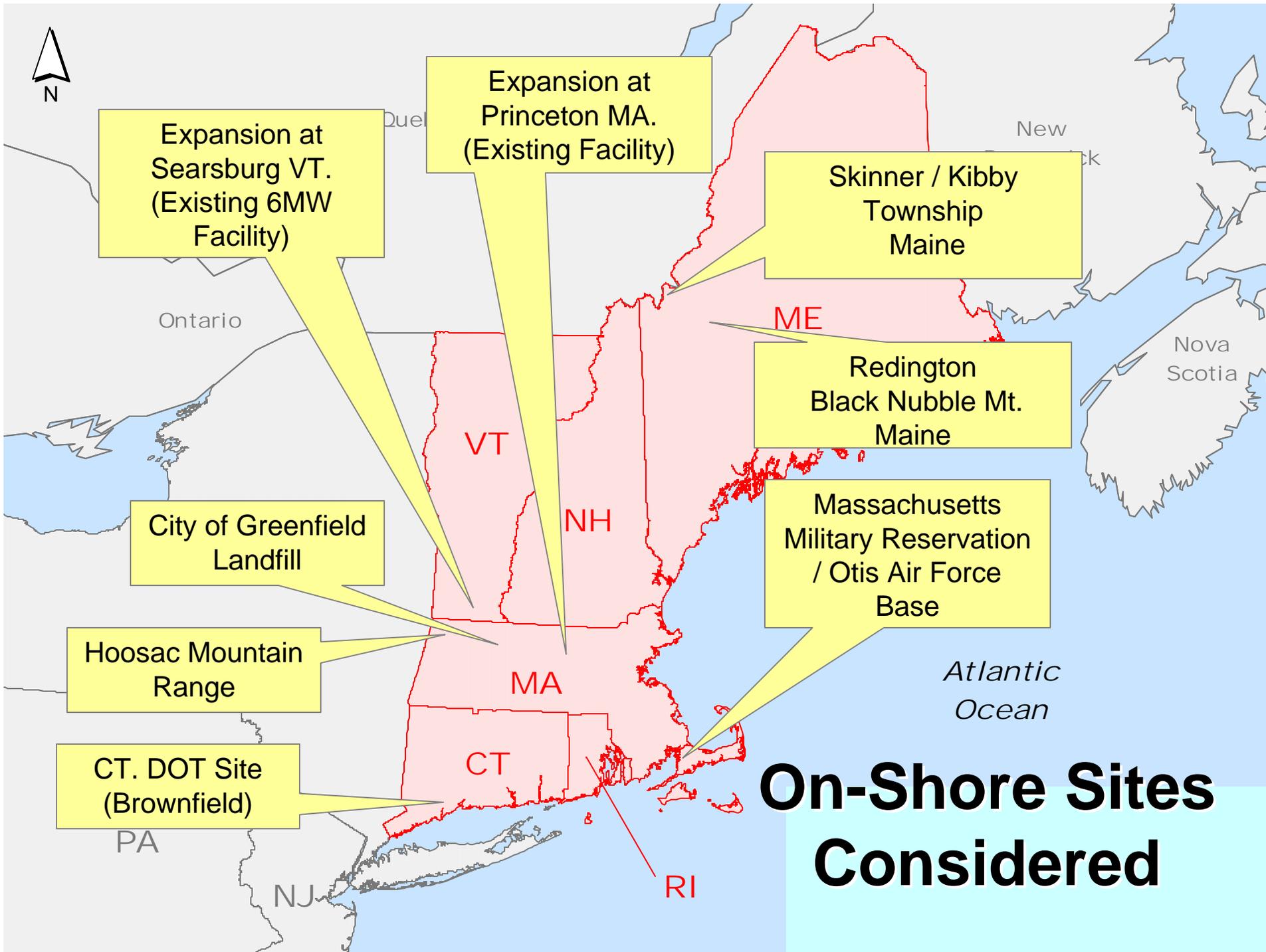


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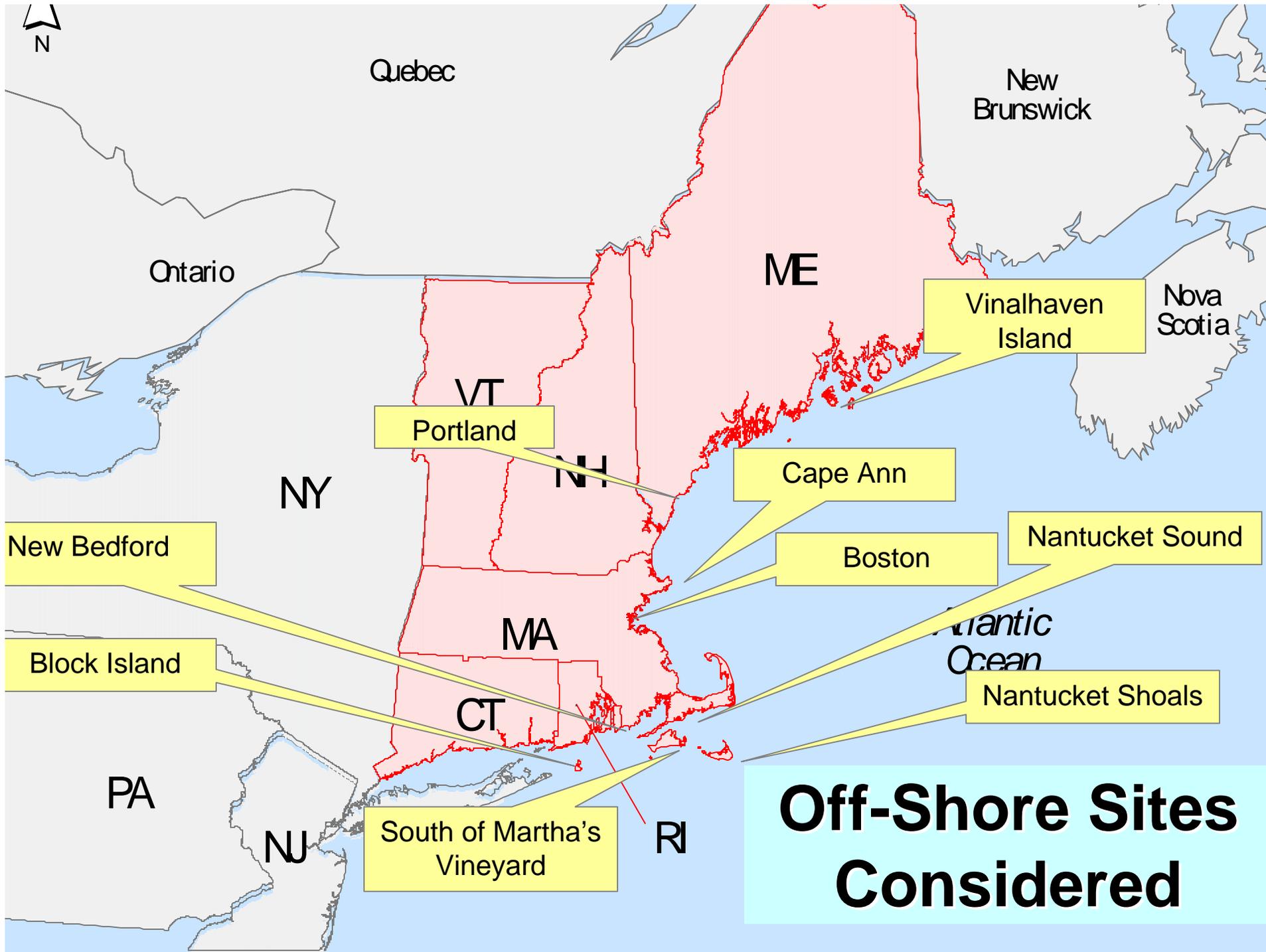
Renewable Technology

Summary

- Wave & tidal are still developing, not clear that NE has suitable conditions
- Hydroelectric sites are in northern NE where there is no demand-existing facilities being decommissioned in some places
- Solar not for large scale generation
- Wind & Biomass– greatest potential for larger scale projects (Biomass combustion has air quality impacts)



On-Shore Sites Considered





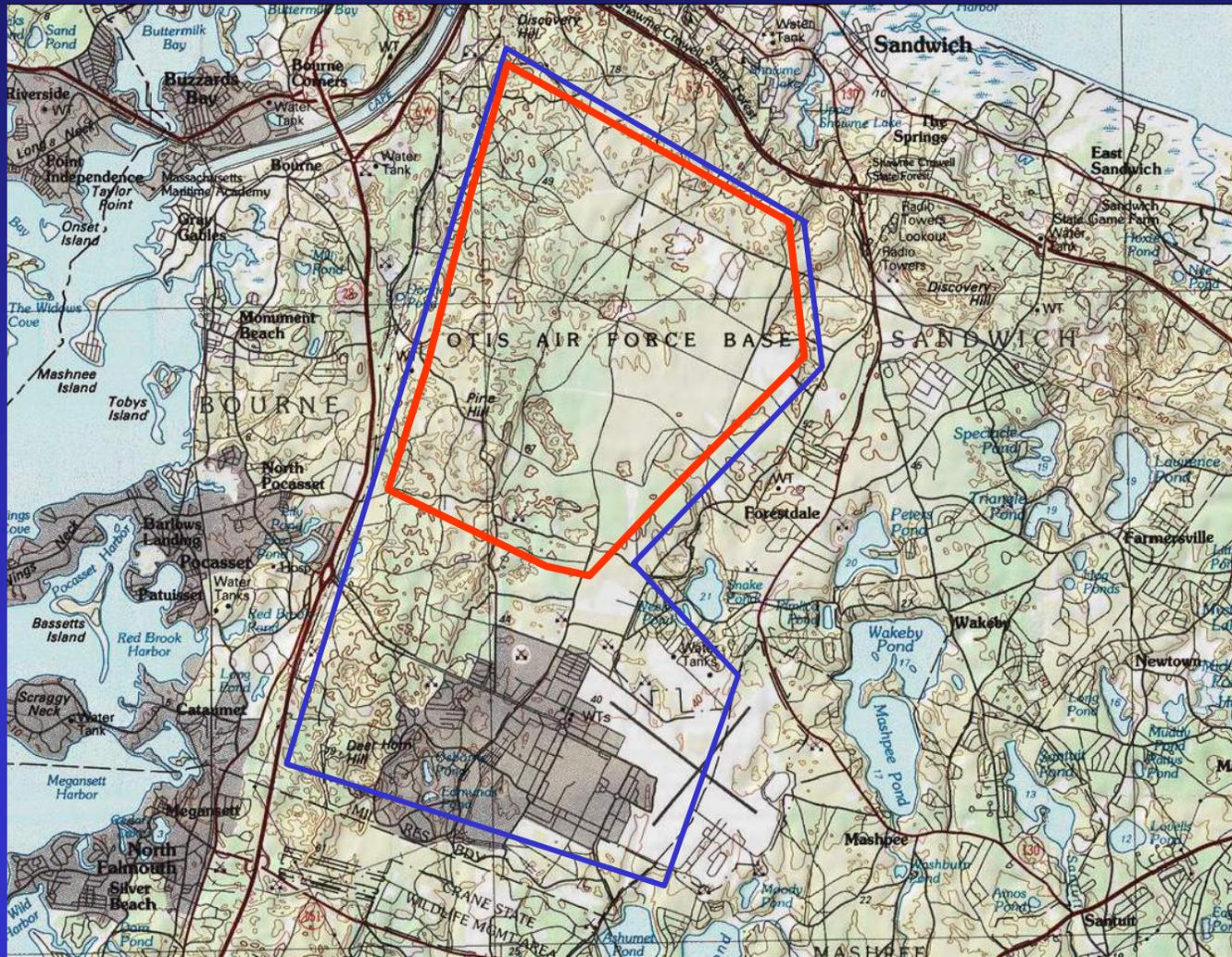
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Preliminary Screening Criteria

- **Sufficient surplus electric transmission capacity in the ISO-NE transmission system**
- **Wind Power Classification of 4 or greater (Wind speeds >15.7 mph at 50 meters)**
- **Available land or offshore water sheet area sufficient to accommodate a 200-1,500 MW wind energy project**
- **Engineering & design limitations**
 - **Water depths, storm waves**
- **Legal & regulatory constraints**
 - **State & federal park or conservation designation**

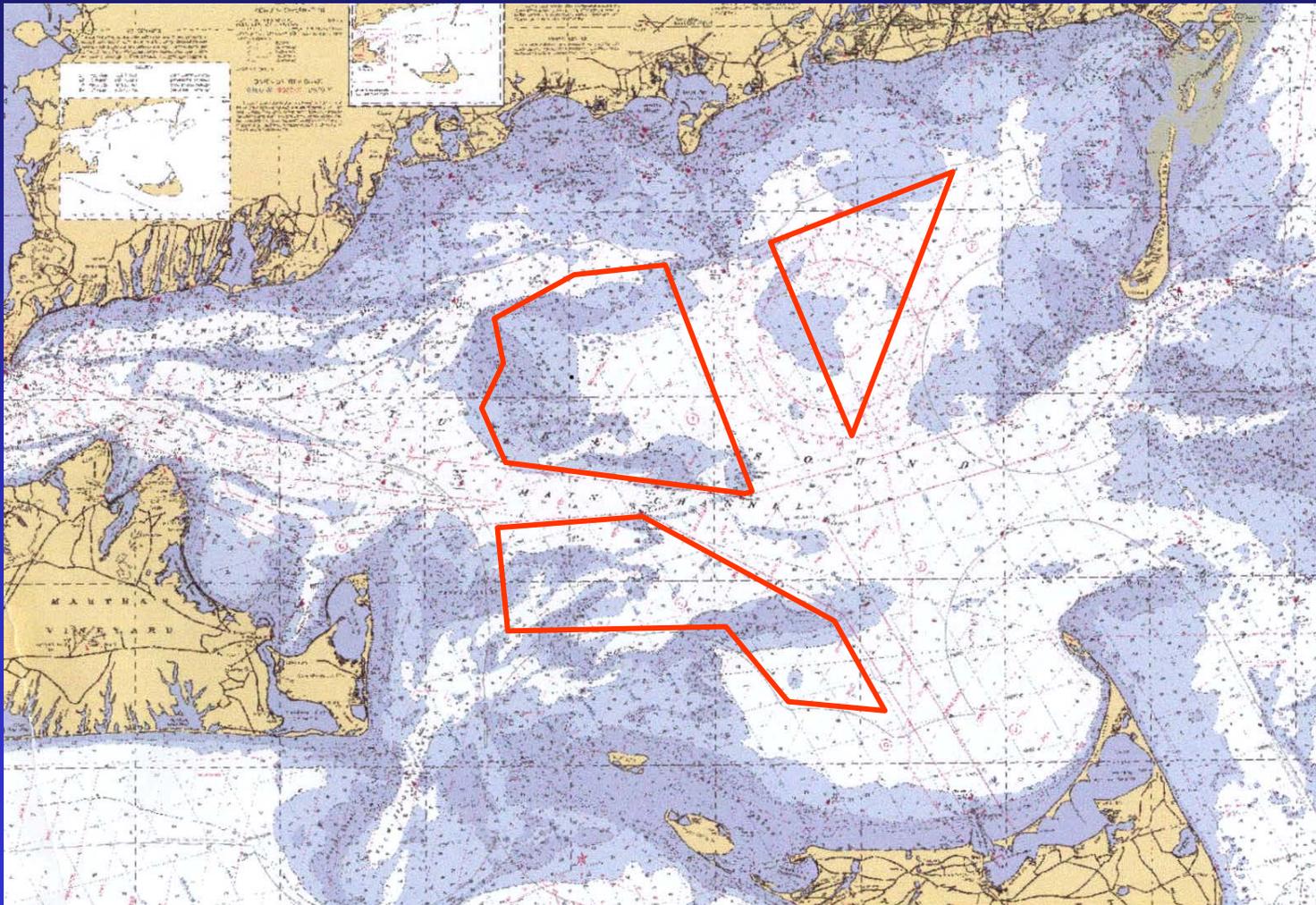
Massachusetts Military Reservation, MA

Onshore Alternative



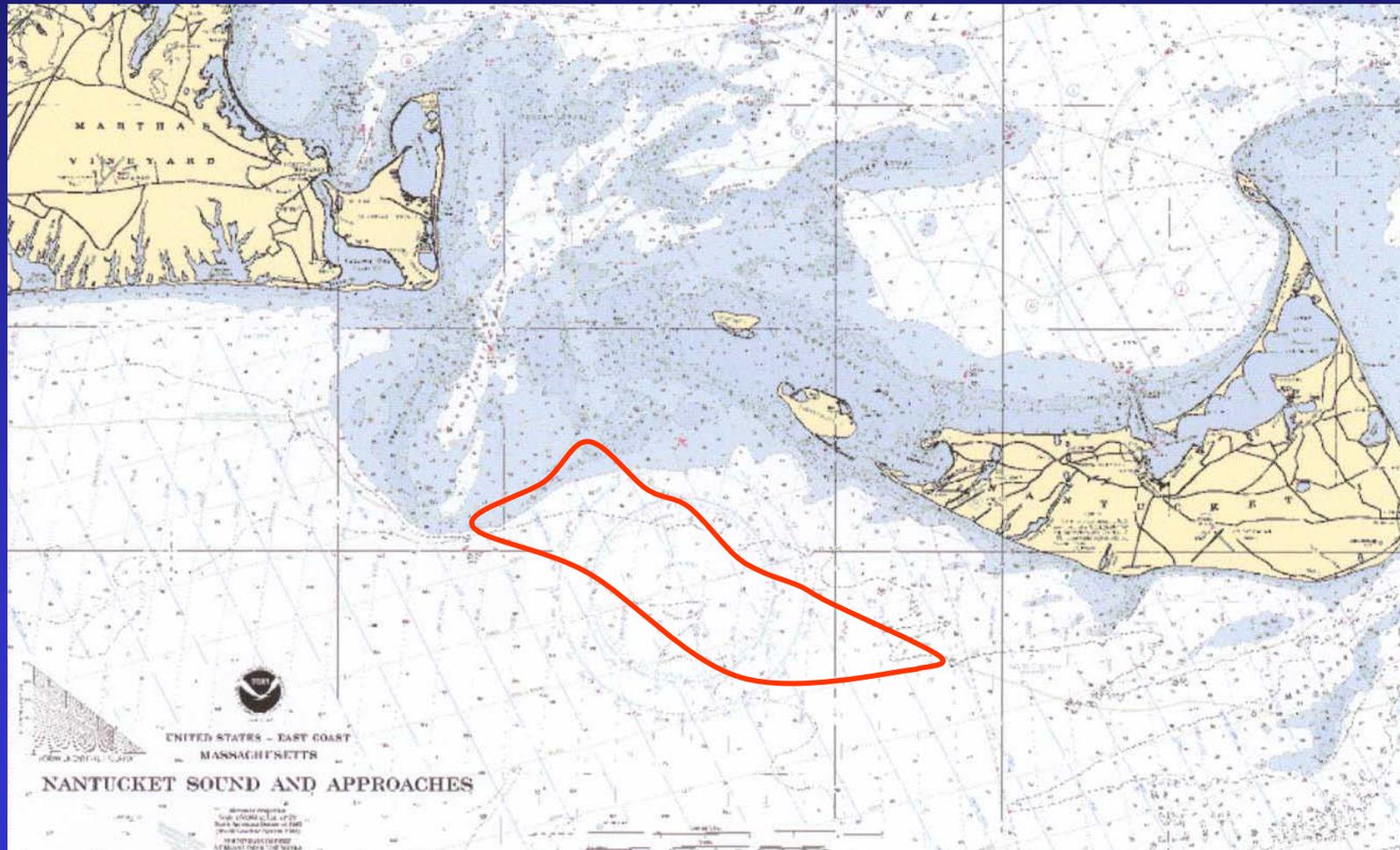
Nantucket Sound

Shallow water site



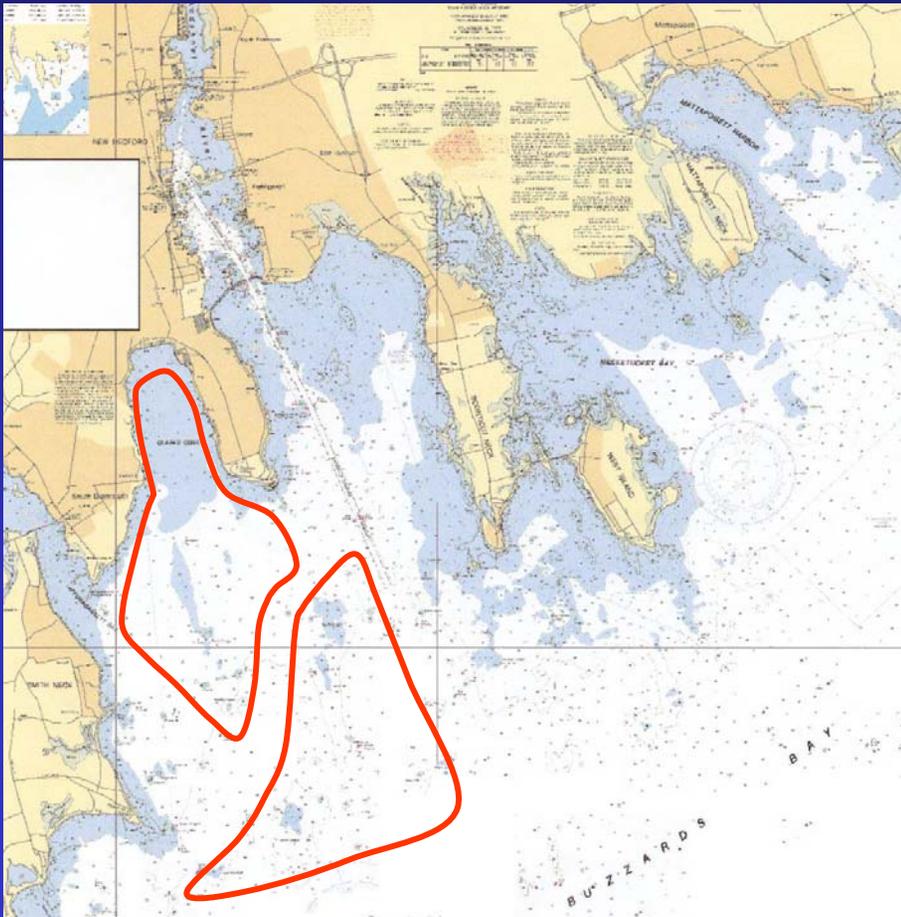
South of Tuckernuck Island, MA

Deeper Water Alternative

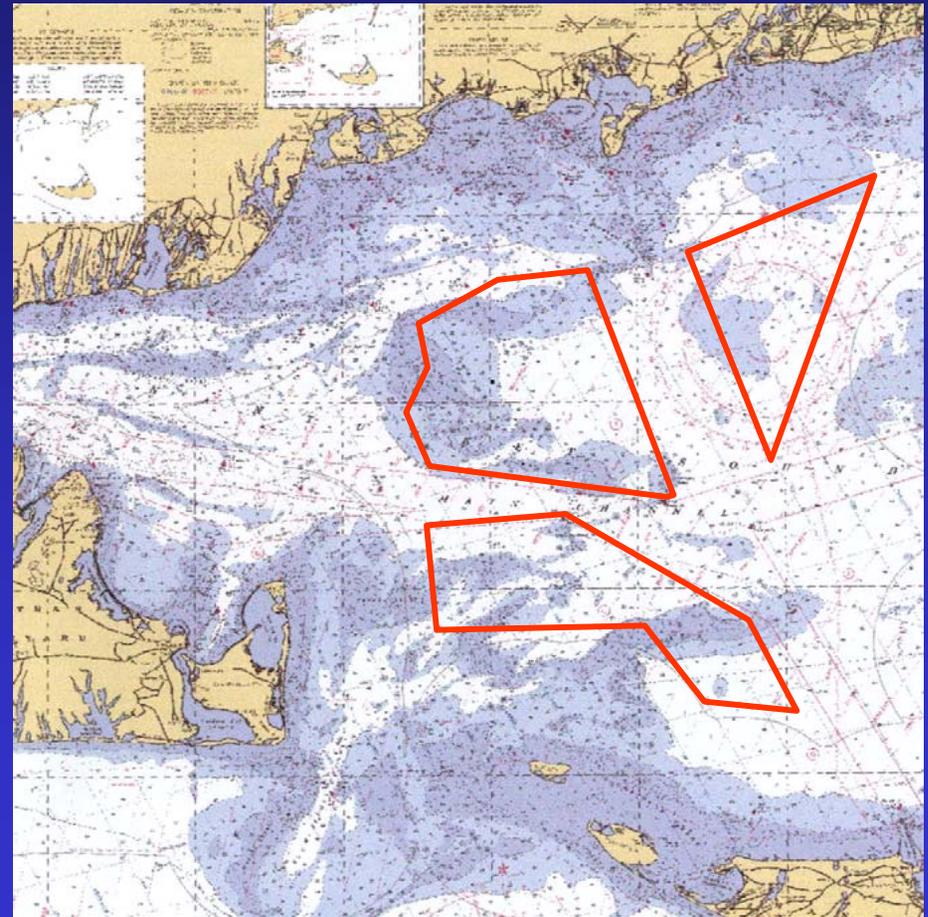


Combined Locations

New Bedford, MA



Nantucket Sound, MA





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4.0 Project Description of Proposed Alternative

Wind turbine generators

Configuration

Foundation

Transmission System

Construction

**Operations &
Maintenance**

Decommissioning

**Solid & Hazardous
Materials**

**Spill Prevention Control
& Countermeasure
Plan**

Security

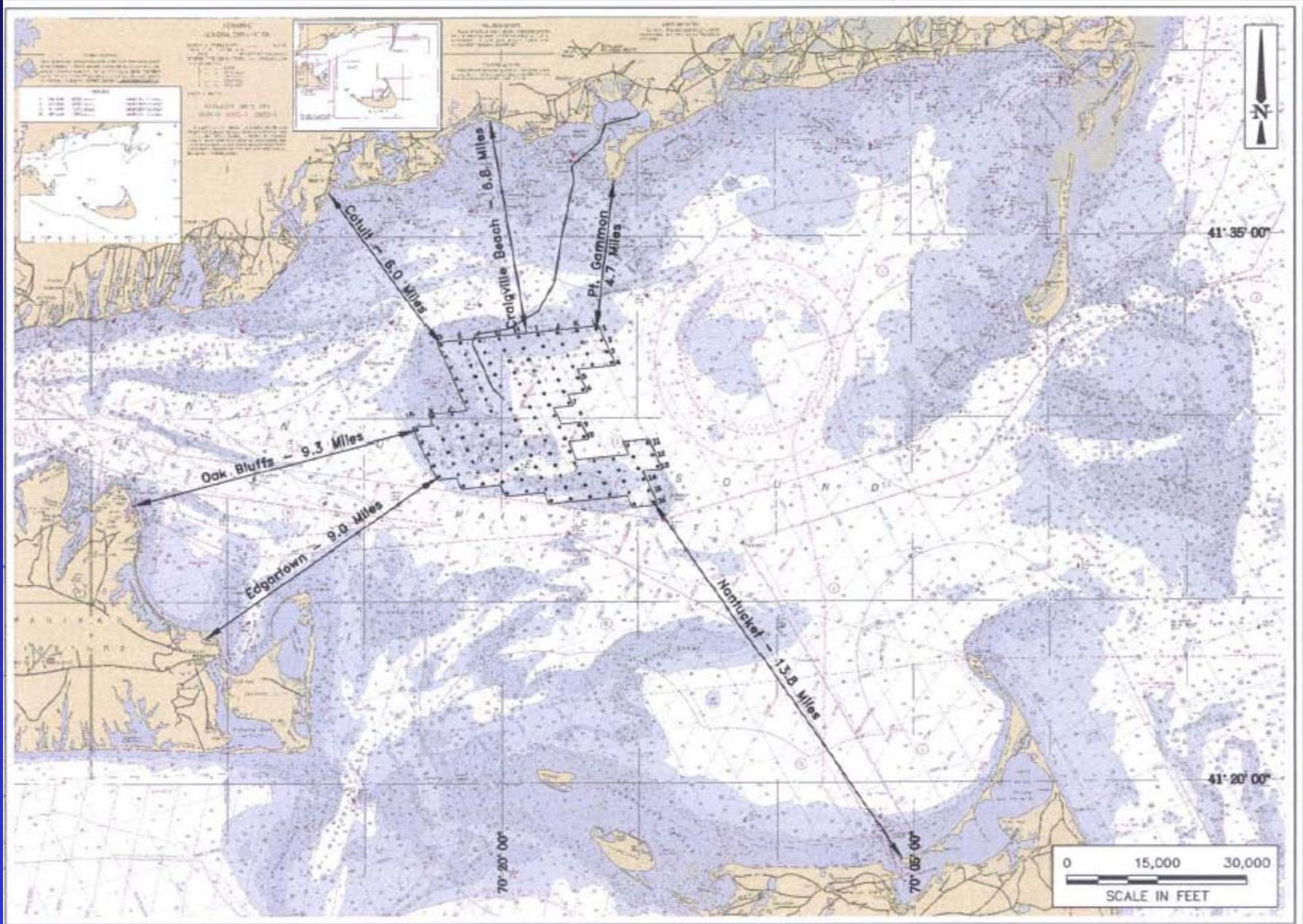
Safety



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Project Description

- **420 MW capacity offshore wind power project**
- **Location at Horseshoe Shoals in Nantucket Sound**
- **Originally 170 structures, now 130**
- **Spread over 24 sq. mi. (1/3-1/2 mi spacing)**
- **420 feet above MLLW**
- **16-foot diameter piles will occupy 2 acres**
- **Providing power to ISO-NE grid, AC transmission lines coming ashore in Yarmouth**





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Electric Service Platform

- 100 x 200 feet, pile supported
- Heliport and docking structures for access
- 4 transformers with 10,000 gals dielectric transformer oil with 100% containment capacity for leakage
- 2 emergency diesel generators, 1000 gal diesel fuel storage tank mounted in a detention basin



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Transmission Cables

- **Two 115 kV AC submarine transmission cables**
- **12.2 miles from ESP to landfall at New Hampshire Ave and interconnection cables from turbines to ESP**
- **Underground conduit through existing roads & NStar ROW to Barnstable Switching Station**



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5.1 Geology

- **Impact - Temporary disturbance in immediate vicinity due to installation of cable system, the WTG foundations, pilings for the ESP, placement of scour control mats, vessel anchoring and anchor line sweep**
- **Mitigation - Hydraulic jet plow for minimal bottom disturbance in cable installation artificial frond scour control mats, to control scour around monopile foundations, HDD to minimize shoreline impacts, replace bentonite drilling fluid with water as the drill bit/reamer emerges from the pit.**



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5.2 Physical Oceanography

- Seabed elevations modified slightly as a result of sediment displacement. Max. scour 60 feet distance , 8 ft depression. Sediment disturbance burying cable 6 feet. Temporary cofferdam, dredging and sediment shifting at HDD.
- Jet plow cable installation - zero - 0.9 inches sediment adjacent to trench. Monopile foundation minimizes construction impact, scour mats to minimize scour at each WTG structure.



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5.3 Benthic & Shellfish

- **Temporary disturbance of sediments, some mortality during installation**
- **Jet plow & HDD will minimize disturbances, coordinate with shellfish warden (avoidance, reseeding), notify lobstermen and broadcast on marine channel 16 prior to installation**



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5.4 Fisheries

-
- **Temporary displacement during construction**
 - **Jet plow & HDD minimize disturbance, bury cables 6 feet, no restrictions to fishing activities proposed, “soft start” of pile driving**



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5.5 Protected Marine Species

- **Temporary avoidance of construction areas by marine mammals & turtles.**
- **Vessels travel at slow speeds (14 knots), NOAA whale watching procedures, NMFS-certified observer on-site during construction, “soft-start” pile driving, sound monitoring, provisions to cease while animal is within safety zone.**



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5.6 Terrestrial Ecology

-
- **Upland work is in previously developed areas, limited function for wildlife, minimal impact expected**
 - **Pre-construction survey and coordination to mitigate impacts to state-listed species if any, post-construction monitoring as required by local and state agencies**



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5.7 Birds

-
- **Some species will avoid area for feeding or resting, collisions can occur, population level impacts not expected**
 - **Tubular towers, wide spacing, reduce perching opportunities, USFWS guidelines for lighting, slower moving rotors, post-construction monitoring**



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5.8 Coastal & Freshwater Wetland Resources

- **Categorize the impacts w/r/t WPA resource areas**
 - Land containing shellfish
 - Coastal Bank & Coastal Beach
 - Land Subject to Tidal Action
 - Buffer Zone
- **No work in freshwater wetlands or saltmarsh**



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5.9 Water Quality

- **Temporary sediment disturbance**
- **Spill prevention and control plans, jet plow & HDD cable installation**



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5.10 Cultural and Recreational Resources / Visual

- **Possible ancient land surface at eastern 6 WTGs, no shipwrecks identified, visual impacts to National Register historic districts and structures**
- **Avoid resources through careful siting, MOA to address unavoidable impacts to historic properties, minimum lighting considered safe.**

PROPOSED VIEW



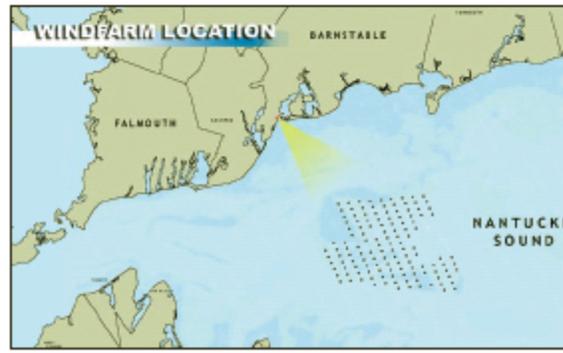
EXISTING VIEW



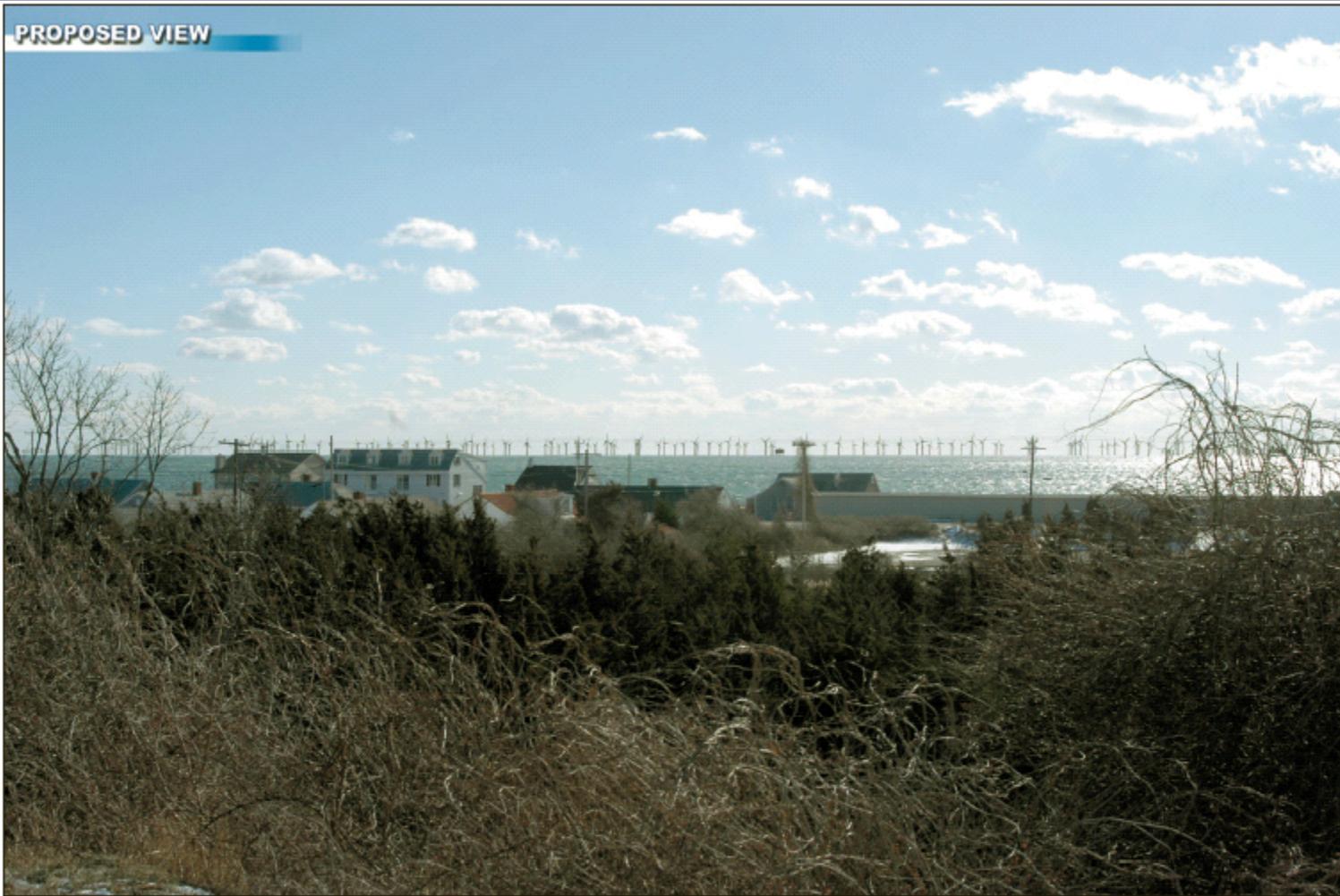
VIEWPOINT LOCATION



WINDFARM LOCATION



PROPOSED VIEW



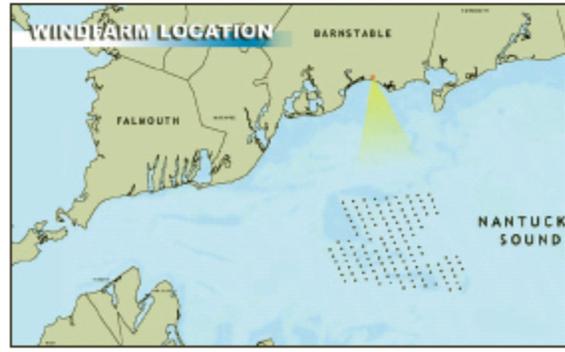
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PROPOSED VIEW



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VIEWPOINT LOCATION



WINDFARM LOCATION



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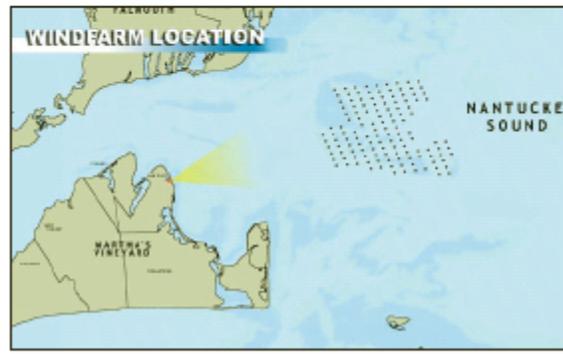
EXISTING VIEW



VIEWPOINT LOCATION



WINDFARM LOCATION



Simulated Nighttime View



EXISTING VIEW



VIEWPOINT LOCATION



WINDFARM LOCATION



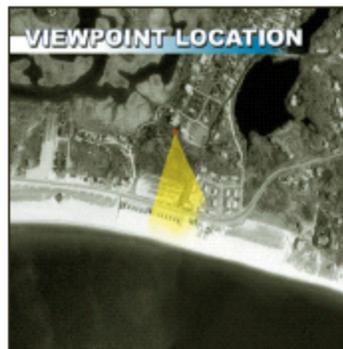
Simulated Nighttime View



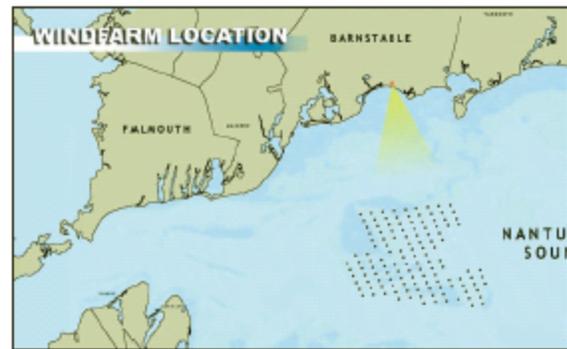
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VIEWPOINT LOCATION



WINDFARM LOCATION



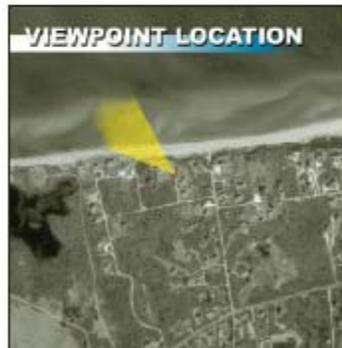
Simulated Nighttime View



EXISTING VIEW



VIEWPOINT LOCATION



WINDFARM LOCATION



Simulated Nighttime View



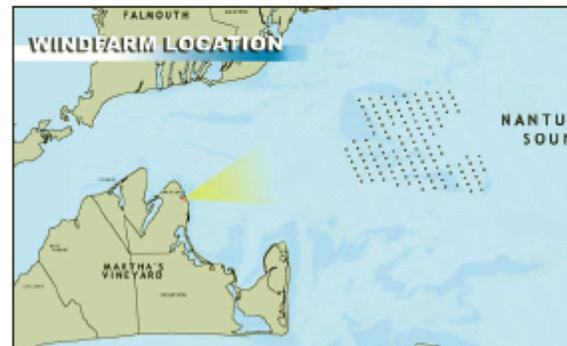
EXISTING VIEW



VIEWPOINT LOCATION



WINDFARM LOCATION





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5.11 Noise

- **Construction noise of pile driving, vessel traffic, No operations noise impacts on land, foghorns with 1/2 mile range**
- **Land construction during normal hours, noise barrier at HDD, noise monitoring, low noise turbines**



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5.12 Transportation & Navigation

- **Temporary marine impacts during construction, no aviation impacts, temporary onshore impacts during construction**
- **Notice to Mariners, update NOAA charts, bury cable 6 ft, Construction Traffic Mgmt Plan, USCG approved lights and foghorn, rapid remote shut down for USCG**



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5.13 Electrical & Magnetic Fields

- **Submarine cable shielded to block electric field, upland route similar to existing overhead lines, no change at ROW edges**
- **Does not exceed established guidelines for EMF, no additional mitigation**



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5.14 Telecommunications

- **No interference with telecommunications tower, marine VHF radio, or radar is anticipated**
- **Cable buried 6 feet.**



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5.15 Air & Climate

- **Air emissions reductions, improved air quality benefit, some emissions from construction equipment**
- **Maintenance of construction equipment**



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5.16 Socioeconomics

- **Eligible for Production Tax Credit, need for capacity, need for renewable sources to meet Renewable Portfolio Standards, \$10M annual savings for MA customers, diversify region's energy mix, benefit public health, employment**
- **Sited far offshore, painted to blend with horizon, lowest level of safe lighting**



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6.0 Comprehensive Environmental Monitoring Program

Pre-construction

Construction

Post-construction



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7.0 Regulatory Authorities and Consistency with Statutory and Regulatory Standards and Requirements

19 Federal, State & Local Regulatory Jurisdictions



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8.0 Response to Cape Cod Commission Development of Regional Impact Scope

Regional Policy Plan Consistency Statement

Response to Development of Regional Impact Scope



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9.0 DRAFT MEPA SECTION 61 FINDINGS

-
- Benthic
 - Fisheries
 - Protected Marine Species
 - Terrestrial Ecology, Wildlife, & Protected Species
 - Avian
 - Freshwater & Coastal Resources
 - Water quality
 - Visual, cultural & archaeological
 - Noise
 - Transportation
 - EMF/Communications
 - Air & Climate
 - Socio-economic
 - Construction & Decommissioning



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10.0 Cooperating Agencies

-
- **Cape Cod Commission**
 - **MEPA**
 - **MA Coastal Zone Management**
 - **State Historic Preservation Officer**
 - **MA Military Reservation**
 - **Nantucket Planning**
 - **Wampanaog Tribe**
 - **Mineral Management Service, DOI**
 - **EPA**
 - **USFWS, DOI**
 - **NOAA Fisheries**
 - **Coast Guard**
 - **Federal Aviation Admin.**
 - **Dept of Energy**
 - **National Park Service**
 - **Federal Energy Regulatory Commission**



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11.0 Public Involvement

-
- **State & Federal**
 - Hearings-scoping in Spring 2002
 - Information Meeting –October 2003
 - MTC Stakeholders Meetings
 - **Applicant**
 - Local, state & federal agencies
 - Local public interest groups
 - Renewable energy groups



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12.0 List of Preparers

- **Corps of Engineers-lead Federal agency**
- **ESS Group- preparing EIR for Cape Wind Associates**
- **TRC- 3rd party contract to prepare specific NEPA requirements**



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How to Contact Us

Information: www.nae.usace.army.mil

Copies of EIS at 32 local libraries

Email us at: wind.energy@usace.army.mil

Comments must be received by **February 24, 2005**

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