

Cape Wind Energy Project

Environmental Assessment

**U.S. Department of the Interior
Bureau of Ocean Energy Management,
Regulation and Enforcement
Office of Alternative Energy Programs**

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Author
Bureau of Ocean Energy Management, Regulation and Enforcement
Office of Alternative Energy Programs

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FINDING OF NO NEW SIGNIFICANT IMPACT
Approval of Construction and Operations Plan for
Offshore Wind Power Facility in Nantucket Sound, Offshore Massachusetts

In January 2009, the U.S. Department of the Interior, Minerals Management Service (MMS), currently Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), filed with the U.S. Environmental Protection Agency (USEPA) a Final Environmental Impact Statement (FEIS) covering the construction, operation, and decommissioning of an offshore wind power facility consisting of 130, 3.6± megawatt (MW) wind turbine generators (WTG), each with a maximum blade height of 440 feet, to be arranged in a grid pattern on the Outer Continental Shelf (OCS) in Nantucket Sound, offshore the Commonwealth of Massachusetts. On May 4, 2010, BOEMRE published the Notice of Availability (NOA) of the 2010 Environmental Assessment (2010 EA) (75 FR 23798) and the NOA of the 2010 Record of Decision (ROD), which authorized the issuance of a lease to Cape Wind Associates LLC (CWA) (75 FR 34152). Pursuant to the terms of the lease and ROD, CWA submitted a Construction and Operations Plan (COP) to BOEMRE on October 29, 2010, and a revised version of its COP on February 4, 2011. BOEMRE has prepared this EA (2011 EA) to determine whether BOEMRE can make a Finding of No New Significant Impact (FONNSI) or should prepare a Supplemental Environmental Impact statement (SEIS) before deciding whether to approve, approve with modifications, or disapprove the COP.

New Information and Circumstances

In accordance with Council on Environmental Quality (CEQ) regulations, this assessment examines whether there are any “substantial changes in the proposed action that are relevant to environmental concerns” or “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action” that either were not fully discussed or did not exist at the time the ROD was issued such that a SEIS is necessary (40 CFR 1502.9). As detailed in the COP and documented in Section 2.2 of the 2011 EA, the Proposed Action remains substantially the same as described in the FEIS (FEIS pp. 2-1 to 2-32). As summarized below, Section 3 of the 2011 EA identifies potentially new information and circumstances, assesses the relevance of this information to the reasonably foreseeable environmental consequences of the Proposed Action, and makes a determination as to whether or not this new or revised information substantially changes the conclusions contained in the previous environmental documents or identifies new significant impacts such that an SEIS is needed. In addition, in Sections 4 and 5 of the 2011 EA, BOEMRE considered the relevance and import of actions taken by and consultations with other Federal and State agencies since the issuance of the 2010 ROD and 2010 EA that may have bearing on issues of environmental concern.

Marine Mammals and Sea Turtles: The additional requirements regarding the post-lease pre-construction shallow hazards surveys and supplemental geotechnical field investigations included in the COP and the lease, the recent information regarding the aggregation of right whales in Rhode Island Sound, and the literature review do not, singularly or cumulatively, significantly alter the impacts to marine mammals and sea turtles that were described in the FEIS and the 2010 EA. Nor does this information require additional monitoring or mitigation measures for marine mammals and sea turtles. As a result, the new surveys, even in light of the

new information regarding right whales, would not cause any significant additional effects to marine mammals that were not already considered in the FEIS.

Essential Fish Habitat (EFH) and Benthic Communities: While no new information has been presented challenging or otherwise contradicting the analyses or conclusions contained in the FEIS regarding EFH and Benthic Communities, the 2011 EA proposes the inclusion of additional post-construction monitoring measures in the decision document that would allow BOEMRE to monitor the recovery of habitat and ensure that the actual effects of the project on EFH and benthic communities do not deviate substantially from those anticipated in the FEIS.

Avifauna: The FEIS concluded that the impact to birds ranged from minor to moderate (FEIS, Sections 5.3.2.4.1 and 5.3.2.4.2). The conclusions in the FEIS regarding migratory birds and the process that has been identified in the EA to conserve them, are consistent with the Migratory Bird Treaty Act (MBTA), Executive Order 13186, and Memorandum of Understanding (MOU). CWA is required to implement the monitoring and mitigation measures included in the lease, as these measures are based on the best information currently available regarding avian species in the project area. No new information has been presented that would invalidate the analyses or conclusions contained in the FEIS regarding the impacts of construction and operation of the proposed project on avifauna.

Air Quality: In the final USEPA OCS Air Permit, approved January 7, 2011, the new emissions estimates total for Phase 1 NO_x is 226 tons as compared to the originally estimated 286 tons. The NO_x emissions associated with additional survey work were calculated to be 38.8 tons for the first year. Although the NO_x emissions for surveys have increased due to increased survey requirements, the emissions associated with construction have decreased. Therefore, USEPA estimates that the total Phase I project emissions has actually been reduced to 226 tons even in light of the additional survey requirements. This total is less than that anticipated amounts reflected in the FEIS, which were considered minor (FEIS Table E – 1; ROD Attachment 2 p. 73). Therefore, the new information regarding air emissions does not constitute significant new information that would have bearing on a reasoned choice among the alternatives.

Local Airports: Given that the presence of the WTGs would not cause any substantial flight cancellations or delays at any of the three airports, and will result in only minor rerouting of a very small percentage of visual flight rules (VFR) flights, construction and operation of the proposed project would not cause any significant impacts to any of the airport's annual revenue streams or FAA funding as a result of the proposed project (including revenues from fuel sales, landing and tie down fees, parking fees, and rental car fees). The potential impact to communities that will result from potentially rerouted flights will also be *de minimus*. Therefore, the *de minimus* obstruction to aviation that the presence of the WTGs may cause does not constitute significant information or circumstances regarding the impacts of the project.

Fishing Use Conflict: Commenters alleged that imposing the terms and conditions of the U.S. Coast Guard (USCG), including the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS), as required in the ROD, would conflict with fishing use of the Proposed Action area, which was considered in the FEIS and 2010 EA (FEIS Appendix M; 2010 EA). Since the publication of the ROD, USCG has presented no new mitigation measures

for consideration. Therefore, there is no new information on fishing use conflicts that would affect or change the analysis of these issues presented in the FEIS and the 2010 EA.

Emergency Response: A commenter expressed concern about the likelihood that the Town of Barnstable and its fire districts would be designated as the first responders in the event of an emergency, and that such response would lead to socioeconomic consequences. The information presented by the comment does not raise new issues, as these issues were raised, considered, and analyzed in the FEIS and in response to comments on the FEIS in the April 2010 EA (*see also* February 4, 2011 COP at Appendix C). CWA's OSRP has been deemed adequate pursuant to 30 CFR Part 254 and does not indicate that the emergency services of local municipalities will be impacted in a manner that is substantially different from that anticipated and described in the FEIS and the April 2010 EA. The comment likewise does not present any information indicating that the reasonably foreseeable consequences to local emergency services will be significantly different from those contemplated in the FEIS. Therefore, the comment does not raise any significant new information or circumstances that would warrant supplementation of the FEIS.

Oil within WTGs: While Cape Wind Associates' COP indicates that additional oil would be contained within the WTGs, the original worst case discharge scenario analysis from the FEIS remains valid and unchanged. The increased oil amounts do not change the analysis because a simultaneous release of all the oil within each WTG is not reasonably foreseeable, even in the catastrophic scenario. The largest reasonably foreseeable spill remains a release of the oil stored in the ESP (42,000 gallons) (See February 4, 2011 COP, Appendix C). No new analysis is required because the worst case discharge scenario remains valid even in light of the new information regarding the amount of oil that would be stored at each turbine location.

Microclimate: WTGs have the potential to create additional fog in the form of wake clouds. Very specific weather conditions must be in place in order for wake clouds to form, and this makes their potential for occurrence rather rare (Emeis, 2010). The mitigation measures identified in the CWA lease stipulations would provide appropriate mitigation of the effects of fog, regardless of the cause (CWA lease Addendum C, Sec. 13 VII(a)(vi)) and identified in the COP (February 4, 2011 COP Appendix C, OSRP Appendix A). Due to these mitigation measures, the new information regarding the generation of fog does not alter the level of impact anticipated in the FEIS. Due to the rare nature of wake cloud occurrences, they do not represent a significant increase in fog in Nantucket Sound, and as a result, do not represent a significant increase in the impacts on birds as analyzed in the FEIS (FEIS p. 88, 90-91, 99,101-103,110-111,209-210,215,218-220).

Sloshing Dampers: Sloshing dampers are a component part of the WTGs, as described in CWA's COP. Ethylene glycol is typically used in sloshing dampers. Although these dampers are sealed containers that are not opened during construction or operation, the possibility exist that some ethylene glycol could be released. Although this does not present significant environmental concerns, BOEMRE will nevertheless require that CWA use propylene glycol in the sloshing dampers to ensure that the use of sloshing dampers will not lead to any substantial environmental effects.

Transition Piece Grout: The Cape Wind COP describes construction materials that CWA anticipates using at the site. The release of contaminants from grouting, like other construction materials, may impact benthic resources. However, the impacts of a release of grout, if one did occur, would be similar to the impacts of other materials as discussed in the FEIS (FEIS Section 2.6). An accidental release of grout would be limited in size and its impacts would be localized. This information does not change the assumptions or conclusions contained in the FEIS.

Cumulative Effects: BOEMRE reexamined the cumulative impacts of the Proposed Action and the potential development of two research projects, the purpose of which are to study ocean conditions that would be located well south of the Proposed Action area. The primary impact of these research projects that is relevant to the Proposed Action is vessel traffic associated with their construction. BOEMRE determined that the impacts from vessel traffic associated with the Proposed Project, when added to the impacts of vessel traffic associated with two research projects, as discussed in the cumulative impacts sections in the FEIS and 2010 EA, would result in a *de minimus* incremental addition to the cumulative effects of the proposed project. Therefore, the new information regarding the potential impacts of these potential research projects do not indicate that the Cape Wind project will have any significant new cumulative impacts that were not considered in the FEIS.

Supporting Documents

The following environmental documents are available upon request or at <http://www.boemre.gov/offshore/RenewableEnergy/CapeWind.htm>:

- Cape Wind Energy Project, Final Environmental Impact Statement, January 2009;
- Cape Wind Energy Project Environmental Assessment, April 2010;
- Record of Decision, Cape Wind Energy Project, Horseshoe Shoal, Nantucket Sound, April 2010; and
- Cape Wind Energy Project Environmental Assessment, April 2011.

Conclusion

Based on the analyses in this EA, no new significant impacts associated with the proposed Cape Wind Energy Project were identified that were not already considered in the FEIS. Therefore, the conclusions of the kinds, levels, and locations of impacts described in the FEIS and 2010 EA remain valid. As a result, BOEMRE has determined that a SEIS is not required, and is issuing this FONNSI.



Acting
for
Maureen A. Bornholdt
Program Manager
Office of Offshore Alternative Energy Programs

4/18/11
Date

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1. Objective of Environmental Assessment

The Council on Environmental Quality (CEQ) regulations give the Bureau of Ocean Energy, Management, Regulation and Enforcement (BOEMRE) the broad discretion under 40 CFR 1501.3(b) to “prepare an environmental assessment on any action at any time in order to assist agency planning and decision making.” BOEMRE is preparing this environmental assessment (EA) in order to evaluate the significance of information that has come to the attention of the agency since the April 28, 2010, Record of Decision (ROD) approving the issuance of a lease to Cape Wind Associates (CWA), and to assist BOEMRE in deciding whether to approve, approve with modifications, or deny CWA’s application to construct, operate, and decommission a commercial wind facility in Nantucket Sound off the coast of Massachusetts as described in the January, 2009 Final Environmental Impact Statement (FEIS) and its November, 2010 Construction and Operations Plan (COP).

In accordance with CEQ regulations, this assessment examines whether there are any “substantial changes in the proposed action that are relevant to environmental concerns” or “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action” that either were not fully discussed or did not exist at the time the ROD was issued such that a supplemental EIS is necessary (40 CFR 1502.9). Such information would indicate a need to add to or reconsider the analysis in the January 2009 FEIS in a supplemental EIS (SEIS). Input for this EA came from numerous sources including:

- BOEMRE research and review of new scientific and technical information (Section 3 of this EA);
- Comments received after the previous EA and ROD were published in April 2010;
- Comments received in response to the Notice of Preparation of this EA;
- Federal Aviation Administration’s (FAA) May 17, 2010, determination of No Hazard to Air Navigation FAA Aeronautical Study No. 2009-WTE-332-OE);
- Consultation with NOAA National Marine Fisheries Service (NMFS) on Marine Mammals under Section 7 Endangered Species Act (ESA)(NOAA National Marine Fisheries Service, Endangered Species Act Section 7 Consultation, Biological Opinion, Activity F/NER/2010/03866, 2010);
- Information contained in CWA’s COP; and
- Information contained in CWA’s revised Avian Bat Monitoring Plan submitted to BOEMRE on February 11, 2011.

This EA evaluates only topics for which new information has become available since the publication of the April 28, 2010 EA (2010 EA) was published, and which could be material to the decision making process. Comments that were submitted during the public comment period for the FEIS and after the publication of the FEIS were addressed in the 2010 EA, while comments received on the preliminary version of the 2010 EA were also incorporated into that EA and subsequently addressed in the ROD.

This EA identifies potentially new information and/or circumstances, assesses the relevance of this information to the reasonably foreseeable environmental consequences of the Proposed

Action, and makes a determination as to whether or not this new or changed information substantially changes conclusions in the previous environmental documents or identifies new significant impacts such that an SEIS is needed.

The January 2009 FEIS (USDOJ, MMS, 2009) describes the Proposed Action and the reasonably foreseeable impacts that could result from its implementation. The lease issued to CWA describes mitigation and monitoring measures that would be applied to all activities that might take place on the leasehold. If the Preferred Alternative, as further refined in the COP, is selected, then the record of decision (ROD) may contain further mitigation and monitoring measures resulting from BOEMRE's consideration of new information or changed circumstances that have arisen since the issuance of the April 28, 2010 EA and ROD.

2. The Proposed Action and Alternatives

This section considers whether or not there have been changes in the Proposed Action, or circumstances and information affecting the Proposed Action and alternatives that render invalid any assumptions underlying the formulation of the Proposed Action or the range of alternatives.

2.1 Background

In November 2001, CWA applied for a permit from the U.S. Army Corps of Engineers (USACE) under the Rivers and Harbors Act of 1899 to construct an offshore wind power facility on Horseshoe Shoal in Nantucket Sound off the coast of Massachusetts. The passage of the Energy Policy Act of 2005 (EPA) amended the Outer Continental Shelf Lands Act (OCSLA), and granted the Department of the Interior (DOI) the authority to issue leases, easements, or rights-of-way for renewable energy projects on the Outer Continental Shelf (OCS). Accordingly, CWA submitted its application to Minerals Management Service (MMS) (now the BOEMRE) in 2005 to construct, operate, and eventually decommission an offshore wind power facility on Horseshoe Shoal in Nantucket Sound off the coast of Massachusetts.

The MMS published the Cape Wind Draft Environmental Impact Statement (DEIS) (73 FR 3482) on January 18, 2008; the FEIS (74 FR 3635) on January 21, 2009; the Notice of Availability of the 2010 EA on May 4, 2010 (75 FR 237980); and the Notice of Availability of a ROD authorizing the issuance of a lease to CWA on May 4, 2010 (75 FR 34152). On October 6, 2010, BOEMRE issued a lease that granted CWA right to conduct site characterization activities on the leasehold and the exclusive right to submit to BOEMRE a Construction and Operations Plan (COP) detailing the construction, operation, and decommissioning of its proposed project. CWA submitted its COP to BOEMRE on October 29, 2010. BOEMRE is now considering whether to approve, approve with modifications, or disapprove the most recent version of the COP, submitted on February 4, 2011. See “Cape Wind Energy Project, Nantucket Sound, Massachusetts, Construction & Operations Plan” (February 2011) *available at* <http://www.boemre.gov/offshore/RenewableEnergy/CapeWind.htm>.

2.2 The Proposed Action (preferred alternative)

Background: As detailed in the COP, the Proposed Action remains substantially the same as described in the FEIS (FEIS pp. 2-1 to 2-32), issued by the MMS in January, 2009. CWA plans to construct, operate, and eventually decommission an offshore wind power facility on Horseshoe Shoal on the OCS in Nantucket Sound, offshore Massachusetts. The Proposed Action calls for 130, 3.6 +/- MW wind turbine generators (WTGs), each with a maximum blade height of 440 feet (ft), to be constructed in a grid pattern on the OCS in Nantucket Sound just offshore Cape Cod, Martha’s Vineyard, and Nantucket Island, Massachusetts (Cape and Islands). With a maximum electric output of 468 MW and an average anticipated output of approximately 182 MW, the facility is projected to generate up to three-quarters of the Cape and Islands’ annual electricity demand. Each of the 130 WTGs will generate electricity independently. Solid dielectric submarine inner-array cables (33 kilovolt) from each wind turbine generator will interconnect within the array and terminate on an electrical service platform, which will serve as the common interconnection point for all of the wind turbines. The proposed submarine transmission cable system (115 kilovolt) from the electric service platform to the landfall

location in Yarmouth would be approximately 12.5 miles (mi.) in length (7.6 mi. of which would fall within Massachusetts' territory).

New Information: Three issues have presented themselves concerning the Proposed Action since the issuance of the FEIS and the 2010 ROD. The issues are (1) a possible relocation of the staging area; (2) a change in the size of the proposed project; and (3) additional surveys required in the 2010 ROD. These issues are discussed, in turn, below.

The first issue was raised in numerous public comments submitted to BOEMRE in response to the Notice of Preparation of this EA which was published on BOEMRE's website. These comments reflect a widespread belief on the part of the public that the staging area for the project had been changed from Quonset, Rhode Island to New Bedford, Massachusetts. These commenters cited numerous sources, including a press release from the Office of the Governor for the Commonwealth of Massachusetts on October 20, 2010 and a news article in the Boston Herald on October 20, 2010 for the proposition that the staging area had moved.

However, the staging area has not been moved, and remains Quonset Point as specified in the FEIS, ROD (2010 ROD, p. 30) and lease (Lease, p. C-15). Like these documents, the COP identifies Quonset, RI as the staging area for major construction activities. This location has not changed, and the impacts associated with the use of Quonset Point as a staging area were fully considered in the FEIS (FEIS Section 2.3.2.1).

Should CWA in the future intend to relocate the staging area for major construction activities, it would be required to revise its COP in accordance with 30 CFR 285.634. Additional environmental review may be necessary prior to the approval of any such COP revision if BOEMRE determines that the relocation involves impacts not previously identified or analyzed, or that the revision would result in a significant change in the impacts previously evaluated (*see* 30 CFR 285.634(d)). However, the comments present no new information that would warrant a re-consideration of the effects of the project as described in the FEIS at this time.

The second issue, also raised by numerous commenters, concerns a purported expansion in the geographical size of the project. According to the comments, the area of the project has been increased from 25 square statute miles to 46 square statute miles.

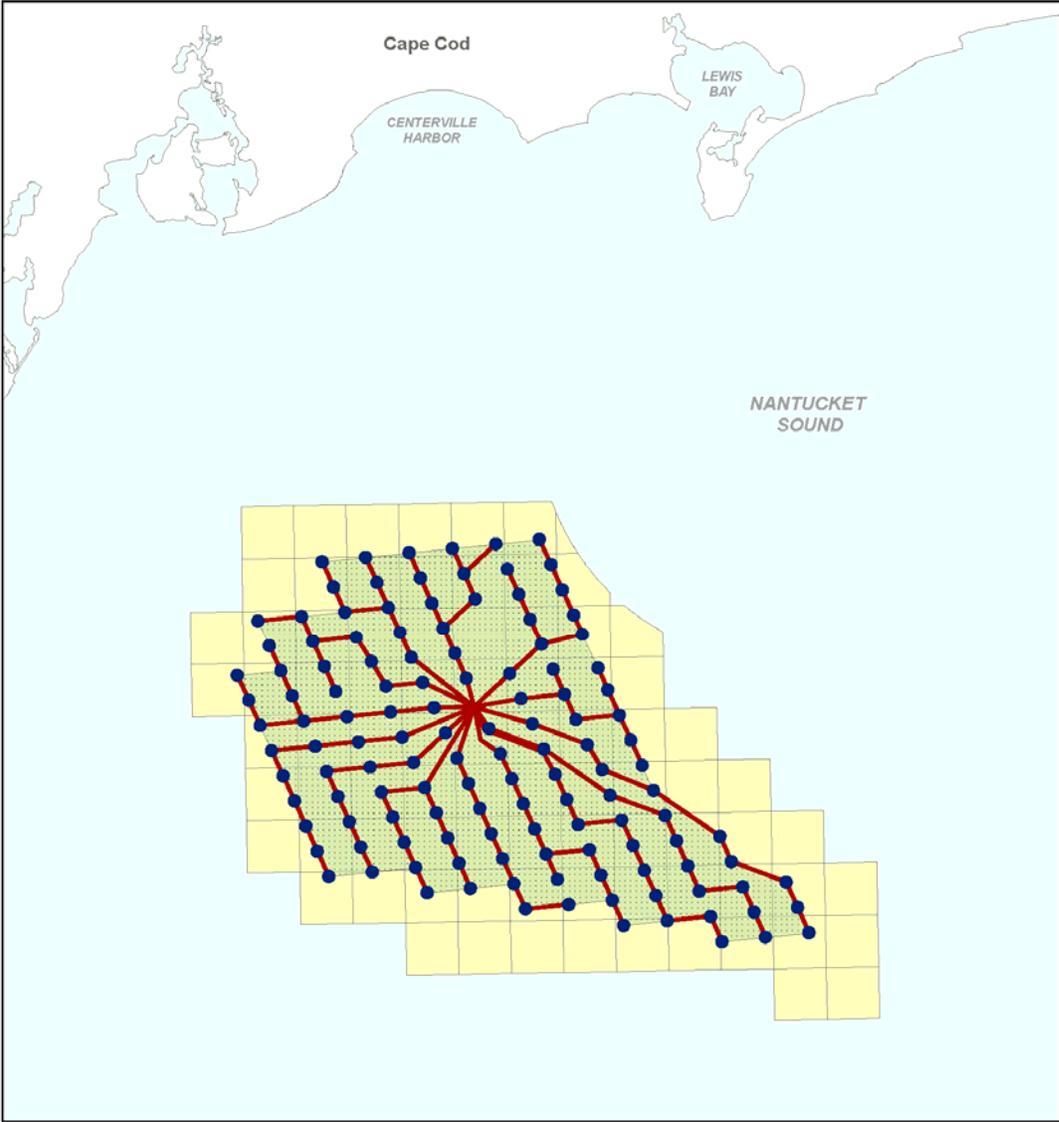
The area of the lease, issued on October 6, 2010, is approximately 46 square statute miles. However, the actual footprint of the turbine array remains 25 square statute miles. The difference between the lease area and the project area is due primarily to the general policy of BOEMRE to lease whole aliquot units (sixteenths of lease blocks) instead of areas delineated by latitude/longitude coordinates. CWA's original application requested a polygon defined by latitude/longitude coordinates. The lease area consists of any aliquot that overlapped with the polygon requested by CWA, even where the overlap was relatively minor. (See Fig. 1, below). Thus, the size of the proposed project has not increased since the issuance of the FEIS, and no additional environmental impacts that were not considered in the FEIS could occur. As a result, the comments present no new information that would warrant a re-consideration of the effects of the project as described in the FEIS.

The third issue relates to the mitigation measures contained in the ROD. Although the FEIS considered the possibility that it may become necessary for CWA to conduct surveys of the project area that were additional to those it had already performed (FEIS pp. 2-30 to 2-32; 9-8), the April 28, 2010 ROD required CWA to perform certain surveys prior to the construction of any facility (ROD pp. 26; 27; 29; 41; 42). These requirements were transformed into lease stipulations on November 1, 2011 (See Cape Wind Lease pp. C-3 to C-14; C-18). CWA's COP provides information regarding the method by which CWA will comply with these survey requirements (COP pp. 57-70).

It is possible that these additional survey requirements could result in impacts to marine mammals, the marine environment and air quality due to increased vessel traffic. BOEMRE re-initiated consultation with the NMFS regarding effects to endangered and threaten marine mammals and sea turtles, and has considered the relevant air quality information associated with all of the required surveys. Discussions of the environmental issues associated with the additional survey requirements, and determinations as to whether these survey requirements trigger the need for an SEIS can be found in section 3.1, "Additional Surveys and Sampling" of this document.

Conclusion: Pursuant to the discussion above and those contained in section 3.1 of this document, there have been no substantial changes to the description of the Proposed Action since the publication of the FEIS such that an SEIS is necessary. The proposed staging area has not changed and the project area remains the same as described in the FEIS. The description of the Proposed Action in the FEIS adequately describes the project as currently envisioned and presented in the COP.

Cape Wind Lease Area



- Wind Turbine Generators
- Cable Array
- ▒ Proposed Turbine Array Footprint - 25 Square Statute Miles
- Proposed Cape Wind Lease Area - 46 Square Statute Miles

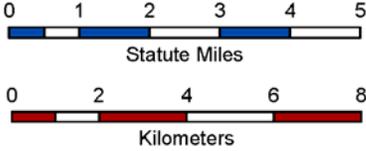


Figure 1. Cape Wind Lease Area and Proposed Location of Wind Turbine Generators and Cable Array

2.3. Alternatives Considered

Background: In accordance with the National Environmental Policy Act (NEPA), the FEIS evaluates all reasonable alternatives to the Proposed Action, including a no action alternative. The alternatives to the Proposed Action were derived from the purpose and need statement. The purpose and need statement of the FEIS is as follows:

The underlying purpose and need to which the agency is responding is to develop and operate an alternative energy facility that utilizes wind resources in waters offshore of New England employing a technology that is currently available, technically feasible, and economically viable, that can interconnect with and deliver electricity to the NEPOOL, and make a substantial contribution to enhancing the region's electrical reliability and regional renewable energy portfolio.

The FEIS evaluated nine geographic locations along the coast from Maine to Rhode Island, three non-geographic alternatives, the Proposed Action, and a no action alternative. In addition, BOEMRE considered onshore, nearshore and dispersed sites, a deepwater alternative located more than 22 mi. offshore, and other forms of renewable energy production. After implementing a screening process (See ROD at 6-15; 2010 EA at 3-4), BOEMRE determined which alternatives to analyze in detail in the FEIS.

New Information: BOEMRE is not aware of any significant new circumstances and has received no new information that would alter the conclusions in the FEIS regarding the impacts of the project. Accordingly, there is no need to consider additional alternatives to minimize previously unanalyzed impacts.

Conclusion: No new information significantly altering the analysis of the environmental consequences of the proposed action has been presented since the issuance of the 2010 EA and ROD. Consideration of other alternatives is not warranted, as the range of alternatives examined in the FEIS remains valid.

3. New Information and Circumstances

3.1 Additional Surveys and Sampling

Background: The FEIS anticipates that a marine shallow hazards survey and a supplemental geotechnical surveys will be conducted prior to construction. These field investigations would be designed to collect sufficient information, to completely characterize the surface and subsurface geological conditions within the vertical and horizontal areas of potential physical effects (APPEs) in preparation for final design and construction of the project. These APPEs include the offshore construction footprints and associated work areas for all facility components, including the WTGs, the ESP, the inner-array cables and the 115kV transmission cables to shore (FEIS Section 2.7).

The FEIS contemplates that the shallow hazards survey would take several months, and operate 10 hours per day during relatively calm seas (FEIS Section 2.7.1). The required high resolution geophysical (HRG) survey work was yet to be determined but that the survey would take “several months to complete” (FEIS Section 2.7.1). The survey vessel would travel at approximately 15 knots when transiting and approximately 3 knots when survey equipment was deployed. The vessel would continually transect the area, obtaining an estimated 30 miles of data each day before returning to port at night. The supplemental geotechnical program states that the geotechnical program would involve the use of coring and boring equipment to collect sediment samples for laboratory analyses, which would disturb the seafloor in small discrete locations (FEIS Section 2.7.2). Vibracores would be taken along the 115 kV cable route (approximately two vibracores per mile) and along the inner array 33 kV cable routes (one vibracore approximately every 3.5 miles). The vibracores would be advanced from a small gasoline-powered vessel likely less than 45 ft. in length. Approximately 50 additional vibracores were planned at the time of the FEIS, although the FEIS states that the final number would be determined in consultation with the selected contractor and final design firm. The FEIS anticipated that up to six vibracores could be collected in a field day with favorable bottom conditions and calm seas.

FEIS Section 2.7.2.2 anticipates that approximately 20 additional borings would be advanced at selected WTG sites, including those at the approximate corners of the site of the proposed project, to span the vertical A PPE of the proposed structures, and to collect site-specific geotechnical data to assist in final foundation design. The estimated 20 borings would be advanced from a truck-mounted drill rig placed upon a jack-up barge that rests on spuds lowered to the seafloor. Each of the four spuds would be approximately 4 ft. in diameter, with a pad approximately 10 ft. on a side on the bottom of the spud. The barge would be towed from boring location to boring location by a tugboat. The drill rig would be powered using a gasoline or diesel powered electric generator. Crew would access the boring barge daily from port using a small boat. Borings generally can be advanced to the target depth of 100 to 200 ft. within 1 to 3 days, subject to weather and substrate conditions. Drive and wash drilling techniques would be used; the casing would be approximately 6 inches in diameter. Cone Penetrometer Testing (CPT) or an alternative subsurface evaluation technique (appropriate to site-specific conditions) would be conducted prior to construction as necessary, to evaluate subsurface sediment conditions. A CPT rig would be mounted on a jack-up barge similar to that used for the borings.

The top of a CPT drill probe is typically up to 3 inches in diameter, with connecting rods less than 6 inches in diameter (FEIS pp. 2-31; 2-32).

New Information: For the purpose of ensuring that cultural resources are adequately protected and that the structural design of the project is sound, the ROD and the lease require CWA to conduct more intensive surveys prior to construction (*see* ROD pp. 29, 41; 42; Lease Addendum C, pp. C-3; C-14). Like in the FEIS, these supplemental offshore field surveys include both HRG surveys and geotechnical surveys (i.e., soil borings, CPTs, and vibracores) (*see* ROD at 29, 41-42; Lease Addendum C at C-3–C-14). The COP provides detailed information as to equipment type and additional surveys to be performed (COP 4.1.1). The field surveys will be conducted in the area of potential effect (APE) and 1000 ft. beyond as defined in Section 2.1 of *Bureau of Ocean Energy Management, Regulation and Enforcement, Documentation of Section 106 finding of Adverse Effect* (*see* ROD at 4; Lease at C-3) to satisfy the cultural resources mitigation requirements in the ROD and stipulations in the lease.

However, unlike the FEIS, the ROD and the lease require the tracklines of the HRG survey to be no more than 30 meters apart, which brings the total anticipated trackline mileage to an estimated 2,000 nautical miles. Two survey vessels may operate at one time and will transit to and from the survey area from port at approximately 15 knots. Like in the FEIS, the vessels will operate continuously throughout the Project Area during the day and terminate survey activities each day before dark, prior to returning to port.

In addition to the requirements described in the FEIS, the ROD and lease require the applicant to use a boomer and/or chirper to obtain the necessary geophysical data (COP at 64-65; Lease at C-6) during the HRG survey. As required by the monitoring and mitigation measures of the ROD and lease, endangered species observers will be present during the survey and will maintain a 500 meter exclusion zone (ROD p. 35; Lease p. C-22). Additional requirements for operation during the survey are outlined in the ROD and lease include a ramp up procedure, continuous visual monitoring of the exclusion zone, and shut down requirements should a listed species enter the exclusion zone (ROD pp. 35-38; Lease p. C-22 to C-24).

The 2010 ROD and Cape Wind lease require an additional 80 vibracores (for a total of 130, i.e., one at each turbine location) and 110 CPTs (or alternative subsurface evaluation technique) which be conducted in the same manner as described above and in the FEIS.

The effects of these additional vibracores and CPTs on the marine environment generally (e.g., water quality and benthic communities) will likely be insubstantial, due primarily to the temporary and localized nature of the effects of these activities.

In October 2007, BOEMRE prepared a programmatic environmental impact statement (PEIS) which describes the environmental impacts of bottom sampling, vibracore shallow sampling, and CPTs associated with the construction of a wind project involving approximately one hundred turbines (USDOJ, MMS, 2007, Section 3.5.2). The following is a summary of the potential impacts associated with these activities:

- Bottom sampling, vibrocore sampling, and deep boring would result in some disturbance to the seafloor. However, once the activity at any particular location is completed, recovery would occur at a rate proportional to the rate of sedimentation in the area affected (PEIS p. 5-5). For the Cape Wind Project, this is estimated to be a short period of time - about one to two tidal cycles (FEIS p. 5-146).
- The process of preparing the borings for the Cape Wind project will involve rotary well drilling equipment that uses drilling fluids (COP Appendix 2). These fluids as well as the drilled material itself could cause water quality impacts (PEIS p. 5-16). However, because the foundations for wind structures, including those of Cape Wind, will be shallow holes compared to oil and gas wells, drillers should be able to use environmentally friendly water-based drilling fluids that pose minimal water quality impacts or use drilling techniques that do not require drilling fluids (PEIS p. 5-16). In the case of the Cape Wind Project, drillers will be using such water-based drilling fluids, which are expected to have extremely minimal and temporary impacts to water quality. The ratio of the drilling fluid is expected to be ninety-five percent water and five percent inorganic bentonite clay, which is a naturally occurring hydrated aluminosilicate composed of sodium, calcium, magnesium, and iron (COP p. 88).
- Noises associated with core sampling would likely also be short-lived and localized, regardless of the increase in the amount of sampling required. However, the temporary noise could temporarily disturb or displace individual fish (PEIS p. 5-65)
- Noises associated with core sampling could also temporarily disturb or displace some mobile benthic organisms (PEIS p. 5-90).
- Overall, noise associated with these activities in the Cape Wind project area would have no detectable or persistent effects on seafloor habitats or populations of seafloor organisms (PEIS p. 5-90). Core samplers and similar devices would disturb seafloor habitat and kill sessile organisms within the sample footprint. However, the area that will be affected by such samplers is small (no more than a few square meters), and the overall effect on the seafloor habitat and associated organisms within the project area would be negligible (PEIS p. 5-90). Similarly, impacts from anchoring within project area are anticipated to be negligible since sensitive seafloor habitats, such as live bottoms and coral reefs, will be avoided. (PEIS p. 2-23)
- Drilling or core sampling to evaluate geological conditions has a potential to harm some benthic organisms as a result of sediment suspension and deposition (PEIS p. 5-97). However, since the project area will be located outside any offshore areas of special concern (i.e., Marine Protected Areas), there would be no impacts to these areas from these site characterization activities. (USDOC, NOAA, National Marine Protected Areas Center, 2011).

Overall, the impacts associated with drilling 130 as opposed to 50 core samples in the Cape Wind project area would have no detectable or persistent effects on seafloor habitats, populations of seafloor organisms, or fish populations. Core samplers and similar devices would disturb seafloor habitat and kill sessile organisms only within the sample footprint itself, which is anticipated to be no more than a few square meters. It is important to note that the sample footprints would ultimately become be the footprint of the turbine structures themselves; as such, the sampling is not expected to have any significant additional impacts to those already contemplated as resulting from the actual construction of the proposed project of itself.

Moreover, the area that will be affected by the samplers not included in the footprint of the actual proposed structures is small, and the overall effect on the seafloor habitat and associated organisms within the project area would be temporary and negligible. Therefore, the impacts of the additional vibracores and CPTs, would be similar to those described in the FEIS (FEIS p. 5-13) and would result only in minor localized temporary increases in turbidity near each bore hole. As a result, the increase in the number of borings required by the ROD and Lease do not present significant new circumstances regarding impacts to benthic resources or fish populations.

Surveys and Air Quality Impacts

New Information: In June 2010, CWA revised its emissions estimates for pre-construction activities to account for the expanded HRG and geotechnical survey requirements in the 2010 ROD and Cape Wind lease. Survey vessel activities, including seafloor boring, are subject to permitting by the EPA as an OCS source. On June 4, 2010 CWA submitted an attachment to the original air permit application that included revisions to the emissions estimates as a result of the additional G&G survey work at the site location (*see* EPA OCS Air Permit Attachment 1, June 4, 2010).

Massachusetts is classified as moderate non-attainment for the criteria pollutant ozone. OCS pollutant sources are considered major if they emit 100 tons per year or more in an ozone non-attainment area. The EPA allows states to set more stringent thresholds for nitrogen oxides depending on the severity of the pollution because it is a precursor to ozone. The major source threshold for NO_x in the state of Massachusetts for the purposes of New Source Review is 50 tons per year (310 CMR 7.00, Appendix A).

According to the EPA OCS Permit application, Phase 1 included preconstruction and construction activities which totaled 286 tons of NO_x emissions over the course of two years. Of the total emissions during preconstruction (surveying) were projected to be 19.6 tons for the first year as stated in the FEIS (FEIS Appendix A p. A-380; Table 5.3.1-8).

Conclusion: In the final EPA OCS Air Permit approved January 7, 2011 the new emissions estimates total for Phase 1 NO_x is 226 tons as compared to the original 286 tons. The additional survey work NO_x emissions were calculated to be 38.8 tons for the first year. Although the NO_x emissions for surveys have increased, the construction emissions have decreased therefore the total Phase I project emissions is reduced to 226 tons. The total NO_x emissions are less than the total analyzed in the FEIS which were originally considered minor (FEIS Table E – 1; ROD Attachment 2 p. 73). Therefore, the new information regarding additional air emissions does not constitute significant new information or circumstances bearing on the impacts of the proposed project such that the analysis in the FEIS is no longer valid.

Surveys and Marine Mammals and Sea Turtles

New Information: On July 26, 2010, BOEMRE re-initiated consultation with NMFS regarding the effects that these survey requirements, as well as the construction and operation of the project, may have on endangered and/or threatened marine mammals and sea turtles, particularly in light of new information regarding recent North Atlantic right whale sightings in the vicinity

of Nantucket Sound (2010 EA p. 17). Specifically, in the spring of 2010, over 90 North Atlantic right whales were observed in Rhode Island Sound and nearby waters, including areas to be transited by project vessels originating from the staging site at Quonset, RI. While right whales were not sighted in the area proposed for construction (i.e., the project footprint on Horseshoe Shoal within Nantucket Sound), right whales were observed in nearby areas and along the route that would be used by vessels moving between the project footprint and the project staging area near Quonset, Rhode Island. When compared to sightings in previous years, these sightings represent a higher than average number of right whales in the action area and nearby areas. BOEMRE noted in a July 13, 2010, letter to NMFS, that these sightings represented new information that when analyzed may reveal effects of the action that may affect listed species in a manner or to an extent not previously considered. NMFS concurred with BOEMRE's determination that re-initiation of consultation was appropriate. Consultation was reinitiated on July 26, 2010. When analyzing the effects of the Proposed Action on marine mammals, NMFS did so in light of the new survey activities required by the 2010 ROD and lease (2010 NMFS Biological Opinion, pp. 3-4).

On December 30, 2010, NMFS issued a Biological Opinion (BiOp). The BiOp concluded that, even though increased numbers of right whales had been sighted in RI Sound, and despite the new survey requirements, the Proposed Action would not affect ES marine mammals in any way that was not accounted for in the 2008 BiOp, included as Appendix J in the FEIS (2010 BiOp pp. 125-130).

Like in its original BiOp prepared for the FEIS, NMFS concluded that that the Proposed Action may adversely affect but is not likely to jeopardize the continued existence of the loggerhead, Kemp's ridley, leatherback, or green turtles. Additionally, NMFS concluded that the Proposed Action is not likely to adversely affect right, humpback, or fin whales, and therefore is not likely to jeopardize the continued existence of those whale species.

Specifically, the effectiveness of the monitoring and mitigation measures currently in place to protect marine mammals and sea turtles during the G&G field investigations is not diminished by the survey effort detailed in the COP and lease (2010 BiOp pp. 125-130). The observation of right whales in the spring of 2010 along a likely vessel transit route between the project area and the onshore staging area does not alter the analyzed environmental impacts in previous applicable NEPA documents as transiting vessels must also abide monitoring and avoidance requirements during transit.

The consultation did not result in an incidental take statement for marine mammals, nor did it result in the imposition of any new reasonable and prudent measures (2010 BiOp pp. 125-130). The incidental take of sea turtles via harassment from survey and construction noise also remains unchanged (2010 BiOp pp. 125-130). Specifically, NMFS anticipates that 3-7 sea turtles may be exposed to harassing levels of noise during each pile driving event and 13-28 sea turtles may be exposed to harassing levels of noise during high resolution geophysical survey work.

Conclusion: The additional requirements regarding the post-lease pre-construction shallow hazards survey and a supplemental geotechnical field investigations included in the COP and the lease, the recent information regarding the aggregation of right whales in Rhode Island Sound,

and the literature review do not, singularly or cumulatively, significantly alter the impacts to marine mammals and sea turtles that were described in the FEIS and the 2010 EA. Nor does this information require additional monitoring or mitigation measures for marine mammals and sea turtles. As a result, the new surveys, even in light of the new information regarding right whales, will not cause any significant additional effects to marine mammals that were not already considered in the FEIS.

3.2 Essential Fish Habitat and Benthic Communities

Section 5.3.2.8 of the FEIS discusses the reasonably foreseeable impacts to essential fish habitat (EFH) and benthic communities associated with the Cape Wind project. Impacts during construction are expected to be temporary, occur over small areas, and the benthic habitat is expected to recover thus restoring the functions and values to EFH and EFH fish species (FEIS p. 5-167). The CWA lease requires CWA to inspect the seabed footing of each structure and any buried cables to ensure, among other things, that the effects to these resources do not deviate substantially from those anticipated in the FEIS (CWA Lease, Addendum C, Sec. 8(III)). In order for BOEMRE to determine recovery of habitat and ensure that the effects to these resources remain substantially similar to those predicted, BOEMRE will require CWA to incorporate the following measures from Section 4.1.1.4 of the CWA COP into the post-lease inspections it undertakes pursuant to Attachment "C" Section 8(III) of the CWA lease:

- Determine the presence and general characterization of the substrate (three dimensional features and regularity).
- Determine the presence and general characterization of epibenthic invertebrates (particularly lobster and crabs).
- Determine the presence and general characteristics of shellfish (particularly scallops).
- Inspect for evidence of lobster burrows, if visible.
- Determine the presence and general characterization of fish and habitat.
- Identify all organisms observed to the lowest practicable taxonomic level.
- Identify the location of features.

In addition, BOEMRE will require CWA, when it undertakes its inspections pursuant to Section 8(III) of Attachment C the lease, to ensure that observation in the predicted footprint of scour is sufficiently dense to provide for semi-quantitative assessment of active sediment dynamics.

Conclusion: While no new information has been presented challenging or otherwise contradicting the analyses or conclusions contained in the FEIS regarding EFH and benthic communities, the inclusion of these additional post-construction monitoring measures in the decision document would allow BOEMRE to monitor the recovery of habitat and ensure that the actual effects of the project on EFH and benthic communities do not deviate substantially from those anticipated in the FEIS.

3.3 Avifauna

3.3.1 Summary of Potential Impacts to Migratory Bird and Conservation Actions

Background: Project impacts and potential protective measures for several categories and assemblages of avifauna, including migratory birds, are discussed in the FEIS and a series of

project-related documents. “MBTA species” are those birds that are protected by the Migratory Bird Treaty Act of 1918, 16 U.S.C. 703-711, (MBTA) and subject to the associated regulations promulgated by the U.S. Fish and Wildlife Service (FWS). The official list of migratory birds protected under the MBTA, and the international treaties that the MBTA implements, is found at 50 CFR 10.13.

The MBTA makes it illegal to “take” migratory birds, their eggs, feathers or nests. Under the MBTA, take is “construed to mean pursue, hunt, shoot, capture, collect, kill” or an attempt to undertake such actions. The Service’s implementing regulations further defines the term “person” to mean “any individual, firm, corporation, association, partnership, club, or private body, anyone at all, as the context requires.”

Both the MBTA and Executive Order 13186 “Responsibilities of Federal Agencies to Protect Migratory Birds” (66 FR 3853) are discussed in the FEIS (Section 1.2.1.15). Executive Order 13186 directs departments and agencies to take certain actions to further implement the MBTA. Under section 3 of the executive order, BOEMRE and FWS established a Memorandum of Understanding (MOU) on June 4, 2009, which identifies specific areas in which cooperation between the agencies would substantially contribute to the conservation and management of migratory birds and their habitats. The April 28, 2010, Environmental Assessment (Pp.13-14) discusses the development of the MOU and certain research and data collection efforts that BOEMRE is undertaking at a programmatic level to better understand the interactions birds in the context of offshore wind. For a copy of the MOU, see http://www.boemre.gov/offshore/RenewableEnergy/PDFs/MMS-FWS_MBTA_MOU_6-4-09.pdf.

The purpose of the BOEMRE and FWS MOU is to strengthen migratory bird conservation through enhanced collaboration between the agencies (MOU Section A). One of the underlying tenets identified in the MOU is to evaluate potential impacts to migratory birds and design or implement measures to avoid, minimize, and mitigate such impacts as appropriate (MOU Sections C, D, E(1), F(1-3, 5), G(6)).

The FEIS presents an assessment of the affected environment as well as environmental consequences associated with the Cape Wind project. The definition of the affected includes avian resources that are likely to occur in the Proposed Action area and are protected under the MBTA (FEIS Section 4.2.4). The FEIS considered bird species in four groups: terrestrial birds (FEIS Section 4.2.4.1), coastal birds (FEIS Section 4.2.4.2), marine birds (FEIS Section 4.2.4.3), and additional water-birds (FEIS Section 4.2.4.4). The discussion of each bird species group contains summaries of the distribution, numbers, seasonality, and behaviors of species based on pre-existing information and the results of boat, aerial, and radar surveys conducted by the applicant and Massachusetts Audubon Society from 2002 to 2006 (FEIS Section 4.2.4; FEIS, Report Numbers. 4.2.4-2 to 4.2.4-13).

The FEIS defines the various impact levels at Section 1.5.1. Relevant here are those assemblages of migratory birds for which the FEIS anticipates impacts up to a “moderate” level. “Moderate” is defined as:

- Impacts to affected resource are unavoidable; and

- The viability of the affected resource is not threatened although some impacts may be irreversible, or
- The affected resource would recover completely if proper mitigation is applied during the life of the Proposed Action or proper remedial action is taken once the impacting agent is eliminated.

The impacts to avian resources described in the FEIS were grouped into construction/decommissioning impacts (Section 5.3.2.4.1) or operational impacts (Section 5.3.2.4.2). These sections use the results of 2002-2006 boat, aerial, and radar bird surveys and information from existing wind facilities (land-based and offshore) to describe the potential and magnitude of the impacts that could occur from the construction, operation, and decommission phases of the proposed project. Based on the sources cited and information discussed within the FEIS, the FEIS concluded that overall construction and decommissioning impact to non-ESA avifauna (migratory birds) is anticipated to be minor (FEIS Section 5.3.2.4.1). Operational impacts analyzed included habitat loss and modification, human disturbance, electromagnetic fields, oil spills, monopole collapse, cable repairs, barrier effect, and risk of collision (FEIS Section 5.3.2.4.2). The overall operational impacts of the Proposed Action to non-ESA avifauna are anticipated to be moderate (FEIS, Executive Summary, Table E-1; April 28, 2010, ROD, Section 6.0 and Attachment 2).

The Migratory Bird MOU defines the term “mitigation” to mean:

For NEPA purposes, mitigation includes (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and (e) compensating for the impact by replacing or providing substitute resources or environments (from 40 CFR, Section 1508.20, CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act).

As part of the development of the FEIS, BOEMRE and FWS worked collaboratively to address the monitoring, minimization, and mitigation required for two species of migratory birds that are also listed under the ESA – the roseate tern and piping plover (FEIS Appendix J and Section 9). Although some of the mitigation and monitoring measures in the FEIS were discussed in reference to federally-listed roseate terns and piping plovers, many of these measures would similarly monitor incidents of collision and minimize the likelihood of adverse effects and take of non-ESA listed migratory birds.

Minimization, mitigation, and conservation measures in the proposed project designed to reduce impacts to birds include:

- 1) Anti-perching devices will be used to discourage roseate terns from perching on the ESP and on each wind turbine generator (Lease Stipulation 10(II)(a)-(b)). The same anti-perching devices would also deter non-listed terns, gulls and cormorants from structures thus reducing collision risk to these species, too (FEIS Section 5.3.2.4.2, p. 5-120).

Further, the anti-perching devices would also deter peregrine falcons from using the structures as hunting perches or for resting (FEIS Section 5.3.1.3, p. 5-66).

- 2) Several structures in the proposed project will have FAA approved red flashing obstruction lights (Lease Stipulation 12(II)). Although certain types of nighttime lighting, like steady burning, can confuse or attract birds when it is raining or foggy, red flashing lights are commonly used at land-based wind facilities without any observed increase in avian mortality compared to unlit turbine towers (Kerlinger, et al. 2010). In addition, only 50 of the turbines on the periphery of the array and 8 turbines near the ESP will be lit with aviation lighting at night (thus 72 of the 130 turbines would be unlit) and no daytime lighting is permitted. (Lease Stipulation 10(II)(h)). In addition, the off-white paint color to be applied to the turbines is designed to minimize visibility, yet remain visible to birds (FEIS pp.5-253 and 9-8; lease p. C-28 12(X.)).
- 3) The Oil Spill Response Plan specifically addresses response activities that could occur in roseate tern and piping plover habitat and includes measures to minimize damage to breeding, foraging, and resting habitat during oil spill response activities (OSRP pp. 22-25; Lease Stipulation 11(I)(e)). These measures have broad application to all migratory birds that may similarly nest, forage, and rest in these coastal habitats.
- 4) Bird Island Restoration Project is a conservation measure designed to stabilize the shorefront, provide new sand to eroded and scoured areas, and reduce erosion. This project would create suitable nesting habitat for the endangered roseate tern and would have indirect benefits for the non-ESA, common tern (2008 BiOp p. 7), and thus can lead to an increase in the number of nesting terns (FEIS Section 5.3.1.2.3, p. 5-59). Such habitat improvements could similarly offset take for those other migratory birds that may similarly use Bird Island to nest, forage and rest.
- 5) The Commonwealth of Massachusetts identified additional conservation measures under Massachusetts Environmental Policy Act (MEPA) requiring CWA to establish a \$10 million fund to compensate for unavoidable impacts to affect wildlife and habitat (FEIS Section 5.3.1.2.3, pp. 8, 77-78). A portion of the fund will be used for several conservation measures that may benefit species in the long-term including predator management at carefully selected sites, nest-site protection from human activities (e.g., recreational and beach stabilization activities), identification and protection of post-breeding staging areas, and hiring of a coastal waterbird conservation assistant.

It is possible that not all migratory bird species will benefit from all of these measures. In addition, the FEIS acknowledges that the risk of collision depends on the use of the Proposed Action area, visibility during crossing of the area of the Proposed Action, and flight behaviors exhibited during encounters with turbines (FEIS p. 5-118). Therefore, additional minimization or mitigation measures may become necessary. The FEIS addresses this possibility through an adaptive management approach to mitigation for non-ESA migratory birds. Section 9.3.5.4 of the FEIS, which applies to ESA-species and other migratory birds, states an intent to employ “technology and methods for assessing impacts of the proposed action and then using monitoring results to drive changes in mitigation requirements and readjustments to monitoring as needed.” The April 28, 2010, ROD explicitly identifies the need to employ and further define best management practices (BMPs). The ROD expressly adopted and incorporated these BMPs in to the lease (ROD pp. 25-29). Regarding BMPs for avian impacts, the ROD states that the lessee must evaluate avian use of the project area and design the project to minimize or mitigate the

potential for bird strikes and habitat loss (ROD p. 27). These practices, as well as some specific monitoring requirements, are included in the Biological Assessment (FEIS Appendix G). This adaptive management process is described further below.

New information: Commenters presented new information from a technical report on the distribution and abundance of birds. The technical report presented results of bird surveys conducted off Rhode Island in 2009 and 2010 (Paton et. al. 2010). These Rhode Island surveys did not overlap in space or time with surveys conducted by the applicant and Mass Audubon in Nantucket Sound 20002 through 2006 (FEIS Section 4.2.4). Therefore, these new surveys are not germane to the analysis of the environmental consequences of this project. In addition, one comment specifically mentioned that the northern gannet routinely flies at rotor heights, an issue which had been addressed and is discussed in the FEIS (FEIS p. 4-53).

Since the issuance of the FEIS, ROD, and CWA lease, FWS and BOEMRE have been working together regarding adaptive management for avian species. On Feb. 11, 2010, CWA submitted a revised “Final” Avian and Bat Mitigation and Monitoring Plan (ABMP) that has been subsequently reviewed and discussed by the agencies. The agencies have not yet approved this plan pursuant to the stipulations in the CWA lease (Lease Stipulations 10(II)(a)-(d), (g)). What follows below reflects the adaptive management process that the agencies have concluded is most appropriate given the information currently available regarding avian species in the project area and current assumptions regarding the reasonably foreseeable impacts of the project.

Rehabilitation procedures for affected wildlife, including migratory birds, are discussed in the Oil Spill Response Plan that CWA submitted in February 2011 (COP pp. 29-30). CWA’s ABMP contains a post-construction monitoring section that includes aerial and boat surveys to assess baseline changes in the abundance and spatial distribution of terns, sea ducks, and water bird species (Final ABMP Section 4.2). CWA must have an approved ABMP before it will be permitted to begin construction pursuant to the terms of the lease. The agencies are now considering the appropriate combination of survey techniques and, when finalized, they will be included in a revised ABMP. Such techniques include beached bird surveys, tagging, aerial surveys, as well as remote camera surveys. Once the appropriate combination of survey techniques has been determined, BOEMRE with concurrence of FWS will then consider approving the ABMP (CWA Lease Addendum C, 10(II)(a)).

CWA will submit the results from monitoring in annual reports (Lease Stipulation 10(II)(g)). BOEMRE and FWS will meet annually to review these reports and new scientific information from other sources to assess the impacts of the proposed project on ESA listed and non-ESA listed birds. Based on these reviews of monitoring reports and other information, BOEMRE may authorize the discontinuation of or adjustments to the monitoring protocols or adopt new minimization or mitigation measures.

Monitoring Results and Adaptive Management: The Monitoring results will determine the extent and scope of the adaptive management regime. Monitoring results would not only provide an adequate evaluation of the effects of the project on MBTA and ESA- listed birds, but also help the agencies determine how well and how reliably the different monitoring techniques are functioning and/or how well they are being implemented. The monitoring results would be

reviewed no less frequently than annually, and the ABMP will be focused on discerning impacts to certain groups of migratory birds determined in the DEIS and FEIS to be most at risk. The ABMP will undergo independent scientific peer review before it is implemented (2008 BiOp p. 75). The agencies intend to develop monitoring triggers in terms of levels of collisions or mortality thresholds for species other than terns and plovers as appropriate.

However, the specific triggers or thresholds of effects that will invoke the need for adaptive management for non-listed ESA migratory birds cannot be articulated at present. The Cape Wind project is the first wind energy project to be located offshore the United States. Comparatively little data is currently available regarding non-ESA migratory bird avoidance behaviors in the area of the project. The existing data regarding migratory species and effects to these species resulting from onshore wind energy technologies may not necessarily represent either the species in the ocean environment 5 miles offshore Massachusetts or the effects that this project may have on those species. Given the relative dearth of information available regarding the non-ESA species in the environment offshore the north Atlantic coast, an attempt at the present time to formulate triggers that would invoke the need for adaptive management would amount to pure speculation.

For example, the effects on avian assemblages and species are uncertain and would occur in the future. Moreover, effects on avian resources (whether mortality of species X or displacement of habitat for species Y) should be considered in the context of the contemporary status of the species impacted. In other words, the significance of effects to certain bird species would be more clearly assessed if evaluated contemporaneously with when those effects occur.

The FWS announced the public availability of Draft *Land-Based* Wind Energy Guidelines, 76 FR 9590 (February 13, 2011), *as amended* 76 FR 11506 (March 2, 2011). These guidelines explicitly deal only with wind energy projects in the onshore environment, and both agencies recognize that the recommendations it contains may not necessarily apply in the offshore context. However, both agencies will consider the finalized guidance and any information on which it is based in assessing the usefulness of any mitigation measures when designing adaptive management mitigation measures for this project.

In short, the existing data on the subject provides no basis for presently identifying specific mitigation measures or triggers for those measures beyond those identified in the FEIS and required in the Cape Wind lease. As a result, the agencies have agreed to obtain monitoring data, designed to reflect the actual impacts to migratory species, before establishing triggers or thresholds that will invoke mandatory adaptive management mitigation measures above those required in the lease.

The range of possible adaptive management measures that could be required include everything from change in monitoring protocols to a change in operating procedures, to the implementation of new methods and technologies. Any adaptive management regime will consider imposing only those additional mitigation measures that are based on monitoring results. Thirty days after receiving the annual monitoring results, BOEMRE and FWS will meet to review the results and identify appropriate adaptive management responses.

Conclusion: The FEIS concluded that the impact to birds ranged from minor to moderate (FEIS Sections 5.3.2.4.1 and 5.3.2.4.2). The discussion above clarifies the conclusions in the FEIS regarding migratory birds and the measures that have been developed and will be developed to conserve them, consistent with the MBTA, Executive Order, and MOU. Pursuant to the lease, no construction may begin until the ABMP is approved by BOEMRE with the concurrence of FWS. The agencies' approval is contingent upon finalization of the monitoring methods to be included in the ABMP. The data gathered incident to such monitoring will be used to develop appropriate mitigation measures that CWA will be required to implement. Until then, CWA is required to implement the monitoring and mitigation measures included in the lease, as these measures were based on the best information available at present regarding avian species in the project area. No new information has been presented that would invalidate the analyses or conclusions contained in the FEIS.

3.3.2 Literature Review

Lighting

Background: Lighting has a major role in attracting or disorientating night flying birds towards communication towers during foggy or/and rainy conditions. Communication towers with FAA-approved flashing red or white obstruction lights had significantly fewer avian fatalities than towers with steady burning lights (Gehring et al. 2009). These impacts were discussed in reference to lighting on wind turbine towers in the Cape Wind Energy Project FEIS. To minimize the potential for bird collisions for the Cape Wind Project, only 58 turbine towers will be lit with FAA-approved flashing red obstruction lights and the remaining 72 towers will be unlit. Based on these mitigations, the FWS states in the Biological Opinion that lighting on the towers is not likely to affect foraging, commuting or fall staging of roseate terns or migrating or commuting of piping plovers.

New Information: Since the publication of the FEIS, new information has become available that comes from a study by Kerlinger et al. (2010) where they investigated the avian collision fatality data from studies conducted on 30 North American land based wind facilities. The researchers compared the estimated number of avian fatalities under surveyed turbines with flashing red obstruction lights to numbers for unlit turbines. They found that there was no significant difference in fatality rates between lit and unlit turbine towers, suggesting that towers lit with flashing red lights do not attract nighttime flying birds. In addition, the authors report large scale fatality events (>3 birds killed in one night at a turbine) were extremely rare (four events out of 25,000 ground searches), and point out that the estimated fatality rate for a land based turbine tower was likely two orders of magnitude lower than a >300 m tall communication tower outfitted with guy wires and a combination of flashing and steady-burning lights. Finally, the authors close with the recommendation that wind turbines only be equipped with flashing red lights (strobe or LED).

Conclusion: The new information about lighting impacts on birds is new since the FEIS and 2010 EA, but since it indicates that there is no difference between mortality rates between turbines lit with flashing red lights and unlit turbines, there are no new impacts that were not previously analyzed.

Bats

Background: The impact of land-based wind energy facilities on bats is well understood. The FEIS discusses these impacts and acknowledges that there is limited information available on bats using the islands of Nantucket Sound and limited information available to characterize bat frequency or use of the project area. The FEIS acknowledges that mortality to migratory bats is likely to occur during the migration period on nights with calm winds. The FEIS cautioned against basing potential impacts of an offshore wind facility on existing data from land based facilities in part because the actual mechanisms that result in bat collisions as well as occurrence may be different. Nevertheless, collision mortality at offshore wind facilities is presumed to be of lower magnitude than on land based facilities.

New Information: The new information comes from three studies. The first study is by Ahlén et al. (2009) on bats that migrate between southern Sweden and Denmark. Using a combination of methods (spotlights, radar, and thermal imaging), the authors found that during migration these bats fly low (<10 m above water, presumably this helps the bats remain oriented), but when hunting insects near vertical objects such as lighthouses and wind turbines, bats rapidly changed altitude to forage. These findings suggest that the risk to bats is when they decide to forage by flying up a tower with a wind turbine rather than during actual migration per se.

Generally, most bat fatalities occur during relatively low-wind periods in the summer and fall months. Arnett et al. (2010) tested the effectiveness of raising wind turbine cut-in speed – defined as the lowest wind speed at which turbines generate power, to decrease bat mortality at a facility in Pennsylvania. The authors found that raising the turbine cut-in speed from 3.5 m/sec to 5.0 m/sec reduced bat mortality by 72%. What is interesting is that the wind speeds at this land based facility range from 5.0-6.5 m/sec, while the average wind speed at the Nantucket Sound meteorological tower for three years was 8.8 m/sec. This information suggests that there will be relatively fewer low-wind periods (with wind speeds <5.0 m/sec) for bats to forage near turbines in the offshore project area.

The last study contains survey results for bats at the nearby Block Island (~60 nm east of the project area). Svedlow et al. (2009) present results of bat activity monitoring using ultrasonic acoustic recorders at four locations on Block Island and one offshore buoy 3 nm south of the island. On the island, a total of 83 bat call sequences representing 4 probable bat species were recorded during the summer-fall 2009 (113-165 days) monitoring period. No bat calls were detected at the offshore buoy during the 29-day survey period in October-November. However, during active acoustic surveys on a boat, a silver-haired bat was detected during the migration period. Overall, the results from the acoustic bat monitoring efforts indicate a low level of bat activity on the island, and very low offshore activity off Block Island, during migration. This information suggests few bats, if any, are likely to be in the project area and those that are will likely to be in migrating.

Conclusion: The FEIS concluded that bats were not expected to forage within the project area, and if any bats were present in the area, they would likely be migrating through the project area. The FEIS also concluded that the impacts to bats were likely to be negligible to minor to non-

migratory bats and moderate to migratory bats. The new information supports the conclusions contained in the FEIS.

3.3 Local Airports

New Information: Comments received alleged that the proposed project would create a substantial safety hazard to aviation traffic because it would require aircraft that currently fly below 940 ft. altitude to alter course so as to maintain the required 500-ft. clearance from the 440-ft. tall WTGs. The comments also alleged that there would be direct impacts on current and future operations of the Barnstable Airport due to lengthy traffic delays and cancellations that would occur because pilots would be unable to operate safely in periods of low visibility due to meteorological conditions in the vicinity of the WTGs. It also indicated that the cancellations would result in lost revenue to the airport from reduced landing fees, tie down fees, flight bookings, fuel sales, parking lot fees, decreased car rentals and a decrease in servicing fees. The comments state that the presence of the WTGs would cause flights to be rerouted, and that these rerouted flights would change the areas affected by noise from aircraft overflights.

The BOEMRE obtained information on flights and assessed the impacts of meteorological conditions and visibility on cancellations of flights taking off or landing at the three airports around Nantucket Sound including Barnstable Municipal Airport (HYA), Nantucket Memorial Airport (ACK), and Martha's Vineyard Airport (MVY).

According to a report contracted by BOEMRE the current practice at the three airports is to assess meteorological conditions at the takeoff and landing points, not in the Sound itself, to determine whether flights are to be cancelled or delayed (Mangi, 2011, p.5). It is not anticipated that this procedure will be changed.

Mangi projected the total number of annual flights associated with the three airports that would fly over Nantucket Sound and over the Project area during the expected life of the project using instrument flight rules (IFR) and visual flight rules (VFR) (Mangi, 2011, Tables 1-3 and 1-4). The number of annual IFR flights projected over the proposed Project area ranged from approximately 3,330 in 2011 to 5,200 in 2045, and the number of annual VFR flights projected over the proposed Project area ranged from approximately 7,200 in 2011 to 11,200 in 2045.

Mangi (2011) found that the numbers of daily operations at the respective airports correlates with inclement weather history at the airports, as expected. When the weather starts getting bad, the number of aircraft utilizing IFR flight plans increases while the number utilizing VFR flight plans diminish rapidly with the severity of the weather. Only when the weather becomes extremely poor (Obscured or Overcast ceilings below 500 ft. and visibilities less than 1 mile for the entire day) do aircraft utilizing IFR flight plans cancel. This is true regardless of the season. In 2009, there were a total of 31 days where the weather was bad enough to cause the cancellation of all VFR flights for the three airports, but in the same year there was only one day where the weather was bad enough to cause the cancellation of all flights, VFR and IFR (Mangi 2011, p. 6).

Mangi determined that aircraft using IFR would not be impacted by the Project because these aircraft are routinely routed over Nantucket Sound at a minimum altitude of 2,000 ft. which is

well above the height of proposed turbines (Mangi, 2011, p. 6). Mangi determined that some flights using VFR that fly below 1,000 ft. may have to alter their flight paths in bad weather due to the Project by either climbing in altitude in order to maintain a 500-ft. clearance from the WTGs or reroute around the WTGs. Mangi determined that less than 3% of all VFR aircraft fly below 1,000 ft. over Nantucket Sound, and that less than two one-thousandths of a percent (0.002%) of all aircraft on VFR flight plans would have to reroute flights during bad weather due to the WTGs (Mangi, 2011, p. 6-7). Based on these estimates, the number of flights that might be affected at Barnstable Airport ranged from 67 flights in 2011 to 90 flights in 2045, out of the projected 2,280 and 3,070 total flights in 2011 and 2045, respectively. Results were similar for ACK and MVY (Mangi, 2011, Attachment 1, Table 1-4). The rerouting of the VFR flights to avoid the WTGs could have the potential to increase these flight times by 1 to 5 minutes (Mangi, 2011, p. 7).

All three airports have performed noise studies and developed land use compatibility noise contours. This information indicates that there are areas outside the property boundaries of the airports that have sound levels in excess of those considered compatible for existing land use. These areas are concentrated beneath the arrival and departure routes at the airports. A small percentage of VFR flights may have to reroute away from the project area on days with inclement weather / low visibility, and this may slightly alter their flight paths in route but will not affect takeoff or landing procedures / routes at any of the three airports. The majority of VFR air traffic over the Project area which may be rerouted consists of flights between Nantucket and Barnstable (Mangi, 2011, p. 8). Flight track information beyond the immediate vicinity of the airports was not readily available. However, Mangi projected that the maximum annual number of aircraft affected at the Barnstable Airport would be only 90 flights by 2045 (Attachment 1, Table 1-4). Since airplanes typically using VFR are characterized as single or dual engine propeller aircraft, this would result in a change in noise level so small that it would not alter the land use compatibility contours at the airports and would be so minute that the change would not be perceptible to the surrounding communities. Similar results were found at ACK and MVY (Mangi, 2011, p.8).

Conclusion: Given that the presence of the WTGs would not cause any substantial flight cancellations or delays at any of the three airports, and will result in only minor rerouting of a very small percentage of VFR flights, construction of the project would not cause any significant impacts to any of the airport's annual revenue streams or FAA funding as a result of the project (including revenues from fuel sales, landing and tie down fees, parking fees, and rental car fees).

The potential impact to communities due to noise resulting from potentially rerouted flights will also be *de minimus*. Therefore, while the new information is relevant, it does not point to any significant new impacts or affect the validity of the assumptions and analyses in the FEIS.

3.5 Fishing Use Conflict

Background: The FEIS includes a "Report on the Effect of Radar Performance of the Proposed Cape Wind Project" and an "Advanced Copy of Findings and Mitigation" from USCG (See FEIS, Appendix M), which concludes that the project could result in moderate impacts on navigation safety, due to radar interference resulting from the proposed installation of WTGs. The USCG has assessed the potential impacts of the project on navigation safety in the

“Advanced Copy of Findings and Mitigation.” The assessment included a summary of the comments by commercial fishing and research vessel operators submitted to the MMS concerning impacts on marine radar as related to navigation safety. The USCG findings indicate that the USCG assessment assumes a vessel operator is complying with the COLREGS (Convention on the International Regulations for Preventing Collisions at Sea, 1972). The assessment also states that “[t]hese findings take into account the reality of short-handed or single-handed operation and the fact that certain vessel operators will be more challenged than others when navigating under conditions of reduced visibility.” The USCG findings also discussed recommended vessel routes through the CWA project as a potential mitigation measure.

On January 13, 2009, USCG sent a letter to MMS, which included “U.S. Coast Guard Assessment of Potential Impacts to Marine Radar as it Relates to Marine Navigation Safety from the Nantucket Sound Wind Farm as Proposed by Cape Wind, LLC.” This assessment was consistent with the “Advanced Copy of the Findings and Mitigation” and determined that no specific mitigation measures are required beyond the terms and conditions submitted to MMS for the FEIS (2010 EA, Section 7.A).

New Information: Commenters alleged that imposing the terms and conditions of the USCG, including COLREGS, as required in the ROD, will require additional crew onboard and make it unprofitable for many small operators. The commenters also allege that establishment of traffic lanes within the Proposed Action area, as assessed in the same document, will make it impossible for trawl fisherman to track and catch fish in the area.

Conclusion: The issues presented are not new, and were considered in the FEIS (FEIS Appendix M) and 2010 EA (Section 7A). Since the publication of the ROD, USCG has presented no new mitigation measures for consideration. Therefore, there is no new information on fishing use conflicts that would affect or change the analysis of these issues presented in the FEIS and the 2010 EA.

3.6 Emergency Response

New information: BOEMRE received correspondence on January 31, 2011, expressing concern about the likelihood that the Town of Barnstable and its fire districts would be designated as the first responders in the event of an emergency. The commenter indicated that if Barnstable emergency personnel were to respond to emergency situations associated with the Cape Wind project, the responders would need highly specialized equipment, boats, and training that they do not currently have in order for their efforts to be effective and to minimize the risk to the safety of their personnel. According to the comment, the potential expenses associated with the necessary training and acquisition of equipment, as well as the expense involved in the emergency response endeavor itself, would cause extreme hardship to local taxpayers.

Discussion: The Coast Guard has primary responsibility for responding to emergencies on the OCS (Revised Navigational Risk Assessment 11/16/06 (Report 4.4.3-1) pp. 35-37; 4/28/10 EA pp. 22-23; FEIS p. 5-258). The 11/16/06 Revised Navigational Risk Assessment includes statistics on “incidents” in the area of the shoal in a table, and states that the USCG “sometimes

request[s]” help from federal, state or local agencies in responding to search and rescue and emergency incidents in approximately 24% of cases (Revised National Risk Assessment p. 37).

Similar comments submitted in response to the DEIS, the FEIS (FEIS Appendix L- Evaluation of Comments received on DEIS), the 2010 EA (p. 22) and the 2010 ROD (p. 62 and 71) stated that the notion that local municipalities would need to provide first responder services in the event of an oil spill are inconsistent with CWA’s OSRP. See FEIS Appendix D; 2010 EA pp. 22-23. Pursuant to the OSRP, the applicant has contracted with a private company to provide these response services (CWA OSRP at p. 7 Section 3.6 and Appendix D p. 1). Pursuant to 30 CFR Part 254, CWA has demonstrated in its OSRP that it has access to adequate resources to contain and respond to a worst-case oil spill (CWA COP OSRP at Appendix E). If CWA chooses to request local resources or agencies to assist in spill response or provide information, CWA has stated that financial support will be provided by CWA (COP OSRP Appendix F, p. 2).

Conclusion: The information presented by the comment does not raise new issues, as these issues were raised, considered, and analyzed in the FEIS and in response to comments on the FEIS in the April 2010 EA. See also the October 29, 2010 COP at Appendix C-OSRP. CWA’s OSRP has been deemed adequate pursuant to 30 CFR Part 254 and does not indicate that the emergency services of local municipalities would be impacted in a manner that is substantially different from that anticipated and described in these documents. The comment likewise does not present any information indicating that the reasonably foreseeable consequences to local emergency services will be significantly different from those contemplated in the FEIS. Therefore, the comment does not raise any significant new information or circumstances that would warrant supplementation of the FEIS.

3.7 Oil within Wind Turbine Generators

Background: CWA’s Draft OSRP analyzed a Worst Case Discharge Scenario (FEIS Section 5.2.2.1; Draft OSRP at Appendix H) of a release of no more than 42,000 gallons of oil (1,000 barrels). This represents the maximum amount that would be stored at the ESP and is the largest spill that could reasonably be expected to occur at the project facilities. While not included in the worst case discharge scenario, the total oil present within individual WTGs is included in the OSRP. Each WTG was expected to hold a total of approximately 214 gallons of oil, which would total approximately 27,820 gallons for all 130 WTGs. The discharge of all the oil at all the WTGs was not included in the worst case discharge scenario because the simultaneous release of oil from every turbine, which are spread across 25 square miles, as well as the contemporaneous release of all of the oil stored at the ESP cannot be reasonably expected, even in the catastrophic scenario.

New information: The COP provides further detail regarding the amount of oil that will be present at each turbine location. The WTGs proposed to be used will include transformers which will hold 370 gallons of transformer oil. In addition, each WTG will contain 90 gallons of hydraulic oil and 220 gallons of gear oil within the nacelle (February 2011 COP, Appendix C, p. 12). It is now estimated that each WTG will contain a total of 680 gallons of oil, which would total approximately 88,400 for all 130 WTGs.

Conclusion: While additional oil will be contained within the WTGs, the original worst case discharge scenario analysis from the FEIS remains valid and unchanged. The increased oil amounts do not change the analysis because a simultaneous release of all the oil within each WTG is not reasonably foreseeable, even in the catastrophic scenario. The largest reasonably foreseeable spill remains a release of the oil stored in the ESP (42,000 gallons) (*see* February 2011 COP, Appendix C). No new analysis is required, as the worst case discharge scenario remains valid even in light of the new information regarding the amount of oil that will be stored at each turbine location.

3.8 Microclimate

Background: Some commenters suggested that the WTGs could create their own microclimate in Nantucket Sound (including increased fog in the vicinity of the WTGs) creating a safety risk to birds, navigation and other activities, and submitted studies to support this claim.

Commenters cited examples such as photographs of wake clouds and sea smoke at the Horns Rev offshore wind energy facility in the North Sea. The FEIS discussed occurrence of fog in Nantucket Sound (FEIS p 4-22, 5-50, 240) and the impacts of fog on birds (FEIS p. 88, 90-91, 99, 101-103, 110-111, 209-210, 215, 218-220). The 2010 EA specifically discussed microclimate on page 23 in response to comments that had been received. At that time MMS concluded that

[C]onditions such as the formation or dissipation of fog would not be affected by the WTGs['] operation because fog is formed during specific psychometric (atmospheric temperature and moisture) conditions...nearby onshore seasonal average [air current] mixing heights (4,662 ft.) are substantially above the top of the rotor swept zone (440 ft.). It is unlikely that the WTGs would entrain the air above the mixing height to the layer below the mixing height.”

As a result, MMS did not agree that microclimate effects would be an issue of significant concern.

New Information: There are several new studies presenting information on the microclimate and fog impacts by WTGs (Baidya and Traituer 2010; Barrie and Kirk-Davidoff 2010; Emeis 2010; Baidya 2011).

Conclusion: WTGs have the potential to create additional fog in the form of wake clouds. Very specific weather conditions must be in place in order for wake clouds to form and this makes their potential for occurrence rather rare (Emeis 2010). The mitigation measures identified in the CWA lease stipulations (CWA lease stipulation 13 VII (vi)) and identified in the COP (CWA COP Appendix C, OSRP Appendix A. WTGs (3)) would provide appropriate mitigation for the effects of fog, regardless of the cause. Due to these mitigation measures, there is no change to the level of impacts to navigation. Due to the rare nature of wake cloud occurrences, they do not represent a significant increase in fog in Nantucket Sound, and as a result, do not represent a significant increase in the impacts on birds as analyzed in the FEIS (FEIS p. 88, 90-91, 99, 101-103, 110-111, 209-210, 215, 218-220).

3.9 Sloshing Dampers

New Information: As required by 30 CFR 285.285.626 (b) (6), the COP identifies the general design for the WTGs. The COP identifies that sloshing dampers will be installed in the turbines as part of the WTG design basis to dampen motion in the turbines (see COP at 79). These dampers are sealed containers that contain approximately 220 gallons of liquid (typically ethylene glycol) and two are installed near the nacelle in each turbine. The dampers are installed with a crane and are not opened during construction and operation. Based on discussions with CWA, the liquid that will be used instead is “non-toxic” propylene glycol (Personal communication, CWA with BOEMRE, March 17, 2011). The following condition imposed with the COP approval would ensure that this will be the case, and provide further mitigation in the unlikely event that the liquid was released from the containers:

Approval of this COP is conditioned on the Lessee selecting propylene glycol or other solution acceptable to the Lessor for use in the sloshing dampers.

Conclusion: Sloshing dampers are part of the WTG design as component parts. These dampers are sealed containers that are not opened during construction or operation. While the installation of sloshing dampers in the WTGs is new information provided with the COP, it does not change the assumptions or conclusions of the FEIS. However, the inclusion of the following condition would further mitigate the potential impacts for the use of sloshing dampers:

Approval of this COP is conditioned on the Lessee selecting propylene glycol or other solution acceptable for use in the sloshing dampers.

3.10 Transition Piece Grout

New Information: A commenter questioned the lack of a Material Safety Data Sheet and the toxicity of the grout (Densit) used in the transition piece. This grout was identified in the FEIS (FEIS p. 2-9) and no change is proposed.

Conclusion: The release of contaminants from grouting, like other construction materials, may impact benthic resources. However, the impacts of a release, if one did occur, would be similar to the impacts of other materials as discussed in the FEIS (FEIS Section 2.6). An accidental release of grout would be limited in size and its impacts would be localized. This information is not new and does not change the assumptions or conclusions of the FEIS.

3.11 Cumulative Effects

Background: The FEIS records the geographic study area for cumulative impacts as extending northeastward from Nantucket Island to Monomoy Island, including Monomoy Shoals, and northwestward from Nantucket Island through Narragansett Bay to Quonset, Rhode Island, including Martha’s Vineyard. The northernmost boundary is the northern shore of Nantucket Sound and the easternmost boundary is described as Latitude 41.4571, Longitude -69.8676.

Activities included in the cumulative impact analysis included past, present and reasonably foreseeable future activities. Examples include (1) the proposed project; (2) any ongoing activities or known activities (i.e. activities for which an application has at least been filed or for which planning documentation exists); and (3) activities not currently taking place, but which may occur periodically over the next 20 years because the activities have occurred in the recent

past. An example of the latter includes the maintenance dredging of channels and harbor areas. The FEIS considers a variety of activities along with their geographic descriptors in the cumulative scenario (FEIS Section 6.1.8).

The FEIS considers of the impacts of additional wind generation facilities off the Rhode Island/Massachusetts coast, as well as other ocean dependant projects and uses such as offshore sand and gravel mining, tidal energy projects and marina development projects (FEIS Sections 6.1.6; 6.1.7; 6.1.8; 6.1.11; 6.1.14;).

Since the FEIS was published, Deepwater Wind (DWW) and National Grid signed a 20-year power purchase agreement for a facility off Rhode Island (Rhode Island Economic Development Corporation (2009), Deepwater Wind and National Grid Sign 20-year agreement). It is located about 3 miles offshore of Block Island within Massachusetts' territory. The proposal consists of constructing 5-8 WTGs. The impacts of this project were considered in the 2010 EA (2010 EA p. 21).

New Information: Since the publication of the FEIS and the 2010 EA, the following projects have come to the attention of BOEMRE and may be relevant to the analysis of the cumulative effects of the Cape Wind project.

The Ocean Observatories Initiative (OOI) is the National Science Foundation's contribution to the U.S. Integrated Ocean Observing System (IOOS) and has proposed construction of pioneer array moorings and associated Autonomous Underwater Vehicle (AUV) and glider mission boxes. These instruments will collect ocean data to monitor long term ocean changes and other ecosystem information. The closest inshore site is approximately 68 nm off the southernmost point of Martha's Vineyard, Massachusetts. The purpose of the project is to investigate a spectrum of phenomena in ocean systems by 3D volume sampling using surface buoys, moorings, gliders AUV's, and benthic nodes with AUV docks. Construction is proposed to begin in 2011 and all components are to be installed and operating by 2015.

A Programmatic Environmental Assessment (PEA) and Supplemental Environmental Report (SER) for this project were prepared by the National Science Foundation to assess the potential impacts on the human and natural environment associated with the proposed project. The PEA considered the Cape Wind project to be well outside the area of the proposed Pioneer Array, resulting in no potential for cumulative effects (PEA, 2008, p. 102). A Finding of No New Significant Impact (FONNSI) was issued in January 2011. *See* <http://www.oceanleadership.org/programs-and-partnerships/ocean-observing/ooi/nsf-environmental-compliance/>.

The OOI project is located well south of the CWA project. The potential impacts will be limited to those created by vessel traffic between Quonset in Narragansett Sound until the project is complete in 2015.

The Massachusetts Executive Office of Energy and Environmental Affairs (EEA), New England Marine Renewable Energy Center (MREC) and the University of Massachusetts, Dartmouth have filed with BOEMRE an unsolicited application for a renewable energy research lease. This

lease would allow the Commonwealth of Massachusetts and the University to establish a permanent test and demonstration area for offshore wind energy devices and technologies. The application is for three OCS blocks south of Nantucket Island. No action has been taken to date on this application.

This project is proposed to be located south the CWA project. The potential impacts will be limited to those created by CWA vessel traffic between Quonset and Narragansett Sound during construction and maintenance vessel traffic during operations of the wind facility.

Conclusion: BOEMRE reexamined the cumulative impacts of the Proposed Action and the development of these research projects. Both projects are south of the Proposed Action. The primary impact of these research projects relevant to the proposed action is vessel traffic associated with their construction. BOEMRE determined that impacts associated with the proposed project, when added to the impacts of vessel traffic associated with these potential research projects result in a *de minimus* incremental addition to the cumulative effects resulting from the Proposed Action already analyzed in the FEIS. Therefore, the information regarding the potential impacts of these potential future projects does not indicate that the Cape Wind project will have any significant new cumulative impact that was not considered in the FEIS.

4. Actions of Other Agencies

This section describes the actions taken by other Federal and State agencies with regard to the Cape Wind Project since the issuance of the 2010 ROD and EA.

Confirming Consistency with the Coastal Zone Management Act (CZMA)

The CZMA created a national coastal program that involves state and local governments in the management of coastal resources. This national coastal management program is implemented by individual state coastal management programs in partnership with the Federal Government. The CZMA Federal consistency regulations at 15 CFR 930 require that Federal activities, such as lease issuance, be consistent to the maximum extent practicable, with the enforceable policies of a state's coastal management program. The Federal consistency regulations also require that other federally-approved activities (e.g., activities requiring Federal permits) be consistent with a state's federally approved coastal management program.

On January 23, 2009, the Commonwealth of Massachusetts' Office of Coastal Zone Management (CZM) concluded in its CZM Federal Consistency Review of the Cape Wind Project, that CWA's proposed project to build, operate, and eventually decommission the offshore wind generation facility off the coast of Massachusetts is consistent with the CZM enforceable program policies. See FEIS Appendix H-4.

Upon review of CWA's recently submitted COP, the Massachusetts CZM determined that the COP presented no new information that would change the reasonably foreseeable coastal effects described in the Consistency Certification (CC) for which the State concurred on January 23, 2009 (The Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Office of Coastal Management, 2009). On March 23, 2011, Massachusetts CZM Office determined that the Proposed Action remains consistent with the CZM program policies (The Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Office of Coastal Management, 2011).

Section 10 of the River and Harbors Act and Section 404 of the Clean Water Act

Section 4(e) of the OCSLA, 43 U.S.C. 1333(e) extends the Secretary of the Army's Rivers and Harbors Act authority to authorize obstructions to navigation in the navigable waters of the U.S. to OCS facilities. The USACE has the authority to issue permits for such obstruction on the OCS.

Section 404 of the Clean Water Act (33 U.S.C. 1344) prohibits the discharge of dredge or fill material from facilities on the OCS without a permit from USACE. On November 21, 2001, CWA submitted a combined Section 10/Section 404 Individual Permit application to the USACE (USACE, file number 200102913; revised file number NAE 2004-338). The application covered the installation of WTGs on the OCS in Nantucket sound off the coast of Massachusetts.

On January 5, 2011 the USACE issued a combined Section 10/Section 404 permit (permit number NAE-2004-388) to CWA for the Cape Wind Project pursuant to the CWA application first filed November 2001.

Clean Air Act (CAA) Permit

CWA submitted an OCS air permit application to the EPA on December 17, 2008 for activities related to the construction, operation, and decommissioning of its proposed project. In April 2010, BOEMRE issued a ROD identifying mitigation measures which included additional G&G surveys at the site location. G&G survey vessel activities, including seafloor boring, are subject to permitting by the EPA as an OCS source. On June 4, 2010 Cape Wind submitted an attachment (EPA OCS Air Permit Attachment 1, June 4, 2010) to the original air permit application that includes revisions to the emissions estimates as a result of the additional G&G survey work at the site location. The EPA issued an OCS Air Permit to Cape Wind on January 7, 2011, that is not yet effective.

FAA Determination

On February 13, 2009, after MMS issued the FEIS, the FAA issued a Notices of Presumed Hazard (NPH) concluding that each of the proposed 130 wind turbine structures exceed obstruction standards under 14 CFR Part 77, and would have an adverse physical or electromagnetic effect upon navigable airspace or air navigation facilities. Since the NPH issuance, the FAA conducted a full aeronautical study of the wind turbine proposals, including consideration of public comments received.

On May 17, 2010, FAA issued Determinations of No Hazard to Air Navigation (FAA Aeronautical Study No. 2009-WTE-332-OE through 2009-WTE-461-OE) for the Cape Wind proposals. FAA determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth with the determination were met (*see* <https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?action=displayOECASE&oeCaseID=107807735>). These conditions include having the Lessee pay for modifications or upgrades of existing radar to fully mitigate the radar/interference issues and comply with obstruction lighting and marking requirements. BOEMRE incorporated all of the conditions as stipulations in the Cape Wind lease (page C-29, XII(a)–(d)).

5. Consultation and Coordination

5.1 NOAA consultation for Marine Animals and Sea Turtles

Endangered Species Act Consultation – NMFS

New Information: As discussed in Section 3.1 of this document, BOEMRE re-initiated consultations with NMFS for impacts to endangered species in 2010. On December 30, 2010, NMFS issued a BiOp. The BiOp concluded that, even though increased numbers of right whales had been sighted in RI Sound, and despite the increase in the number of surveys required, the Proposed Action would not affect ESA-listed marine mammals and sea turtles in any way that was not accounted for, and would be effectively mitigated by previous analyses and mitigation measures (2010 BiOp p. 125-130).

The analysis in the Biological Opinion by the NMFS does not present any significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts that was not considered in previous analyses.

5.2 Avian and Bat Monitoring Plan (ABMP)

An ABMP is discussed in the FEIS (FEIS Appendix N), required in the ROD (ROD pp. 38-39), and is included as a lease stipulation (lease pp. C-25 to C-26). On July 28 2010, BOEMRE received the Draft ABMP which has been refined since the original ESA consultation on November 21, 2008. In mid-August, BOEMRE started an internal review of the draft and forwarded the draft to the FWS for review. On September 30, 2010, BOEMRE sent comments on the Draft ABMP to CWA and to FWS. On October 21, 2011, BOEMRE sent an additional set of comments to CWA that were based on discussions with FWS. On November 10, 2010, BOEMRE had a conference call with CWA and ESS Group, Inc. to discuss the Draft ABMP; FWS was unable to participate. On the same day, BOEMRE and FWS met in Hadley, Massachusetts to discuss the Draft ABMP. On November 23, 2010 FWS provided extensive technical comments on the draft ABMP to BOEMRE.

Since receiving technical comments from FWS, BOEMRE has had three teleconferences (12/09/10, 12/21/10, and 01/19/11) with FWS staff to jointly develop a set of comments and recommendations to send to CWA as they revised the Draft ABMP to its final form. In parallel, BOEMRE had contacted leading experts in the field to inquire about technical advances with radar, thermal animal detection system (TADS), and radio telemetry since the development of the requirements for the ABMP that are described in the FEIS.

During discussions with FWS revealed that CWA will need a series of permits issued by the Massachusetts Division of Fish and Wildlife (MDFW) Natural Heritage and Endangered Species Program to conduct radio telemetry studies on roseate tern, piping plover and their surrogates. Thus, on February 2, 2011, BOEMRE discussed the draft ABMP with MDFW. On February 10, 2011, BOEMRE sent the draft ABMP including comments, and then on the same day, BOEMRE received the Final ABMP from CWA, and then BOEMRE immediately forwarded the Final ABMP plan to FWS and MDFW. On February 22, BOEMRE held a teleconference with FWS and MDFW to discuss the process for completing the technical review of the Final ABMP and the preparation of joint comments to be sent to CWA.

5.3 Public Involvement

Background: In November 2001, CWA sought permission from the USACE to construct and operate a wind generating facility on Horseshoe Shoal in Nantucket Sound, Massachusetts. In December 2001, the USACE determined that an EIS was required for the Cape Wind Energy Project. A Notice of Intent (NOI) was published on January 30, 2002. Public scoping meetings were held March 6-7, 2002. The USACE made a DEIS available for public comment and review in November 2004 in the *Federal Register*. The public comment period lasted 60 days. Public meetings were held on Nantucket, Martha's Vineyard, Cape Cod, and in Boston, Massachusetts. Following adoption of EPA Act in 2005, the DOI was given authority for issuing leases, easements or rights-of-way for alternative energy project activities on the OCS. The MMS reviewed the application and made the determination to prepare another DEIS which was within MMS's authority. On May 30, 2006 MMS published a NOI to prepare an EIS. On January 18, 2008, MMS published a Notice of Availability (NOA) for public comment for 60 days. The public comment period was extended for an additional 30 days to provide the public with additional time to read the DEIS and comment. The MMS received comments through its Public Connect website on its web page and via emails, oral comments, written comments, or hard copy comments provided at the four public hearings held in West Yarmouth, Nantucket, Oak Bluffs and Boston, Massachusetts. In all, 42,000 comments were received. All comments were logged, evaluated, and responded to as appropriate. On January 21, 2009, MMS published a notice in the *Federal Register* announcing the availability of the FEIS.

On March 8, 2010, MMS published a notice in the *Federal Register* announcing the availability of an EA for the Cape Wind Energy Project for 30 days. The purpose of this EA was to determine whether there were significant new circumstances or information relevant to environmental concerns and impacts associated with the Proposed Action that were not fully addressed in the FEIS. After considering public comments on the EA and new information that was made available after the EA was made publicly available, A FONNSI was issued on April 28, 2010.

New Information: A "Notice of Preparation of an Environmental Assessment (EA) for the Cape Wind Construction and Operations Plan (COP)" was posted on the BOEMRE website on February 22, 2011 to announce the start of the public comment period which provided an opportunity for public input on the EA. The COP was made available for review. Consulting parties and local governments were informed of the comment period via email, which provided the BOEMRE website and address for comments. There were approximately 160 comments received via email and in written form delivered by hand or by mail. New issues that arose from comments were considered in this EA. BOEMRE will address comments that were received about the ABMP as the review of that plan progresses. Several commenters presented issues that were not considered new or relevant to the preparation of this EA, were not factually correct and/or have been discussed in the previous FEIS or 2010 EA. These issues are not discussed in this EA. They include:

- Comments regarding the economic viability of the project, the cost of power to consumers, or use of energy by non-local users;
- Comments regarding flaws in the "Purpose and Need" statement in the FEIS;
- Comments alleging improper or insufficient government-to-government consultations;
- Comments alleging faulty alternatives analysis;

- Requests for additional or extension of comment periods;
- Requests for the inclusion of regional ocean planning bodies in Cape Wind decision making;
- Comments alleging the lack of or improper analysis of impacts to local job market including the fishing industry;
- Allegations of noncompliance with OCS regulations;
- Requests for new alternatives analysis based on the “*Smart from the Start*” initiative;
- Comments alleging insufficient analysis of decommissioning effects due to maintenance and expected life of the turbines;
- Comments alleging faulty analysis of impacts to radar;
- Comments alleging that BOEMRE did not follow NEPA requirements and objecting to a purported lack of analysis of impacts to lobsters from cable installation; and
- Comments raising issues that would be addressed by the existing lease stipulations or the existing COP, or those which must be addressed at a later time pursuant to the regulations (e.g., ice breaking plan, construction noise mitigation, scour mitigation, and engineering design specifications).

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7. List of Preparers

Wright Frank	Cape Wind Project Coordinator
David Bigger	Avian Biologist
Dirk Herkhoff	Meteorologist
Brian Hooker	Marine Biologist
Jennifer Kilanski	Environmental Protection Specialist
Brian Krevor	Environmental Protection Specialist
Jill Lewandowski	Protected Species Biologist
Angel McCoy	Meteorologist
Michelle Morin	Chief, Environmental Review Branch
Kimberly Skrupky	Marine Biologist
Nina (Jean) Thurston	Environmental Protection Specialist
Kathleen Tyree	Archaeologist
James Woehr	Avian Biologist



The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Bureau of Ocean Energy Management, Regulation and Enforcement Mission

As a bureau of the Department of the Interior, the Bureau of Ocean Energy Management, Regulation and Enforcement's (BOEMRE's) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS).

The BOEMRE strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending BOEMRE's assistance and expertise to economic development and environmental protection.