United States
Environmental Protection
Agency New England

Outer Continental Shelf Air Permit

issued to

Cape Wind Associates, LLC

for the

Cape Wind Energy Project
Offshore Renewable Wind Energy Project

Horseshoe Shoal in Nantucket Sound

EPA Permit Number
OCS-R1-01

Pursuant to the provisions of Section 328 of the Clean Air Act (CAA) and the Code of Federal Regulations (C.F.R.) Title 40, Part 55, the United States Environmental Protection Agency-New England (EPA) is proposing to issue an Outer Continental Shelf (OCS) air quality permit to Cape Wind Associates, LLC (Cape Wind). Cape Wind proposes to construct and operate 130 wind turbine generators (WTGs) and other supporting equipment (The Project) in a grid pattern on or near the Horseshoe Shoal in Nantucket Sound off the coast of Massachusetts.

The design, construction and operation of the Project shall be subject to the attached permit conditions and permit limitations. This permit shall be effective 30 days after the date of signature unless (1) review is requested on the permit under 40 C.F.R. § 124.19, in which case the permit shall be effective when provided by 40 C.F.R. § 124.19(f), or (2) no comments requesting a change in the draft permit are received, in which case the permit shall be effective immediately upon signature. The permit shall remain in effect until it is surrendered to EPA. This permit becomes invalid if Cape Wind does not commence construction within 18 months after the permit's effective date. EPA may extend the 18-month period upon a satisfactory showing that an extension is justified. This permit does not relieve the Cape Wind from the obligation to comply with applicable state and federal air pollution control rules and regulations.

H. Curtis Spalding
Regional Administrator

1/7/2011
Date of signature

Acronyms and Abbreviations

Cape Wind	Cape Wind Associates, LLC
C.F.R.	Code of Federal Regulations
CI	Compression Ignition
CO	Carbon Monoxide
EPA	Environmental Protection Agency
ESA	Endangered Species Act
g/hp-hr	Grams per horsepower-hour
g/kw-hr	Grams per kilowatt-hour
kW	Kilowatt
NMHC	Non-methane hydrocarbons
NOx	Nitrogen Oxides
OCS	Outer Continental Shelf
PM	Particulate matter
The Project	Wind turbines and supporting equipment
WTG	Wind Turbine Generator

Environmental Protection Agency - New England

Outer Continental Shelf Air Permit

Cape Wind Energy Associates, LLC
Cape Wind Energy Project

Permit Terms and Conditions

I. Background for informational purposes

On December 17, 2008, Cape Wind filed an OCS air permit application with EPA. Cape Wind proposes to install and operate 130 WTGs and other supporting equipment (The Project) in a grid pattern on or near the Horseshoe Shoal in Nantucket Sound. This air permit approves Cape Wind's application and regulates the pollutants emitted from the preconstruction, construction and operation activities of the proposed wind energy facility.

For air permitting purposes, the Project is divided into three sections that closely track the life cycle or phases of the Cape Wind project. Phase 1 includes site preparation and construction of the Project; Phase 2 includes operations, maintenance and repair of the Project; and Phase 3 includes decommissioning and removal of the project. This permit includes emissions and operational requirements applicable to Phases 1 and 2. All permit requirements apply during both Phase 1 and Phase 2 except where specifically provided otherwise. EPA is not including the requirements for Phase 3 at this time.

This permit organization is different from most air permits. Typically, state and federal air regulations define emissions that result from the construction and decommissioning of a new source as "secondary emissions" that are not regulated under the air permit. However, the definition of "OCS source" in section 328 of the Clean Air Act and 40 Part C.F.R. Part 55 is broader in scope than EPA's regulations for land-based stationary sources. The OCS source definition requires EPA to include emissions from certain on-site construction equipment in the air permit. The OCS regulations also require EPA to include pollutants emitted from vessels that service Cape Wind in the "potential emissions" of Cape Wind.

II. Definitions

The following definitions shall be used for the purposes of this permit only. Terms not otherwise defined in this permit have the meaning assigned to them in the referenced Clean Air Act provisions and EPA regulations (including the Massachusetts regulations incorporated by reference into 40 C.F.R. Part 55).

The owner/operator includes Cape Wind Associates, LLC; its successor(s) in operating the permitted project; its contractors; and any agents or parties acting on its

behalf that conduct activities regulated by this permit, including but not limited to vessel, barge, and equipment operators.

Vessel has its normal meaning under the Clean Air Act, and specifically includes both (1) self-propelled vessels and (2) barges or other non-self-propelled vessels that must be towed by another vessel. It includes vessels with or without jacking systems.

Jack-up Unit means a vessel (whether self-propelled or not) that includes legs and a lifting system that enables the vessel to lower its legs into the seabed and elevate its hull to provide a stable work deck. Such a vessel is considered a Jack-up Unit at all times, including when it is not attached to the seabed.

Non-stationary Engine means any engine, including but not limited to a vessel propulsion engine, that (1) is not engaged or participating in an OCS Activity, and (2) is on a vessel that (a) is not itself an OCS Source, but (b) is physically attached to an OCS Source. While a vessel is physically attached to an OCS Source, all of its operating engines (including propulsion engines) that are *not* participating in the OCS Source's OCS Activities are considered Non-stationary Engines.

Non-stationary Engine Emissions means all emissions from Non-stationary Engines during a given period of time.

OCS Attachment means the moment when at least three legs from a Jack-up Unit have attached to the seafloor.

OCS Detachment means the moment when a Jack-up Unit has retracted enough of its legs so that fewer than three legs remain attached to the seafloor.

OCS Activity means activity relating to the construction, operation or maintenance or any other pollutant-emitting activity conducted by a vessel, or equipment on a vessel, from the time of the vessel's OCS Attachment to the time of the vessel's OCS Detachment.

OCS Source means any equipment, activity, or facility, including vessels, that emits or has the potential to emit any air pollutant and is or will be used to conduct an OCS Activity as part of the permitted project. A vessel or equipment on a vessel becomes an OCS Source each time the vessel completes an OCS Attachment, and ceases to be an OCS Source each time the vessel completes an OCS Detachment.

OCS Source Emissions means the emissions from any OCS Source during an OCS Source Period.

OCS Source Period means each period of time from when a vessel completes an OCS Attachment to when the vessel completes an OCS Detachment.

OCS Stationary Engine means (1) any engine on an OCS Source that operates during

an OCS Source Period, and (2) any engine that (a) is on a vessel that (i) is not itself an OCS Source but (ii) is physically attached to an OCS Source, and (b) is engaged or participating in the OCS Source's OCS Activity during an OCS Source Period.

OCS Vessel Transit Emissions means all emissions from a given vessel in transit within the Project Area.

Phase 1 Start Date means the date of the first occasion on which any vessel or barge associated with the project performs an OCS Attachment.

Phase 1 End Date means the last day of the calendar month that is 36 months after the Phase 1 start date, unless extended by EPA as described in Section XI.A.

Phase 1 means all project activities (including but not limited to site preparation, preconstruction and construction) from the Phase 1 Start Date to the Phase 1 End Date.

Phase 2 Start Date means the first day of the calendar month following the Phase 1 End Date.

Phase 2 means all project activities (including but not limited to the normal operation and maintenance of the wind farm, and repair activities requiring OCS Attachments) from the Phase 2 Start Date and thereafter.

Project Area means the area within 25 miles of the WTGs as shown in Figure 1-1 of the December 17, 2008 application.

Total OCS Emissions means the sum of OCS Source Emissions, OCS Vessel Transit Emissions, and Non-stationary Engine Emissions for all OCS Sources and vessels in the Project Area.

Transit means, for a vessel, both (1) actual movement within the Project Area, and (2) periods when the vessel is idling within the Project Area and is neither an OCS Source nor physically attached to an OCS Source.

Vessel Engine means any engine (including but not limited to propulsion engines) on a vessel that is (1) within the Project Area, (2) not an OCS Source, and (3) not physically attached to an OCS Source.

III. Emission Standards - Phase 1 and Phase 2

The emissions standards of Section III apply to each OCS Stationary Engine, during each OCS Source Period.

A. The owner/operator shall ensure that any OCS Stationary Engine with a maximum power output at or below 560 kilowatts (kW) on any OCS Source has been certified by

the manufacturer(s) to meet or surpass the following emission standards required for 40 C.F.R. Part 89, Tier 3 engines:

Nitrogen oxides (NOx) + non-methane hydrocarbons (NMHC):	4.0 grams/kilowatt-hour (g/kW-hr)
Particulate Matter (PM):	0.2 g/kW-hr
Carbon monoxide (CO):	3.5 g/kw-hr

B. The owner/operator shall ensure that any OCS Stationary Engine with a maximum power output greater than 560 kW on any OCS Source has been certified by the manufacturer(s) to meet or surpass the following emission standards required for 40 C.F.R. Part 89, Tier 2 engines:

NOx + NMHC:	6.4 g/KW-hr
PM:	0.2 g/kW-hr
CO:	3.5 g/KW-hr

C. The owner/operator shall ensure that any OCS Stationary Engine has been certified by the manufacturer to meet or surpass the following exhaust opacity standards:

1. 20 percent during the acceleration mode,
2. 15 percent during the lugging mode, and
3. 50 percent during the peaks in either the acceleration or lugging modes.

D. The owner/operator shall ensure that the emissions from any OCS Stationary Engine do not exceed the following smoke and opacity standards:

1. Smoke that has a shade, density, or appearance equal to or greater than No. 1 of the Ringelmann Scale shall not be emitted for more than a total of six minutes during any hour.

2. During the six minute period referred to in Section III.D.1, smoke with a shade, density, or appearance equal to or greater than No. 2 of the Ringelmann Scale shall not be emitted at any time.

3. Visible emissions (not including uncombined water or smoke) in excess of 20% opacity shall not be emitted for more than a total of two minutes during any hour.

4. During the two minute period referred to in Section III.D.3, visible emissions (not including uncombined water or smoke) with an opacity exceeding 40% shall not be emitted at any time.

E. The owner/operator shall ensure that any naturally-aspirated OCS Stationary Engine has been certified by the manufacturer not to discharge crankcase emissions into the ambient atmosphere, unless such crankcase emissions are permanently routed into the exhaust and included in all exhaust emission measurements. This provision does not

apply to engines using turbochargers, pumps, blowers, or superchargers for air induction.

F. If the owner/operator uses any compression ignition (CI) OCS Stationary Engine(s) with an actual model year of 2011 or later, the owner/operator shall meet all of the requirements applicable to owners and operators of stationary CI engines specified in the then-applicable subpart of 40 C.F.R. Part 60 that apply to the actual model year of the engine(s) used. This provision does not require that the owner/operator use CI engines of a model year later than 2011, but only that, if the owner/operator does in fact use such engine(s), the owner/operator shall comply with the then-applicable owner/operator provisions of 40 C.F.R. Part 60 applicable to such engine(s).

IV. Operational Conditions

A. For each OCS Stationary Engine, the owner/operator shall use only ultra-low sulfur fuel oil with a sulfur content that does not exceed 0.0015% by weight.

B. From the Phase 1 Start Date to the Phase 1 End Date, the Total OCS Emissions of NOx shall not exceed 226 tons.

C. From the Phase 2 Start Date and continuing thereafter, Total OCS Emissions of NO_X shall not exceed 49 tons per year in any rolling 12-month period.

D. For each OCS Stationary Engine, the owner/operator shall:

1. Ensure that the engine is installed and configured according to the manufacturer's specifications.

2. Operate and maintain the engine and control device(s) according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer.

3. Only change those settings that are permitted by the manufacturer.

4. Install and operate a non-resettable clock.

5. Comply with those General Requirements of 40 C.F.R. Part 60 that are specifically listed in Table 8 to subpart IIII of Part 60.

6. Comply with the requirements of 40 C.F.R. Parts 60, 89, 94 and/or 1068 that apply to owners or operators of engines regulated under those parts.

E. The owner/operator shall not operate any vessel propulsion engine on any OCS Source from the OCS Source's OCS Attachment until its OCS Detachment.

V. Monitoring Requirements

A. The owner/operator shall monitor the hours of operation (to the nearest tenth of an hour) of each OCS Stationary Engine on any OCS Source during each OCS Source Period.

B. The owner/operator shall monitor the hours of operation (to the nearest tenth of an hour) of each OCS Vessel while the vessel is in transit within the Project Area.

C. The owner/operator shall monitor the hours of operation (to the nearest tenth of an hour) of each Non-stationary Engine.

D. The owner/operator shall monitor the sulfur content of all fuel used in any OCS stationary engine by obtaining fuel certifications from the fuel supplier.

VI. Testing Requirements

Upon request by EPA, the owner/operator shall conduct a 40 C.F.R. Part 60, Appendix A: Method 9 opacity test on any engine that is or may be subject to Section III.D.1.

VII. Phase 1 Offset Requirements

A. The owner/operator shall obtain a minimum of 285 tons of discrete NOx emission reductions to offset the NOx emissions from Phase 1.

B. The owner/operator shall obtain only emission reduction credits that are certified under the Massachusetts trading bank codified under 310 CMR 7.00 Appendix B, "Emissions Banking, Trading and Averaging," and which comply with all applicable provisions of 310 CMR 7.00 Appendices A and B, including but not limited to the geographic requirements of Appendix A(6)(b) and the seasonal requirements of Appendix A(6)(j).

C. No later than 30 days before the Phase 1 Start Date, the owner/operator shall submit a report to EPA documenting that it has obtained 285 tons of discrete NOx emissions reduction credits as described in Section VII.A-B above, and that these reductions have actually occurred as of 30 days before the Phase 1 Start Date.

D. The owner/operator shall not conduct any OCS Activities until it obtains the required emissions reduction credits as described in Section VII.A-C above.

VIII. Record Keeping Requirements

A. The owner/operator will maintain records of the following:

1. Make and model of each OCS Stationary Engine used for OCS Activities

during Phase 1 and Phase 2 of the project.

2. Initial date each OCS Stationary Engine was used on the project.

3. Manufacturing date of each OCS Stationary Engine used on the project.

4. Manufacturer's information that shows all OCS Stationary Engines comply with all 40 C.F.R. Part 60 emission standards.

5. Emission rate of each pollutant regulated under 40 C.F.R. Part 60, Subpart IIII for each OCS Stationary Engine, in grams per kilowatt-hour.

6. Maximum rated power output for each engine (including OCS Stationary Engines, Non-stationary Engines, and Vessel Engines) in kW.

7. Phase 1 Start Date, Phase 1 End Date, and Phase 2 Start Date.

8. Fuel records that show the sulfur content of all fuel used by the OCS Stationary Engines (i.e., certifications provided by fuel supplier).

9. All notifications submitted to comply with 40 C.F.R. Part 60, Subpart IIII and all documentation supporting any notification.

10. All maintenance conducted on each OCS Stationary Engine (including but not limited to oil changes, compression checks, tune ups, timing changes, etc.).

11. Documentation showing that each OCS Stationary Engine is certified to meet the 40 C.F.R. Part 89, Tier 2 or Tier 3 emission standards, whichever is applicable.

12. Hours of operation of each engine (including OCS Stationary Engines, Non-stationary Engines, and Vessel Engines) within the Project Area.

13. For any Non-stationary or Vessel Engine that does not match the power specifications of any engine in Attachment 1 or 2 (as provided by Section VIII.B footnotes 1 and 2 of this permit), the engine's maximum nameplate power output and maximum emission rate as provided by the engine manufacturer.

B. The owner/operator shall calculate and record the OCS Source Emissions, OCS Vessel Transit Emissions, Non-stationary Engine Emissions and Total OCS Emissions of NOx (monthly and 12-month rolling average) as follows:

OCS Source Emissions of NOx = H * P * NER / GT
H = Hours of operation (from Section V.A)
P = Maximum engine power (from Section VIII.A.6)

NER = NMHC + NOx emission rate from Section III.A or B as appropriate
GT = 907,185 grams per short ton

Non-stationary Engine Emissions of NOx = H * P * NER / GT
H = Hours of operation (from Section V.C)
P = Maximum engine power (from Footnote 1.)
NER = NMHC + NOx emission rate (from Footnote 1.)
GT = 907,185 grams per short ton

OCS Vessel Transit Emissions of NOx = Ht * P * LF * NER / GT
Ht = Hours of operation in transit in the Project Area (from Section V.B)
P = Maximum power of Vessel Engine (from Footnote 2.)
LF = assumed engine load factor (from Footnote 2.)
NER = NMHC + NOx emission rate for Vessel Engine in transit (from Footnote 2.)
GT = 907,185 grams per short ton

Total OCS Emissions of NOx = sum of OCS Emissions for all OCS Sources + sum of OCS Vessel Transit Emissions for all vessels in transit in the Project Area + sum of Non-stationary Engine Emissions for all Non-stationary Engines.

Footnote 1. The owner/operator shall obtain the power output and emission rates for the Non-stationary Engines from Attachment 1 to this permit (the June 4, 2010 letter from the ESS Group, Inc. to David Conroy entitled "Outer Continental Shelf Air Regulation Permit Application: Cape Wind Energy Project"), Appendices, Tables entitled "Cape Wind Energy Project: Preconstruction Emissions Inside 25 miles." If the owner/operator uses a Non-stationary Engine that does not match the power specifications of any engine in Attachment 1, then for that engine the owner/operator shall use (1) the maximum nameplate power output, (2) a load factor of 1.0, and (3) the maximum emission rates provided by the engine manufacturer.

Footnote 2. The owner/operator shall obtain the power output, engine load factors, and emission rates for the Vessel Engines from Attachment 2 to this permit (the September 23, 2009 letter from the ESS Group, Inc. to David Conroy entitled "Revised Emissions Estimates: Outer Continental Shelf Air Regulation Permit Application: Cape Wind Energy Project: Preconstruction Emissions Inside 25 Miles"). If the owner/operator uses a Vessel Engine that does not match the power specifications of any engine in Attachment 2, then for that engine the owner/operator shall use (1) the maximum nameplate power output, (2) a load factor of 1.0, and (3) the maximum emission rates provided by the engine manufacturer.

C. The owner/operator shall record the date and time of each OCS Attachment and each OCS Detachment for each vessel and each OCS Stationary Engine.

D. The owner/operator shall maintain all of the above records for five years and shall, upon request by EPA, supply any of the above records.

IX. Reporting and Notification Requirements

A. For equipment installed with OCS Stationary Engines greater than 2,237 kW, the owner/operator shall, no later than 30 days before the Phase 1 Start Date, submit an initial notification including the following information:

1. Name and address of the owner or operator;

2. The address of the affected source;

3. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; and

4. Emission control equipment.

B. The owner/operator shall submit all notifications and reports required by this permit to the address listed in Section XVI below.

C. The owner/operator shall submit to EPA New England semi-annual reports postmarked by January 30th and July 30th of each year. Each semi-annual report shall contain a spreadsheet of all records required under Section VIII, and records of (1) all emission limit or other permit condition violations, (2) all equipment failures or malfunctions, and (3) all corrective actions.

D. The owner/operator shall notify EPA at least 24 months before initiating any decommissioning activities, and seek an applicability determination or revised permit for decommissioning activities at that time, based on then-applicable emissions estimates and regulatory requirements.

X. General Requirements

A. The owner/operator shall display a copy of this permit on each Jack-up Unit, in a reasonably accessible location as near to the subject equipment as is practical.

B. After the occurrence of any violation of any emission limitation or condition contained herein, the owner/operator must notify EPA New England, Office of Environmental Stewardship, attention Compliance and Enforcement Chief, by FAX at (617) 918-1810 within two business days, and subsequently in writing to the address listed in Section XVI below within seven calendar days.

XI. Special Conditions

A. Phase 1 Extension: The owner/operator may request an extension of the Phase 1 End Date. The owner/operator must submit any such request no later than 18 months after the Phase 1 Start Date, and in that request, demonstrate the following:

1. The owner/operator has complied with all Phase 1 permit requirements;

2. For good cause, the owner/operator requires limited additional operation under the permit conditions applicable to Phase 1, rather than Phase 2;

3. The owner/operator can continue to comply with all Phase 1 permit requirements (including the obligation to possess adequate emissions offsets) during the additional period under Phase 1;

4. All requirements applicable to the project outside of this permit will continue to be satisfied during the extension.

EPA will review the owner/operator's request and any other relevant information to determine whether the request satisfies the requirements of Section XI.A.1-4; is reasonable in light of the information in the request and all other relevant circumstances; and is consistent with the CAA, its implementing regulations, and the requirements of this permit (including but not limited to monitoring, recordkeeping and reporting requirements). If EPA determines that the owner/operator's request satisfies the preceding requirements, then EPA will, by letter, extend the Phase 1 End Date. All Phase 1 permit requirements, including Section IV.B, will continue to apply until the extended Phase 1 End Date.

B. Endangered Species Act: If at any time during the life of the Project, either the United States Fish and Wildlife Service or the National Marine Fisheries Service, or a successor agency, request that Endangered Species Act (ESA) consultation be re-initiated, withdraws an Incidental Take Statement, or determines that the requirements of the ESA are not being satisfied, the owner/operator shall notify EPA within five (5) calendar days of its receipt of

such request, withdrawal; or determination.

C. Prevention & Abatement of Air Pollution Episodes & Emergencies

1. No later than 180 days before the Phase 1 Start Date, the owner/operator shall submit to EPA a Standby Emission Reduction Plan (ERP) that the owner/operator would implement to reduce air contaminants if the Massachusetts Department of Environmental Protection declares an Air Pollution Episode under 310 C.M.R. 8.00 during Phase 1. The plan shall identify the sources of air contaminants, the approximate amount of reduction of contaminants, and a brief description of the manner in which the reduction will be achieved. If EPA determines that the ERP is inadequate, EPA will disapprove the plan, give the reasons for disapproval, and require resubmittal of an amended plan in a reasonable period of time as determined by EPA.

2. If an Air Pollution Episode is declared during Phase 1, the owner/operator shall implement the standby ERP.

3. If, pursuant to 310 C.M.R. 8.05, the Massachusetts Department of Environmental Protection declares an Air Pollution Episode Alert, Air Pollution Episode Warning, or Air Pollution Episode Emergency for particulate matter and/or sulfur dioxide, then the owner/operator shall stop all construction activities that generate air pollutants until the Department terminates the Alert, Warning, or Emergency.

4. If, pursuant to 310 C.M.R. 8.15, the Massachusetts Department of Environmental Protection declares an Air Pollution Incident Emergency and issues orders to construction projects and/or vessels in southeastern Massachusetts, then the owner/operator shall comply with such order.

XII. Right of Entry

A. The owner/operator shall allow all authorized representatives of EPA, upon presentation of credentials, to enter upon or through the facility where records required under this permit are kept. The owner/operator shall allow such authorized representatives, at reasonable times:

1. To access and copy any records that must be kept under this permit;

2. To inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and

3. To monitor substances or parameters for the purpose of assuring compliance with this permit.

B. The owner/operator shall provide transportation for EPA inspectors by appointment, when requested by EPA, from a coastal port location to, and from, any vessel engaged in OCS activities, and shall, no later than 30 days after any such transportation, provide EPA with an invoice reflecting the reasonable transportation cost involved in transporting the EPA inspector(s).

XIII. Transfer of Ownership

In the event of any changes in control or ownership of the project, this permit shall be binding on all subsequent owners and operators. The owner/operator shall notify the succeeding owner and operator of the existence of this permit and its conditions no later than the effective date of the change of control or ownership. Notification shall be by letter with a simultaneous copy forwarded to the EPA.

XIV. Severability

The provisions of this permit are severable, and if any provision of the permit is held invalid, the remainder of this permit will not be affected thereby.

XV. Other Applicable Regulations

The owner/operator shall construct and operate the Cape Wind facility in compliance with all other applicable provisions of federal regulations and state regulations that are applicable under 40 C.F.R. Part 55.

XVI. Agency Addresses

All correspondence required by this permit shall be forwarded to:
Air Compliance Clerk
U.S. EPA New England
5 Post Office Square, Suite 100
Boston, MA 02109-3912

XVII. Attachments

Attachment 1: June 4, 2010 letter from the ESS Group, Inc. to David Conroy entitled "Outer Continental Shelf Air Regulation Permit Application: Cape Wind Energy Project."

Attachment 2: September 23, 2009 letter from the ESS Group, Inc. to David Conroy entitled "Revised Emissions Estimates: Outer Continental Shelf Air Regulation Permit Application: Cape Wind Energy Project: Preconstruction Emissions Inside 25 Miles."