

US Army Corps
of Engineers®
New England District

Cape Wind Energy Project

Draft EIS/EIR Summary

History of the Cape Wind permit application

In November 2001, Cape Wind Associates, LLC sought permission from the U.S. Army Corps of Engineers to construct and operate a wind-powered electrical generating facility on Horseshoe Shoal in Nantucket Sound, Mass. The facility would include the construction of 130 wind turbine generators (WTG) and electric service platform (ESP).

The permit applicant's stated purpose for the project is "to generate up to 454 MW of clean, renewable wind-generated energy that will be transmitted and distributed to the New England regional power grid, including Cape Cod and the Islands."

The proposed wind turbines would be up to 420 feet high with the hub height approximately 260 feet above the water surface.

The site was proposed based on sustained wind intensity, water depths, and accessibility to the transmission grid.

The northernmost turbines would be more than 4 miles from Yarmouth, the southeastern most turbines would be about 11 miles from Nantucket, and the westernmost turbines would be about 5.5 miles from Martha's Vineyard.



Typical Offshore Wind Generators.

A Draft Environmental Impact Statement (EIS)/Draft Environmental Impact Report (EIR) has been prepared to assess the environmental impacts associated with the proposed construction of an offshore wind-powered generating facility by Cape Wind Associates, LLC in Nantucket Sound. The U.S. Army Corps of Engineers encourages citizens to comment on the Draft EIS during a 60 day public review period. The complete Draft EIS document and appendices can be reviewed at the following locations:

Sturgis Library
3090 Main St. (PO Box 606)
Barnstable, MA 02630-6636

South Yarmouth Library
312 Old Main St.
Yarmouth, MA 02664-4820

West Yarmouth Library
Route 28
West Yarmouth, MA 06273

Yarmouthport Library
297 Main Street (6A)
Yarmouthport, MA 02675

Whelden Memorial Library
2401 Meeting House Way
(PO Box 147)
West Barnstable, MA 02668-0147

Cotuit Library
871 Main Street (PO Box 648)
Cotuit, MA 02635-0648

Hyannis Public Library
401 Main Street
Hyannis, MA 02601-3109

Centerville Public Library
585 Main Street
Centerville, MA 02632-6220

Marstons Mills Library
2160 Main Street (PO Box 9)
Marstons Mills, MA 02648-0009

Osterville Free Library
43 Wianno Avenue
Osterville, MA 02655-2088

MEPA Process and the Cape Cod Commission

The joint document is intended to fulfill the requirements of the Massachusetts Environmental Policy Act (MEPA) as an Environmental Impact Report (EIR) and address issues relevant to the Cape Cod Commission (CCC) review of the Project as a Development of Regional Impact (DRI). The preparation of an EIR on the state level is required pursuant to MEPA Regulations 301 CMR 11.03(7)(b)(4) because the Project involves the construction of a new electric transmission line greater than one mile in length with a capacity of 69 kV or more.

Projects required to prepare an EIR are determined to be DRIs pursuant to Section 12(i) of the Cape Cod Commission Act. Cape Wind has elected to request a joint MEPA/Cape Cod Commission review, which is a process established due to the extensive overlap between the two agency's statutory responsibilities and allows issues relevant to the Cape Cod Commission's review to be incorporated into the EIR.

While the ACOE, MEPA and CCC are conducting joint review for public process purposes, each agency retains independent review authority over matters within each agency's respective jurisdiction.

Corps Jurisdiction

The permit application was filed under Section 10 of the Rivers and Harbors Act of 1899. Under the Rivers and Harbors Act, the Corps regulates all structures and work in navigable waters of the U.S..

Section 4 (f) of the Outer Continental Shelf (OCS) Lands Act of 1953 extends Corps authority under the Rivers and Harbors Act to include fixed structures and artificial islands on the OCS.

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Mashpee Library
100 Nathan Ellis Highway (PO Box 657)
Mashpee, MA 02649

East Falmouth Public Library
310 East Falmouth Highway
East Falmouth, MA 02536

West Falmouth Public Library
575 W. Falmouth Hwy (PO Box 1209)
West Falmouth, MA 02540-2114

Dennis Public Library
673 Main Street (Route 28)
Dennisport, MA 02639

Brooks Free Library
739 Main St.
Harwich, MA 02645-2752

Nantucket Atheneum
1 India St. (PO Box 808)
Nantucket, MA 02554-0808

Oak Bluffs Public Library
80 Pennacook Ave. (PO Box 2039)
Oak Bluffs, MA 01557-2039

Chilmark Public Library
522 South Rd.
Chilmark, MA 02535-3360

New Bedford Free Public Library
613 Pleasant St.
New Bedford, MA 02740

Vineyard Haven Public Library
RFD 139A Main Street
Vineyard Haven, MA 02568-9710

Boston Public Library
Central Library
700 Boylston St.
Boston, MA 02116

Falmouth Public Library
123 Katherine Lee Bates Rd.
Falmouth, MA 02560

North Falmouth Public Library
6 Chester Street
North Falmouth, MA 02556

Dennis Memorial Library
1020 Old Bass River Rd.
Dennis, MA 02638

Woods Hole Library
581 Woods Hole Road
(PO Box 185)
Woods Hole, MA 02543-0185

Eldredge Public Library
64 Main St.
Chatham, MA 02633-2296

Edgartown Free Public Library
58 North Water St.
(PO Box 5249)
Edgartown, MA 02539-5249

Free Public Library
1042A State Rd., (PO Box 190)
West Tisbury, MA 02575-0190

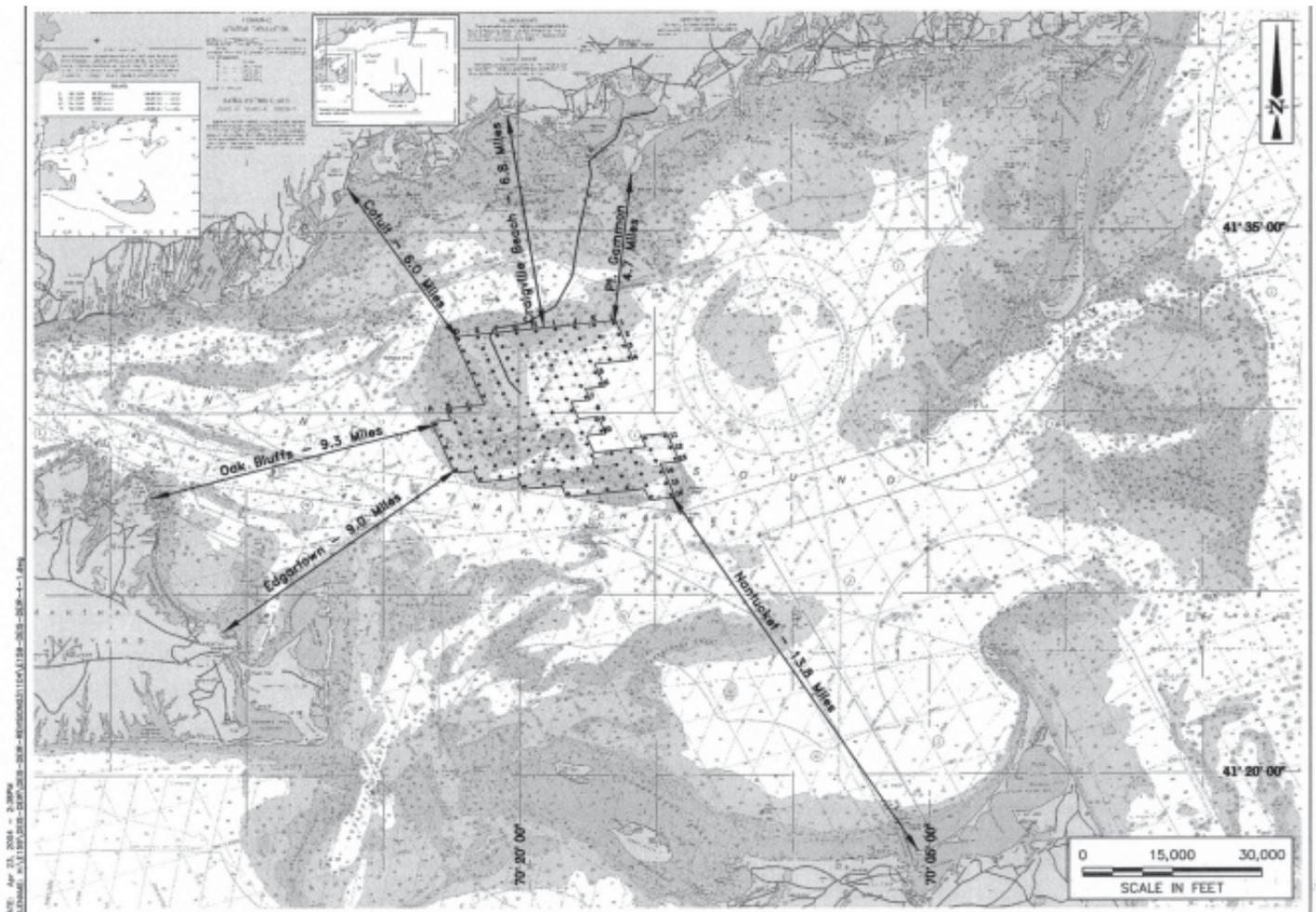
Aquinnah Public Library
1 Church St.
Aquinnah, MA 02535

Jonathan Bourne Public Library
19 Sandwich Rd.
Bourne, MA 02532-3608

Sandwich Free Public Library
142 Main St.
Sandwich, MA 02563-2298

Cape Cod Community College
Wilkins Library
2240 Iyanough Rd.
W. Barnstable, MA 02668-1599

Interested parties may view the Draft Environmental Statement Online by going to <http://www.nae.usace.army.mil/projects/ma/ccwf/deis.htm>.



Proposed Cape Wind Project Locus -- NOAA Chart # 13237, Nantucket Sound and approaches.

Alternatives described in the DEIS/EIR

The following sites have been selected for comparative evaluation in the DEIS/EIR:

Massachusetts Military Reservation: A Terrestrial Alternative. The Massachusetts Military Reservation (MMR) is a military training facility, which encompasses approximately 21,000 acres of southeastern Massachusetts reaching into the Cape Cod towns of Mashpee, Sandwich, and Bourne, and abutting the town of Falmouth.

The Commonwealth of Massachusetts owns MMR and leases ap-

proximately 19,000 acres to the U.S. Army, the U.S. Coast Guard and the U.S. Air Force.

The northern portion of the MMR is comprised of approximately 15,000 acres, also known as Camp Edwards, used primarily by the Army National Guard. This area contains the 2,200-acre Central Impact Area, associated military training ranges, and the U.S. Coast Guard Air Station Cape Cod. It is the largely undeveloped northern 15,000 acres of the MMR which were considered for further analysis as a terrestrial Wind Park alternative.

Nantucket Sound (including the applicant's proposed alternative sub-site at Horseshoe Shoal, and two other sub-sites): an offshore shallow water alternative.

Nantucket Sound encompasses the offshore waters bordered by the south coast of Cape Cod, the north and east shores of Martha's Vineyard and the northern shore of Nantucket.

It is an area of roughly 550 square miles of relatively shallow water depths and is characterized by the sheltering effects of surrounding islands.

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Corps points of contact:

Written comments should be submitted to:

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Public and Media Inquiries:

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Concord, MA 01742
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National Environmental Policy Act guides Corps' Public Process

The Corps of Engineers permit program is subject to the National Environmental Policy Act (NEPA).

NEPA requires federal agencies to, "include in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on:

- ✿ "the environmental impact of the proposed action;
- ✿ "any adverse environmental effects which cannot be avoided should the proposal be implemented;
- ✿ "alternatives to the proposed action;
- ✿ "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and;
- ✿ "any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented."

Prior to issuing a permit, the Corps must prepare either an Environmental Assessment and a "Finding of No Significant Impact" or determine that an EIS is necessary.

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There are three separate sub-site locations in Nantucket Sound that are potential locations for the Wind Park – Monomoy/Handkerchief Shoal; Tuckernuck Shoal; and Horseshoe Shoal.

Nantucket Sound as a whole was considered as the shallow water alternative because of the similarities between the three sub-sites within Nantucket Sound.

South of Tuckernuck Island: an offshore deeper water alternative. The offshore area south of Tuckernuck Island, between Muskeget Channel to the west and the southwestern coast of Nantucket Island to the east, has been identified as a deeper water Wind Park site that would be representative for comparison purposes. The area has a variation in water depths from 15 to 100 feet, yet still benefits from some sheltering effects from open ocean waves due to Nantucket to the east.

Offshore of New Bedford, Massachusetts combined with a re-

Examples of potential project impacts described in the Draft EIS/EIR

Geology and Sediment Conditions – Potential impacts to geology from the installation of the inner-array and submarine cable system, the WTG foundations, pilings from the ESP, placement of scour control mats, and vessel anchoring and anchor line sweep would cause temporary and localized marine sediment disturbance.

Physical Oceanographic Conditions– Scour of the seabed could occur up to 60 feet around each structure. Scour control mats are included in the project design to mitigate scour potential.

Benthic and Shellfish Resources – Some mortality of benthos and shellfish residing in the area of temporary disturbance resulting from piling and cable installation is anticipated. Areas of disturbance due to the cable installation are expected to recolonize quickly. Approximately 0.68

duced footprint at Horseshoe Shoal: a combination alternative. New Bedford is located on the southern shore of Massachusetts, on Buzzard's Bay. The area identified as a potential Wind Park site is bordered on the east by the channel into New Bedford Harbor, by Clark's Cove to the north and to the south by the main channel running through Buzzard's Bay to the Cape Cod Canal.

Water depths in the area average 30-45 feet and the wave regime is relatively sheltered with primary exposure in the southerly direction. The offshore area outside of New Bedford Harbor was chosen as a sub-site for further analysis even though it could not accommodate a sufficient number of WTGs to be considered a reasonable alternative alone. The Horseshoe Shoal array is reduced by the approximate number of turbines that could be placed at the New Bedford sub-site. Most of the turbines in the first two lines nearest to the Cape Cod shore would be eliminated.

acres of ocean bottom will be permanently displaced by the WTG pilings and the ESP pilings.

Finfish – Research trawl survey data and commercial landings data available from both state and federal fisheries agencies were used to characterize the resources in the Sound. These were augmented by a recreational intercept survey conducted for this project. The installation of the monopiles, inner-array cables, and two submarine cable circuits would physically displace sediment at specific locations, and result in some temporary and permanent loss of benthic habitat, which in turn may affect finfish prey and forage areas. Fish may be displaced during construction activities. No measurable effects on populations would be expected.

Protected Marine Species – If

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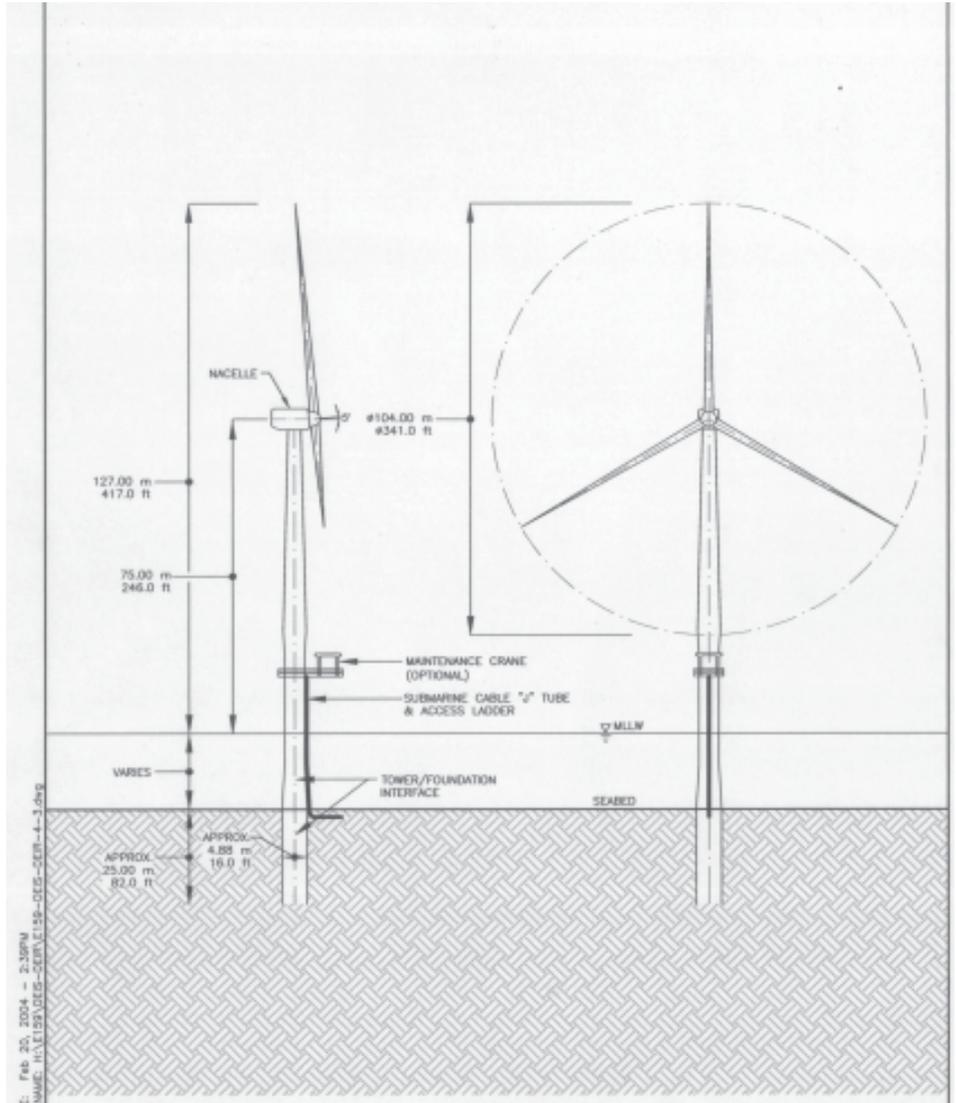
marine mammals or sea turtles are present in the project area, they are likely to temporarily avoid the area during construction activities.

Given the rarity of sea turtle observations in Nantucket Sound and that little vessel traffic would be present in the vicinity of pile driving activities, sea turtles should be able to easily avoid vessels moving at slower speeds, such as those associated with project construction. Increased underwater sound levels are expected to be below 180 dB and therefore are not expected to cause auditory damage to protected species.

Terrestrial Ecology – The proposed upland cable route is configured to utilize previously developed or disturbed transportation and utility corridors providing limited function for wildlife. Impacts to wildlife and vegetation communities from installation and operation along the proposed onshore transmission line route will be temporary. Central Nantucket Sound is not a preferred habitat for bats, so the potential collision risk to resident bats is low. While there may be limited collision risk for migratory bats, central Nantucket Sound is not known to be a bat flyway.

Birds – It is expected that some temporary displacement of birds would result from the disturbance associated with construction and decommissioning activities. During construction, birds in the immediate vicinity of construction/decommissioning activities could be temporarily displaced within several thousand feet from activities. The presence of the WTG array is not anticipated to affect bird-nesting activity.

Collisions with turbine blades, and possibly turbine towers, will cause some avian mortality including risk to listed avian species, but the estimated number of birds killed by the wind turbines is unlikely to cause bird population declines. Conservatively applying the highest fatality rate observed at existing wind power facilities, up to 364 birds could be killed each year. The actual number is expected to be less as turbine towers design and lighting have



Proposed Wind Turbine Generator Profile Detail (not to scale).

been designed to minimize impacts.

Coastal and Freshwater Resources – The sea floor would be altered by the installation of pilings needed to support the WTGs and the ESP. The seafloor would also be temporarily impacted by the anchoring, positioning, and movement of the vessels associated with construction. Based on the lack of chemical constituents of concern in the project area sediments, sediment resuspension during foundation placement and cable embedment is not anticipated to have a long-term adverse effect on marine water quality or aquatic biota. Potential impacts to shellfish areas from submarine cable installation activities are anticipated to be localized and short-term, resulting primarily from direct sediment distur-

bance. The only known shellfish beds that would be impacted are recreational. No commercial beds will be impacted.

Water Quality - Potential impacts to water quality would be short term and localized. The sediment disturbance associated with the jet plow installation of the cable are not greater than that associated with a normal tide cycle. The cable would be buried 6 feet; heat dissipation should not impact ambient water temperature.

Cultural and Recreational Resources/Visual – The preliminary archaeological investigations determined there is a small area of intact paleosols (ancient land surfaces) within the Area of Potential Effect (APE). These paleosols have the potential to contain prehistoric archaeological resources.

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Avoidance of ground disturbing activities was recommended in these limited areas. No submerged historical cultural resources were identified within the project's APE. However, several potential historic properties were identified as targets by a remote sensing survey.

These targets will be further investigated and identified in additional archaeological surveys. Based on the results of the terrestrial archaeological intensive survey, no significant prehistoric or historic archaeological resources have been identified within the project's APE for ground disturbance along the onshore transmission line route. The offshore project will be visible from a number of designated National Register listed or eligible historic district and individual structures, and is therefore subject to an assessment of effects on these historic properties.

The project would add a built element to existing daytime views of the seascape and would cause a change in daytime view of the Horseshoe Shoal area as presently experienced by recreational boaters. The flashing lights would create a visual change to the existing relatively unbroken nighttime view under clear sky conditions.

Noise – The project is expected to be largely inaudible to recreational boaters. The Wind Park would be equipped with foghorns for boating safety. Thus,

boaters traveling near the Wind Park in dense fog would hear these warning devices, just as they now hear various bells and horns in Nantucket Sound from fixed buoy locations. Persons on land would not hear the foghorns. The sound effects of construction would be

The next step in the EIS process

The Corps of Engineers will carefully consider all comments received on the DEIS/EIR.

Following review and input the Corps will prepare a Final EIS. Thirty days later the Corps can prepare a Record of Decision (ROD).

The ROD documents the results of the NEPA process.

temporary. Onshore construction activities would be temporary and would be audible to persons near the cable corridor; sound levels would be similar to roadway construction equipment. As stated previously, underwater noise levels are expected to be less than 180 dB. Wind turbine operation will be inaudible onshore.

Transportation – There would be temporary impacts to marine navigation in the immediate vicinity during construction operations. Any restrictions that are necessary to protect the safety of mariners would be implemented in coordination with the U.S. Coast Guard.

Large spacing of the WTGs would allow those vessels not restricted by depth to navigate between the WTGs, and also will prevent rafting of ice between WTGs. Installation of the Wind Park would result in the presence of additional aids-to- navigation in Nantucket Sound that can be used by mariners in the area. The FAA issued a Determination of No Hazard to Air Navigation on April 9, 2003.

Electrical and Magnetic Fields

– The proposed submarine cable system for the transmission line would contain grounded metallic shielding that effectively blocks any electric field generated by the operating cable system. The magnetic fields will be similar to those of existing overhead distribution lines along the roadway.

Telecommunications Systems

– The proposed submarine cable system would be buried beneath the seafloor and, therefore, no interference with the telecommunications towers, marine VHF radio, or radar is anticipated from that project element. An evaluation of the FCC-permitted antennae in the study area compared with the proposed WTG locations indicated no impact to line-of sight telecommunications.

Air and Climate – The operation of the proposed Wind Park would not emit air pollutants and therefore would have no air quality related regulatory requirements or adverse impacts but is

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Cooperating Agencies

A number of local, state and federal entities have a regulatory role or have been invited to participate as cooperating agencies in the preparation of the Corps of Engineers DEIS for the permit application by Cape Wind Associates, LLC for an offshore wind facility in Nantucket Sound:

Massachusetts Environmental Policy Act Office
Cape Cod Commission
Federal Aviation Administration
Massachusetts Coastal Zone Management Office
U.S. Coast Guard
U.S. Department of Energy
State Historic Preservation Officer/
Massachusetts Historical Commission
Nantucket Planning & Economic
Development Commission

Massachusetts Military Reservation
U.S. Environmental Protection Agency
Federal Energy Regulatory Commission
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Minerals Management Service
Wampanoag Tribe of Gay Head Aquinnah
National Park Service
National Marine Fisheries Service

intended to have benefits.

The activities associated with construction and decommissioning of the offshore and upland cables will result in some level of air emissions due to the use of fossil fuel fired equipment. These emissions will be localized, short term, temporary in nature, and unlikely to result in any significant air quality impacts.

Socioeconomics – The project at this time is not seeking public funding nor grant awards. The project would diversify the region's energy mix in terms of fuel supply and generation technology, with associated decreased reliance on imported fossil fuels. Cape Wind will reduce the cost of compliance with the Renewable Energy Portfolio Standards for Massachusetts's electric consumers. The Cape Wind Energy Project could result in a reduction in the costs of adverse health impacts from existing power plant emissions. An estimated 391 full-time jobs would be produced during construction and installation -- once operational an estimated permanent increase of 154 (50 full-time at the Wind Park, 104 by indirect and induced efforts). According to the Department of Energy, the proposed Cape Wind Energy Project would also have economic benefits at the national level on the U.S. economy in the range of \$1.5 to \$2 billion. A recent government-funded study reviewed data on property sales in the vicinity of other wind projects and determined through statistical analysis that there is no evidence that wind project development has harmed property values within an established view-shed. The wind park would require boaters to be more attentive to the proximity of the WTGs while navigating through the wind park, particularly during poor conditions. The project is not anticipated to have substantial impacts on commercial fishing activities currently occurring in the vicinity as there will be no restrictions on fishing within the Wind Park during project operation. There will be no environmental justice issues created by construction or operation of the Cape Wind Energy Project, based upon the federal guidance.

Environmental Impact Statement Process

In December 2001, the Corps of Engineers determined that an EIS was required for the overall project.

First, a Notice of Intent (NOI) to prepare the EIS was published in the Federal Register. This is a formal announcement of the EIS process, which begins with scoping. Public notices were also prepared. The NOI was published on Jan. 30, 2002. Scoping determines the scope of issues (range of actions, alternatives and impacts) to be addressed and to identify significant issues that would be analyzed in-depth in the EIS.

Although there is no set process for carrying out scoping, it's typically done in a public meeting format. The public is asked to provide any further written comments 30 days after the scoping meetings, but scoping continues throughout the development of the EIS and meetings are held usually no later than 30 days after the Notice of Intent is published. The scoping meetings for the DEIS/EIR were held in Boston and West Yarmouth on March 6 and March 7, 2002 respectively.

All existing relevant data was then collected and reviewed to address issues discussed during scop-

ing. Alternatives were developed, and data gaps were identified and assessed to develop data collection needs. Field studies were conducted as appropriate to fill data gaps.

The Draft EIS and associated appendices will be sent out for public review and comment. The public comment period is 60 days. A notice of availability will be published in the Federal Register. Public meeting (s) will be held no earlier than 15 days from the publication of the Federal Register notice.

The Final EIS will then be prepared based on the public review and comment. Responses to comments received on the Draft EIS will be included in the Final EIS. A Record of Decision (ROD) will then be prepared based on the Final EIS findings.

The Corps is the lead federal agency on the EIS process and is working closely with the Massachusetts officials who have required that the applicant prepare an Environmental Impact Report (EIR) under the Massachusetts Environmental Policy Act (MEPA).

The document is a joint EIS/EIR.

Topics addressed in the DEIS/EIR

- Geology and Sediment Conditions
- Physical Oceanographic Conditions
- Benthic and Shellfish Resources
- Finfish Resources and Commercial/Recreational Fisheries
- Protected Marine Species
- Terrestrial Ecology, Wildlife, and Protected Species
- Birds
- Coastal and Freshwater Wetland Resources
- Water Quality
- Cultural and Recreational Resources/Visual
- Noise
- Transportation
- Electrical and Magnetic Fields
- Telecommunications Systems
- Air and Climate
- Socioeconomics



US Army Corps
of Engineers
New England District

Permitting Sequence

Energy Facilities Siting Board

- Certificate

Draft Environmental Impact Statement (EIS) & Draft Environmental Impact Review (EIR)

- To fulfill National Environmental Protection Act (NEPA) & Massachusetts Environmental Protection Act (MEPA) requirements

Final EIS & Final EIR

- MA Secretary of EOEA Certificate (if Final EIR found adequate)

Cape Cod Commission

- Participate in Draft EIR and Final EIR Review
- Development of Regional Impact process commences with issuance of MA Secretary of EOEA Certificate on the Final EIR

Local Conservation Commission (Barnstable & Yarmouth)

- Wetlands Protection Act Order of Conditions
- Local Wetlands Bylaw Decision

Massachusetts Department of Environmental Protection

- Chapter 91 Waterways License
- Water Quality Certification
- Wetlands Superseding Order of Conditions (if local Order of Conditions appealed)

MA Coastal Zone Management Office

- Consistency Review

ACOE Record Of Decision

- Section 10 of the Rivers and Harbors Act of 1899 for structures in navigable waters

MassHighway Department

- Permit to access state highway

EPA Stormwater Permit

- National Pollution Discharge Elimination System

U.S. Coast Guard

- Private Aids-to-Navigation approval

*There may be additional permits, authorizations or appeals processes not listed.
In some cases, sequence may be dependent upon approvals listed.*

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Permit No. 494