

MMS Renewable Energy and Alternate Use Programmatic EIS Scoping
May 17, 2007

Thomas Ouellette of the DEP Office of Long Island Sound Programs at by phone at 860-424-3034 or by email at tom.ouellette@dep.state.ct.us. Thank you.

Yours truly,

Gina McCarthy
Commissioner

GM/TO/o
cc: Hon. M. Jodi Zell, Governor
Raymond Wilson, OPM



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May 16, 2007

Minerals Management Service
MMS Alternative Energy and Alternate Use Programmatic EIS
Argonne National Laboratory
EVS/900
9700 South Cass Avenue
Argonne, Illinois 60439

RE: Draft Programmatic Environmental Impact Statement, Alternative Energy
and Alternate Use Program, Outer Continental Shelf
DEQ-07-069F

Ladies and Gentlemen:

The Commonwealth of Virginia has completed its review of the above
Draft Programmatic Environmental Impact Statement (Draft PEIS). The
Department of Environmental Quality is responsible for coordinating Virginia's
review of federal environmental documents prepared pursuant to the National
Environmental Policy Act and responding to appropriate federal officials on
behalf of the Commonwealth. The following state agencies and regional
planning district commission joined in this review:

- a Department of Environmental Quality a
- b Department of Game and Inland Fisheries b
- c Department of Agriculture and Consumer Services c
- d Department of Conservation and Recreation d
- e Marine Resources Commission
- f Department of Historic Resources
- g Department of Transportation
- h Department of Mines, Minerals, and Energy
- i Hampton Roads Planning District Commission.

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Description of Action

The Minerals Management Service (MMS), an agency of the U.S. Department of the Interior, has published a rule and program (Federal Register, Volume 72, Number 54, dated March 21, 2007, pages 13307-13308) for issuance of leases, easements, or rights-of-way for outer continental shelf ("OCS") project activities that make alternate use of existing OCS facilities for "energy-related purposes or for other authorized marine-related purposes" to the extent such activities are not otherwise authorized by other applicable law (Federal Register notice, page 13307, center column). The purposes may include offshore aquaculture, research, education, recreation, and support for offshore operations and facilities. The Draft Programmatic Environmental Impact Statement (Draft PEIS) covers these potential activities (hereinafter referred to as activities of the "Alternative OCS Energy Program") on the OCS.

As DEQ's Waste Division indicates, project locations could be anywhere on the outer continental shelf, which is defined as beginning from 3 to 9 miles off the shoreline and extending to about 200 nautical miles offshore.

Environmental Impacts and Mitigation

1. *Natural Heritage Resources.* The Department of Conservation and Recreation (DCR) maintains a Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. "Natural heritage resources" are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural communities, and significant geologic formations. DCR requests that proposed alternative energy project sites affecting Virginia's shoreline or landscape be submitted for case-by-case review. This will allow a more accurate evaluation of potential project impacts upon natural heritage resources.

(a) *Plant and Insect Species.* Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Department of Conservation and Recreation (DCR), DCR has the authority to report for VDACS on project impacts upon state-listed plant and insect species. As with reporting of natural heritage resources, case-by-case review is needed.

On-shore facility construction, vessel traffic, and inadvertent spills may give rise to adverse impacts upon protected plant and insect species found along the Chesapeake Bay and coastal shorelines of Virginia, according to VDACS. VDACS recommends that MMS adopt measures to protect a federally listed plant

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species, *Amaranthus pumilus* and an insect species, the tiger beetle (*cicindela dorsalis dorsalis*) in developing proposed alternative energy projects.

(b) *Use of Existing Facilities.* The Department of Conservation and Recreation concurs with the use of existing submarines and on-shore installations for alternative energy projects, provided all applicable laws and regulations are observed.

2. *Wildlife Resources.* The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects. The Department (hereinafter "DGIF") is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through the Department of Environmental Quality and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

(a) *Alternatives Analysis in the Draft PEIS.* Based on its preliminary review, the Department of Game and Inland Fisheries supports the second of the three alternatives, evaluating each possible project on a case-by-case basis. This appears to offer agencies the ability to evaluate the projects once they have been developed and the project sites and construction methodologies have been determined. However, projects at this advanced stage are often so far into design that there is very little room for adjustment based on natural resource concerns. If the proposed action includes evaluation of the concerns raised by natural resource agencies and addresses research needs, DGIF supports this alternative. DGIF believes that research is necessary to determine what, if any, serious impacts upon wildlife may occur as a result of new energy technologies and development. The proposed activity should include identifying gaps in information and proposing research to close those gaps. It should include determining what activities may impact wildlife and identifying opportunities to mitigate those impacts.

(b) *Wildlife in the Waters off the Virginia Coast.*

(i) *Significance of the Eastern Shore of Virginia.* The Eastern Shore of Virginia has been designated a United Nations International Man and Biosphere Reserve, a US Department of the Interior National Natural Landmark, a National Science Foundation Long-Term Ecological Research Site, and a Western Hemisphere International Shorebird Reserve Network site. These

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designations underscore the fact that the lower Delmarva Peninsula, of which the Eastern Shore is a part, and adjacent waters still maintain significant biological diversity and have ecological value of global importance. The waters of the Chesapeake Bay and Delmarva Peninsula represent important wintering and foraging areas for numerous sea ducks and seabirds, including several thousand northern gannets (*Morus bassanus*), which are fish-eating aerial divers that often forage from an elevation of 150 – 200 ft. (Doug Forsell, unpublished data). Moreover, the area serves as a major migration corridor for tens of thousands of surf scoters (*Melanitta perspicillata*) and black scoters (*Melanitta nigra*) that pass through the area on their way to wintering grounds in the Chesapeake Bay or to states further south (Doug Forsell, unpublished data).

(ii) *Sea Turtles.* The waters off the coast of the Eastern Shore have relatively high occurrences of loggerhead sea turtles (*Caretta caretta*) (listed by the federal government as threatened) and Kemp's ridley sea turtles (*Lepidochelys kempi*) (listed by the federal government as endangered) from May through October. Green sea turtles (*Chelonia mydas*) (listed by the federal government as threatened) and leatherback sea turtles (*Dermochelys coriacea*) (listed by the federal government as endangered) may also pass through these waters, primarily during spring and fall migration periods. In addition, loggerhead sea turtles are known to nest occasionally on mainland beaches extending from Fort Story to the North Carolina/Virginia border and on the Eastern Shore's barrier islands. A total of 102 loggerhead nests have been documented in Virginia since 1970.

(iii) *Marine Mammals.* These waters are also home to many marine mammal species including the northern right whale (*Balaena glacialis*) and the humpback whale (*Megaptera novaeangliae*) (both listed by the federal government as endangered). Moreover, the coastal form of the bottlenose dolphin (*Tursiops truncatus*) is resident in Virginia's state waters from May through October with occasional sightings reported during other times of the year (Sue Barco, personal communication).

(iv) *Shorebirds and Waterbirds.* The Eastern Shore's seaside lagoon system and barrier island chain serve as globally important stopover areas and migration corridors for thousands of shorebirds annually. Moreover, they support various species of breeding terns, gulls, wading birds, shorebirds, rails, waterfowl and other waterbirds. With the exception of a few private inholdings, the barrier islands are owned and managed by various federal, state and private conservation organizations and therefore are protected from future development in perpetuity. These islands provide important nesting habitat for the piping plover (*Charadrius melodus*) (listed by the federal government as threatened). They also host numerous other beach nesting birds such as the

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state-listed threatened Wilson's plovers (*Charadrius wilsonia*), least terns (*Sterna antillarum*), which are a state species of special concern, American oystercatchers (*Haematopus palliatus*), which are a species of high concern in the U.S. Shorebird Conservation Plan, and common terns (*Sterna hirundo*), brown pelicans (*Pelecanus occidentalis*), royal terns (*Sterna maxima*), sandwich terns (*Sterna sandvicensis*), Forster's terns (*Sterna forsteri*) and common terns. Several species of wading birds, waterfowl, and gulls are also known to nest on the barrier islands. Approximately 10 breeding pairs of the peregrine falcon (*Falco peregrinus*) (listed by the State as threatened) nest in the Eastern Shore's seaside lagoon system located westward of the barrier islands. Moreover, thousands of shorebirds and sea ducks use the barrier islands and lagoon system as stopover sites during spring and fall migration and as a wintering area.

(v) *Migratory Land Birds.* Millions of migratory landbirds (passerines and raptors) funnel through the lower Delmarva Peninsula each fall making it one of the most important staging areas along the Atlantic flyway. To date, little is known about landbird occurrences over Virginia's nearshore waters and virtually no information exists regarding flight paths to and from land-based stopover sites. Forest and shrub habitats located at the southern tip of the Delmarva Peninsula serve as major foraging and resting areas for many landbirds.

(vi) *Bats.* Although bats are periodically seen aboard sea vessels and in and around coastal areas, there is very little information about how or if these species utilize areas off the coast for migration or foraging. DGIF recommends consideration of bats and research into how they use coastal and offshore areas and what, if any, impacts upon them may result from a wind energy project.

(c) *Wind Energy Development.* The Draft PEIS addresses the possibility that wind energy projects will be proposed in the OCS off Virginia and that MMS proposes to develop a program for, and promulgate regulations around, alternative energy production in the OCS. In order to make detailed comments regarding a wind energy project off the coast of Virginia's Eastern Shore, we need to know exactly where the turbines are proposed, how many turbines are proposed, how they are to be constructed, and what the associated infrastructure includes. The comments and recommendations which follow are based on the information available at this time.

(i) *Impacts on Sea Ducks and Seabirds.* Given the high occurrences of sea ducks and seabirds in this area, it is likely that these species would be most susceptible to turbine collision fatalities or loss of important foraging and wintering habitat due to turbines and associated disturbances. It is

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also possible that the turbines may form a barrier along migration routes causing birds to alter their course significantly, which may result in the depletion of critical energy reserves. DGIF recommends that any applicant and/or MME perform research into exactly how areas offshore of Virginia are used by these species and how these species and their habitats may be affected by the installation and operation of wind turbines.

(ii) *Impacts on Birds and Bats.* It is not clear what impacts a wind project may have on birds and bats that are closely associated with the barrier islands and seaside lagoon system. Research is needed to determine which of these species occur in the project area, the role nearshore habitats play in the life history of these species, and what kind of flight behavior they exhibit over these waters.

Some migratory landbirds mentioned above may select flight paths that could intersect with a wind energy project off shore. Depending on the siting of the turbines, this could put them at considerable risk of collision fatalities, especially since they will likely be flying at lower elevations prior to making landfall or following takeoffs.

(iii) *Marine Mammals and Sea Turtles.* Little or no information exists on potential impacts that offshore wind projects may have on marine mammals and sea turtles. The Department of Game and Inland Fisheries recommends that the applicant examine the effects of construction activities, lighting, and turbine operations on sea turtles and marine mammals, their habitats, and the natural movements of their prey. This effort should address potential ecological impacts associated with this project and offer sound alternatives to avoid, minimize, and mitigate these impacts.

(d) *Wave Energy Capture Projects.* The Draft PEIS addresses the possibility that wave energy capture projects will be proposed in the OCS off Virginia and that MMS proposes to develop a program for, and promulgate regulations around, alternative energy production in the OCS. In order to make detailed comments regarding a wave energy project off the coast of Virginia's Eastern Shore, we would need to know exactly where the projects are proposed for siting, how many structures are proposed, how they are to be constructed, and what the associated infrastructure includes. The comments and recommendations which follow are based on the information available at this time.

Types of wave energy capture projects appear to include four technologies:

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- point absorbers
- attenuators
- overtopping devices, and
- terminators.

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(i) *Recommendations.* With respect to each of these types of projects (items (ii) through (v) below), DGIF recommends that any applicant or MMS perform research as follows:

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- to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes
- to determine how or if the point absorbers may alter these species' normal behaviors by
 - the addition of underwater or above-water lighting,
 - impediments to species movement, and how the structures and associated infrastructures may change the natural movements of prey species.
- To evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, including on-shore impacts.

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(ii) *Point Absorbers.* These systems use wave energy to pressurize a hydraulic fluid that is used to drive a turbine generator. The structures used to capture the wave energy include a buoy at the surface moored to the sea floor with four concrete anchors. Although the Draft PEIS states that the anchoring system is "a proprietary system that avoids any damage or threat to the sea bed or sea life," DGIF remains concerned about the mooring system and the entanglement of sea life. As described in the "Wind Energy" section of these comments (item 2(c), above), the waters off the coast of Virginia and the Eastern Shore are home to numerous wildlife species, aquatic and terrestrial, listed and non-listed.

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(iii) *Attenuators.* It appears these structures are long, multi-segment floating structures that are placed parallel to the direction of wave travel. As they ride the waves, they flex and this flexing activates hydraulic pumps or other energy converters. DGIF is less concerned with this system than with the other wave energy capture systems, but continues to have concerns related to species entanglement and behavior changes for many of the same reasons as described above.

(iv) *Overtopping Devices.* It appears these structures are comprised of partially submerged walls over which the waves topple, filling the reservoir and creating a head of water. As this water is released, from the reservoir it turns conversion devices thus capturing the energy of the released water. This system causes us a great deal of concern. It appears to be a huge construction project with a number of construction related impacts; the reservoirs are enormous and may serve as a total impediment to sea wildlife movement. In addition, we have concerns that some species could actually become trapped, along with the water, in the reservoir.

(v) *Terminators.* Terminators appear to be devices installed perpendicular to the direction of wave travel, on or near the shoreline. Floating versions have been designed for offshore uses. One form of terminator allows water to enter through a sub-surface opening into a chamber with air trapped above it. The water column moves up and down, forcing the air through an opening connected to a turbine. DGIF has concerns about terminators for the same reasons as described above, i.e. potential trapping of marine species, disruption of species behavior, and impacts to seabed resources.

(e) *General Wildlife Concerns.* In general, DGIF supports research into and development of alternative energy sources, and agrees with the list of potential impacts of alternative energy industries (Draft PEIS, section 7.1.1). The research scope needs to be broadened, however, to include the following types of wildlife impacts, and consideration of mitigation therefor:

- physical impediment
- lighting
- artificial prey species congregation, and
- physical entanglement.

(f) *Additional Wildlife Information.* DGIF maintains a data base of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented by DCR (item 1, above). Access to this data base may be obtained through the DGIF web site: http://www.dgif.virginia.gov/wildlife/info_map/index.html. Questions on this web site may be addressed to the Department of Game and Inland Fisheries (Shirl Dressler, telephone (804) 367-6913).

3. *Solid and Hazardous Waste Management.* According to DEQ's Waste Division, the Draft PEIS addressed both solid and hazardous waste issues, and the document included a search of waste-related data bases. DEQ's Waste Division conducted a cursory review of its data files, but did not find any waste sites that would affect or be affected by the Alternative OCS Energy Program.

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Treatment, storage, or disposal of hazardous wastes must be conducted in accordance with the Virginia Hazardous Waste Management Regulations (9 VAC 20-60). See also "Regulatory and Coordination Needs," item 3(a), below.

4. *Air Quality.* Depending on the location and extent to which new wind and wave technologies are put to practice in offshore waters of the Mid-Atlantic area, the Hampton Roads region of Virginia may be affected by ozone exceedances. On-shore construction activity may generate volatile organic compounds and oxides of nitrogen, which will adversely affect air quality; but longer-term impacts from cleaner energy generation would be positive, according to DEQ's Air Quality Division.

5. *Water Quality.* According to DEQ's Division of Water Resources, the issuance of leases, easements, and rights-of-way for the production of energy from sources other than oil and gas will not negatively affect Virginia's water resources. To the extent that non-traditional energy resources such as wind and wave energy supplant traditional sources, the water resources of Virginia may be beneficially affected. However DEQ's Tidewater Regional Office indicates that ancillary activities such as installation of buried electrical transmission lines and petroleum pipelines will require permit review and authorization because they may affect state waters, including tidal and non-tidal wetlands. See "Regulatory and Coordination Needs," item 4, below.

6. *Historic Resources.* Depending on their location, wind turbines, wave energy collectors, and other alternative energy facilities may affect a variety of cultural resource types including the following:

- significant historic, prehistoric, and underwater archaeological sites;
- historic and/or cultural landscapes;
- important architectural buildings or structures; and
- historic districts.

(a) *Archaeological Sites.* As discussed in the Draft PEIS, archaeological sites may be found on shore and under water. Any project planning should include provision for identification and evaluation of these resources, as required by section 106 of the National Historic Preservation Act, as implemented through the regulations at 36 CFR Part 800 (hereinafter "section 106"). The Department of Historic Resources (the State Historic Preservation Office) indicates that preservation of archaeological resources in place is always the preferred mitigation option, and the federal agencies must consider alternatives to disturbing or destroying archaeological properties listed on or eligible for the National Register of Historic Places. If avoidance of these properties is not possible, the agency must consult with the Department, the Advisory Council on

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Historic Preservation, and other interested parties to develop mitigation for the adverse effects of the undertaking to the archaeological property.

(b) *Nature of Impacts: Architectural Resources.* According to the Department of Historic Resources, the Draft PEIS evaluates only the potential for impacts to archaeological resources, and does not address potential impacts upon historic architectural resources, districts, or landscapes. However, evaluation of the effects upon all historic properties is essential to completing both the section 106 and NEPA processes. Siting of facilities at a considerable distance offshore may make them invisible from any coastal historic property, while siting on-shore facilities in existing industrial complexes may also reduce the potential for secondary effects (as long as the industrial complexes themselves are not listed or eligible for listing on the National Register). Possible architectural impacts must nonetheless be considered in completing section 106 and NEPA analyses.

(c) *Historic Properties and Public Participation.* Historic properties are important components of the Commonwealth's coastal communities and play a significant role in those communities' abilities to attract residents and visitors. Accordingly, the views and comments of the public must be solicited and taken into account during every phase of the review process. This is also required by section 106 whenever a federally funded, permitted, or licensed undertaking has the potential to affect historic resources. Organizations or individuals with a demonstrated interest in the undertaking must also be identified and invited to participate. Among the organizations that may be interested in the Alternative OCS Energy Program are Native American tribes with ancestral ties to the Tidewater region of Virginia. MMS must make an effort to involve any such tribes, regardless of federal recognition and whether they currently reside in the Commonwealth or not.

(d) *Coordination on Historic Property Concerns.* The Department of Historic Resources prefers to address historic property concerns through consultation under the National Historic Preservation Act rather than through the NEPA process. While the processes may be pursued concurrently, compliance with NEPA may not be substituted for compliance with the NHPA. See "Regulatory and Coordination Needs," item 7, below.

(e) *Endorsement.* The Department of Historic Resources favors the development of new and imaginative sources of energy, and looks forward to working with MMS in this regard.

7. *Petroleum Storage Tanks Clean-up.* According to DEQ's Tidewater Regional Office, the Draft PEIS addresses potential for oil and hazardous

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substance spills from vessel traffic and at the proposed OCS energy facilities. Similarly, federally required release response plans are also addressed. See "Regulatory and Coordination Needs," item 2, below.

8. *Coastal Lands Management: Chesapeake Bay Preservation Act.* According to the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance, the Alternative OCS Energy Program proposal and alternatives appear to include activities that may affect lands subject to the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 et seq.), requiring adherence to the general performance criteria (9 VAC 10-20-120) or to stringent performance criteria (9 VAC 10-20-130).

In order to be consistent with the Coastal Lands Management enforceable policy of the Virginia Coastal Resources Management Program (see "Regulatory and Coordination Needs," item 1, below), any projects undertaken pursuant to the alternative OCS energy program must meet the requirements discussed below.

(a) *Requirements of the Program.* The Chesapeake Bay Preservation Act (*Virginia Code* sections 10.1-2100 et seq.) and the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 et seq.) set out a state and local government program defining two types of Chesapeake Bay Preservation Areas and setting out requirements for activities in each of them.

(i) *Resource Protection Areas.* Resource Protection Areas (RPAs) include the following:

- tidal wetlands;
- non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow;
- tidal shores; and
- a 100-foot buffer adjacent to and landward of the aforementioned features, and along both sides of any water body with perennial flow.

(ii) *Resource Management Areas.* Resource Management Areas (RMAs), as locally designated, include the following:

- floodplains;
- highly erodible soils including steep slopes;
- highly permeable soils;

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- non-tidal wetlands not included in the RPA (above); and
- a minimum width of 150 feet contiguous to and landward of the RPA.

(b) *Analysis and Requirements.* For projects involving land disturbance of 2,500 square feet or more, the general performance criteria require that project proponents:

- Comply with the requirements of the *Virginia Erosion and Sediment Control Handbook*; and
- Satisfy stormwater management criteria consistent with water quality protection provisions (4 VAC 3-20-71 *et seq.*) of the *Virginia Stormwater Management Regulations* (4 VAC 3-20 *et seq.*).

(c) *Chesapeake Ecosystem Unified Plan.* The 1998 Federal Agencies' Chesapeake Ecosystem Unified Plan requires the signatories, including the Department of Defense/Air Force, to fully cooperate with local and state governments in carrying out voluntary and mandatory actions to comply with the management of stormwater. In that *Plan*, the agencies also committed to encouraging construction design that:

- minimizes natural area loss on new and rehabilitated federal facilities;
- adopts low-impact development (LID) and best management technologies for storm water, sediment and erosion control, and reduces impervious surfaces; and
- considers the *Conservation Landscaping and Bay-Scapes Guide for Federal Land Managers*.

(d) *Chesapeake 2000 Agreement.* The *Chesapeake 2000 Agreement* committed the government agency signatories to a number of sound land use and stormwater quality controls. The signatories additionally committed their agencies to lead by example with respect to controlling nutrient, sediment and chemical contaminant runoff from government properties. In December 2001, the Executive Council of the Chesapeake Bay Program issued *Directive No. 01-1, Managing Storm Water on State, Federal and District-owned Lands and Facilities*, which includes specific commitments for agencies to lead by example with respect to stormwater control.

9. *Roads and Land Transportation.* The Department of Transportation reviewed the Draft PEIS for potential impacts to existing road facilities and proposed road projects in the Commonwealth. After checking the Six-Year Plan

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and the 2026 Plan, VDOT concludes that projects under the Alternative OCS Energy Program would not conflict with current conditions or future road construction projects.

10. *Mineral Resources.* The Department of Mines, Minerals, and Energy recommends that MMS analyze the potential impacts of alternative energy development on mineral resources, including hard minerals, oil, and gas. Specifically, consideration should be given to the question of whether construction, operation, and de-commissioning of alternative energy facilities could impair the potential for development of mineral resources, and possible measures to mitigate such impairment. Mitigation measures should, in the view of the Department, include requiring surveys prior to construction, and avoiding construction of facilities over mineral deposits with potential for development.

11. *Pollution Prevention.*

(a) *Basic Principles.* DEQ encourages MMS, its contractors, and its licensees to implement pollution prevention principles in all construction projects and facilities. These include the reduction of waste materials at the source, re-use of materials, and recycling of solid wastes. Hazardous waste generation should be minimized, and hazardous wastes appropriately handled.

(b) *Detailed Recommendations.* DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source. We have several pollution prevention recommendations that may be helpful in constructing or operating alternative energy projects.

- Consider development of an Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program.
- Consider designs, techniques, and technologies that will facilitate the re-circulation and re-use of waters used for cooling and steam generation. These techniques can save money by minimizing intake and treatment needs.
- Consider environmental attributes when purchasing materials. For

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example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.

- Consider contractors' commitments to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.
- Integrate pollution prevention techniques into facility maintenance and operation, to include the following: inventory control (record-keeping and centralized storage for hazardous materials), product substitution (use of non-toxic cleaners), and source reduction (fixing leaks, energy-efficient HVAC and equipment). Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventive maintenance.

For projects in or affecting Virginia, DEQ's Office of Pollution Prevention provides free information and technical assistance relating to pollution prevention techniques and EMS. If interested, MMS, its contractors, or licensees may contact that Office (Tom Griffin, telephone (804) 698-4545).

10. Regional Comments. The staff of the Hampton Roads Planning District Commission generally supports the proposed action. However, as acknowledged in the Draft PEIS, the potential exists for adverse impacts. These include possible adverse impacts upon tourism in Hampton Roads through visual or environmental impacts, and potential conflict with military operations centered in Hampton Roads. The Commission staff strongly recommends that representatives of the diverse interests in the use and integrity of the Virginia OCS be involved in the planning and development of the proposed program. Coordination may begin with the Commission (Arthur Collins, telephone (757) 420-8300).

Regulatory and Coordination Needs

1. Federal Consistency under the Coastal Zone Management Act. Pursuant to the Coastal Zone Management Act of 1972, as amended, federal agencies are required to determine the consistency of their activities affecting Virginia's coastal resources or coastal uses with the Virginia Coastal Resources Management Program (VCP) (see section 307(c)(1) of the Act and the Federal Consistency Regulations at 15 CFR Part 930, sub-part C, section 930.34). This

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involves an analysis of the proposed activities in light of the Enforceable Programs of the VCP (first enclosure), and submission of a consistency determination reflecting that analysis and committing the [federal agency] to comply with the Enforceable Programs. In addition, we invite your attention to the Advisory Policies of the VCP (second enclosure). The federal consistency determination may be provided as part of the documentation concluding the NEPA process, or independently, depending on your agency's preference. Section 930.39 gives content requirements for the consistency determination.

The same guidance applies for federal contractors and federally licensed or permitted projects. Applicants for federally licensed projects must submit a federal consistency certification for state review; their activities must be fully consistent with the enforceable policies, as opposed to "consistent to the maximum extent practicable" (as above). Time frames for state review also differ between federal consistency determinations (typically 60 days) and federal consistency certifications (six months, with a three-month status report).

Guidance on federal consistency requirements is available from DEQ's Office of Environmental Impact Review (Ellie Irons, telephone (804) 698-4325 or Charles Ellis, telephone (804) 698-4488) and its web site (<http://www.deq.virginia.gov/eir/federal.html>).

2. Petroleum Storage Tank Compliance. Any tank vessels transporting 15,000 gallons or more of oil as cargo through state waters to service OCS energy facilities will require either state-approved Tank Vessel Oil Discharge Contingency Plans or U.S. Coast Guard-approved Vessel Response Plans, and applicable financial assurance demonstrations. More information on these matters is available from DEQ's Office of Spill Response and Remediation (John Giese, telephone (804) 698-4287).

Any oil spilled within state waters, or having the potential to reach state waters, should be reported to DEQ's Tidewater Regional Office (telephone (757) 518-2077) and to other appropriate local, state, and federal authorities.

3. Waste Management. For questions on waste management, MMS may contact DEQ's Waste Division (Paul Kohler, telephone (804) 698-4208).

(a) **Contaminated Soils.** Any soil suspected of contamination, or wastes that are generated, must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. This includes all construction and demolition debris and excess soil. The laws and regulations which must be followed include, but are not limited to, the following:

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- Virginia Waste Management Act (Virginia Code sections 10.1-1400 et seq.)
- Virginia Hazardous Waste Management Regulations (9 VAC 20-60)
- Virginia Solid Waste Management Regulations (9 VAC 20-80)

(See the enclosed DEQ memo, Kohler to Ellis, dated April 25, 2007 for additional citations.)

(b) *Dredged Material.* Note that dredge spoils, when managed in accordance with requirements adopted by the State Water Control Board or the Marine Resources Commission, are conditionally exempt from the Solid Waste Management Regulations and are excluded from the waste barging regulations (9 VAC 20-170-10).

4. *Water Quality Regulation.* Since the Draft PEIS deals primarily with activities on the OCS, beyond State waters, the Virginia Water Protection Permit Program has no jurisdiction over such activities. However, the related installation of buried electrical transmission lines, petroleum pipelines, or other ancillary features giving rise to impacts upon State waters, including tidal and non-tidal wetlands, would require review and authorization by DEQ, on a project- and site-specific basis. DEQ's Tidewater Regional Office (Bert Parolari, telephone (757) 518-2166) should be contacted in this regard.

5. *Subaqueous Lands Encroachment.* The Marine Resources Commission states that it has jurisdiction, pursuant to Virginia Code section 28.2-1200 et seq., over any encroachments in, on, or over any state-owned rivers, streams, or creeks in the Commonwealth. If any projects contemplated pursuant to the Alternative OCS Energy Program involve encroachments channelward of ordinary high water along rivers and streams, or channelward of mean low water in tidal waters, a permit may be required from the Commission. Questions may be directed to the Commission (Justin Worrell, telephone (757) 247-2200).

6. *Transportation Impacts.* Any VDOT land use requirements, lane closures, traffic control, or work safety zone issues should be closely coordinated with affected cities and counties and with VDOT's Norfolk Residency Office (telephone (757) 494-5470).

7. *Historic and Archaeological Resource Coordination.* Requirements for combining section 106 and NEPA processes are provided in the section 106 regulations at 36 CFR Part 800, section 800.8. In preparing a Final EIS and Record of Decision, MMS must identify appropriate consulting parties as early as possible. Identification of historic properties and assessment of effects should be coordinated consistently with the standards and criteria of sections 800.4 and

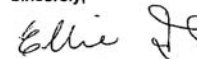
83-025
(cont.)

Minerals Management Service PEIS
Page 17

800.5. If an adverse effect is found, MMS may satisfy its section 106 responsibilities with a binding commitment to take agreed-upon measures to avoid, reduce, or mitigate adverse impacts. The commitment should be proposed in the EIS and contained in the Record of Decision or in a Memorandum of Agreement executed pursuant to 36 CFR Part 800, section 800.6(c). To this end, MMS should consult with the Department of Historic Resources (Joanna Wilson, telephone (804) 367-2323, extension 140).

Thank you for the opportunity to comment on this Draft PEIS. We look forward to reviewing the Final PEIS. If you have questions, please feel free to contact me (telephone (804) 698-4325 or e-mail elirons@deq.virginia.gov) or Charles Ellis of this Office (telephone (804) 698-4488 or e-mail chellis@deq.virginia.gov).

Sincerely,



Ellie L. Irons
Program Manager
Office of Environmental Impact Review

enclosures

cc: Amy Martin, DGIF
Keith R. Tignor, VDACS
Robert S. Munson, DCR
Paul W. Kohler, DEQ-Waste
Kotur S. Narasimhan, DEQ-DAQ
Joseph P. Hassell, DEQ-DWR
Michelle R. Hollis, DEQ-TRO
Mary T. Stanley, VDOT
Justin T. Worrell, MRC
Joanna Wilson, DHR
Matthew Heller, DMME
Alice R. T. Baird, DCR-DCBLA
Arthur L. Collins, Hampton Roads PDC

83-025
(cont.)

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENVIRONMENTAL ENHANCEMENT
OFFICE OF ENVIRONMENTAL IMPACT REVIEW



MEMORANDUM

TO: Ms. Mary Boatman
FROM: Charles H. Ellis III
DEPT OF ENVIRONMENTAL QUALITY
DIV. OF ENVIRONMENTAL ENHANCEMENT
ENVIRONMENTAL IMPACT REVIEW
629 E. MAIN STREET, 6TH FLOOR
RICHMOND, VA 23219
TELEPHONE (804) 698-4488
DATE: 5/16/07
FAX NUMBERS: 804/698-4319

TO: Charles H. Ellis, III, Environmental Program Planner
FROM: PWK Paul Kohler, Waste Division Environmental Review Coordinator
DATE: April 25, 2007
COPIES: Sanjay Thirunagari, Waste Division Environmental Review Manager; file
SUBJECT: Environmental Impact Report; Alternative Energy Development & Production & Alternative Use of Facilities on the Continental Shelf; 07-069F

TOTAL # OF PAGES INCLUDING COVER: 40

COMMENTS:
Ms. Boatman, - here are our comments on the draft
papermatic EIS. Thank you for your help.
Charles Ellis

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE NOTIFY THE SENDER

The Waste Division has completed its review of the Environmental Impact report for the Alternative Energy Development & Production & Alternative Use of Facilities on the Continental Shelf. The project location is not strictly defined, but could be anywhere on the outer continental shelf (OCS) of Virginia and other states. The OCS is defined as beginning three to 9 nautical miles off coastal shoreline and extends to about 200 nautical miles offshore. The proposed project is related to the production of energy from sources other than oil or gas. We have the following comments concerning the waste issues associated with this project:

Both solid waste issues and hazardous waste issues were addressed in the report. The report did include a search of waste-related data bases. The Waste Division staff also conducted a cursory review of its data files, but did not identify any waste sites that would impact or be impacted by the proposed construction.

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 et seq.; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 et seq., and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Any sediment that is suspected of contamination or hazardous or solid wastes that are generated, transported, disposed, stored, or treated, as defined in the Virginia Solid and Hazardous Waste Regulations must be tested and handled in accordance with applicable Federal, State, and local laws and regulations. (Dredge spoils, when managed in accordance with the Virginia State Water Control Board

83-026

83-027

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: Charles H. Ellis III DEQ - OEIA PROJECT NUMBER: 07-069E RECEIVED

PROJECT TYPE: STATE EA / EIR / FONSI FEDERAL EA / EIS SCC APR 27 2007
 CONSISTENCY DETERMINATION

PROJECT TITLE: ALTERNATIVE ENERGY DEVELOPMENT & PRODUCTION & ALTERNATIVE USE OF FACILITIES ON THE OUTER CONTINENTAL SHELF
DEQ-Office of Environmental Impact Review

PROJECT SPONSOR: DOI / MINERALS MANAGEMENT SERVICE

PROJECT LOCATION: X OZONE NON ATTAINMENT AREA

REGULATORY REQUIREMENTS MAY BE APPLICABLE TO: NEW TECHNOLOGIES OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E - STAGE I
2. 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F - STAGE II Vapor Recovery
3. 9 VAC 5-40-5490 et seq. - Asphalt Paving operations
4. 9 VAC 5-40-5600 et seq. - Open Burning
5. 9 VAC 5-50-60 et seq. Fugitive Dust Emissions
6. 9 VAC 5-50-130 et seq. - Odorous Emissions, Applicable to _____
7. 9 VAC 5-50-160 et seq. - Standards of Performance for Toxic Pollutants
8. 9 VAC 5-50-400 Subpart _____ Standards of Performance for New Stationary Sources, designates standards of performance for the _____
9. 9 VAC 5-80-10 et seq. of the regulations - Permits for Stationary Sources
10. 9 VAC 5-80-1700 et seq. Of the regulations - Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
11. 9 VAC 5-80-2000 et seq. of the regulations - New and modified sources located in non-attainment areas
12. 9 VAC 5-80-800 et seq. Of the regulations - Operating Permits and exemptions. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

Hampton Roads area in the state of Virginia is likely to be affected in terms of ozone exceedance depending on the location and extent to which the new wind and wave technologies are put to practice in Mid Atlantic off shore waters. While the related onshore activity initially during construction period may have adverse effect through generation of volatile organic compounds (VOC) and oxides of nitrogen (NOx) long range impact in terms of generation of cleaner energy could be positive.

K.S. Narasimhan
(Kotur S. Narasimhan)
Office of Air Data Analysis

DATE: April 27, 2007

other Virginia state agencies with similar authority, are conditionally exempt from the solid waste regulations (9VAC 20-80-60.E) and are excluded from the waste barging regulations (9VAC 20-170-10). Also, any treatment, storage, or disposal of hazardous wastes must be conducted in concert with applicable state laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 et seq.; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 et seq., and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Paul Kohler at (804) 698-4208.

83-027
(cont.)

83-028

Alternative Energy Programmatic EIS

B-526

October 2007

If you cannot meet the deadline, please notify CHARLIE ELLIS at 804/698-4488 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. CHARLES H. ELLIS III
 DEPARTMENT OF ENVIRONMENTAL QUALITY
 OFFICE OF ENVIRONMENTAL IMPACT REVIEW
 629 EAST MAIN STREET, SIXTH FLOOR
 RICHMOND, VA 23219
 FAX #804/698-4319

RECEIVED

APR 17 2007

DEQ-Office of Environmental Impact Review

Charles H. Ellis III /vf
 CHARLES H. ELLIS III
 ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

The issuance of leases, easements and rights of way for the production of energy from sources other than oil and gas will not effect the water resources of Virginia negatively. To the extent that non traditional energy resources such as wind and wave energy supplant traditional source, the water resources of Virginia may be slightly positively impacted.

(signed) Joseph P. Hassell (date) April 17, 2005
 (title) Environmental Program Manager
 (agency) Division of Water Resources, DEQ

PROJECT # 07-069F

4/07

83-029



DEPARTMENT OF ENVIRONMENTAL QUALITY
 TIDEWATER REGIONAL OFFICE
 ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 4, 2007

PROJECT NUMBER: 07-069F

PROJECT TITLE: Alternative Energy Development & Production & Alternate Use of Facilities on the Outer Continental Shelf

As requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:

No adverse comments. Potentials for oil and hazardous substance spills from marine vessel traffic and at the proposed Outer Continental Shelf energy facilities are generally addressed. Federally required oil spill and other hazardous substance release response plans are also addressed in this programmatic EIR proposal. Any oil spilled within state waters or having the potential to reach state waters should be reported to DEQ at (757) 518-2077 and to other appropriate local, state, and federal authorities.

83-030

Petroleum Storage Tank Compliance/Inspections:

Any tank vessels transporting 15,000 gallons or more of oil as cargo through state waters to service OCS energy facilities will require either state approved Tank Vessel Oil Discharge Contingency Plans or US Coast Guard approved Vessel Response Plans and applicable financial assurance demonstrations. Please contact Ms. Janet Queisser, Program Manager, DEQ Office of Spill Response and Remediation at (804) 698-4268 for more information.

83-031

Virginia Water Protection Permit Program (VWPP):

Inasmuch as this programmatic EIS deals primarily with activities conducted on the outer continental shelf outside beyond the limit of State Waters, no direct authorization of those activities is required from this program. However, the related installation of buried electrical transmission lines, petroleum pipelines or other ancillary features that require impacts to state waters, including tidal and non-tidal wetlands will require review and authorization under the Virginia Water Protection permitting program. These reviews would be conducted on a project and site specific basis.

83-032

Air Permit Program :

The Air Permit Section has no comment on this document.

Water Permit Program :

The Water Permit Section has no comment on this document.

Waste Permit Program :

The Waste Permit Program has no comment on this document.

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 4, 2007

PROJECT NUMBER: 07-069F

PROJECT TITLE: Alternative Energy Development & Production & Alternate Use of Facilities on the Outer Continental Shelf

Sincerely,

Michelle R. Hollis
Environmental Specialist
5636 Southern Blvd.
VA Beach, VA 23462
(757) 518-2146
(757) 518-2009 Fax
mrhollis@deq.virginia.gov

OCS 083b

Programmatic EIS (PEIS) for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf (OCS)
Minerals Management Service
07-069F

DGIF Comments and Recommendations
ESSLog# 23766
May 1, 2007

Due to time constraints, we only evaluated the activities MMS describes as possible to occur off the coast of Virginia (and wave energy capture) and the MMS program and regulations associated with such activities.

Alternatives analysis:

At first glance, we support the second of the three alternatives, evaluating each possible project on a case by case basis. It seems this would offer agencies the ability to evaluate the projects once they have been developed and the project sites and construction methodologies have determined. However, projects at this advanced stage are often so far into design that there is very little room for adjustment based on natural resource concerns. If the proposed action includes evaluation of the concerns raised by natural resource agencies and addresses research needs, we support this alternative. We believe that research is necessary to determine what, if any, serious impacts upon wildlife may occur as a result of new energy technologies and development. The proposed activity should include identifying gaps in information and proposing research to close those gaps. It should include determining what activities may impact wildlife and identifying opportunities to mitigate those impacts.

Wildlife Known from the Waters off the Coast of Virginia:

The Eastern Shore of Virginia has been designated a United Nations International Man and Biosphere Reserve, a US Department of the Interior National Natural Landmark, a National Science Foundation Long Term Ecological Research Site, and a Western Hemisphere International Shorebird Reserve Network site. These designations underscore the fact that the lower Delmarva Peninsula and adjacent waters still maintain significant biological diversity and have ecological value of global importance. The waters of the Chesapeake Bay and Delmarva Peninsula represent important wintering and foraging areas for numerous sea ducks and seabirds, including several thousand northern gannets (*Morus bassonius*), which are fish eating aerial divers that often forage from an elevation of 150 - 200 ft. (Doug Forsell, unpublished data). Moreover, the area serves as a major migration corridor for tens of thousands of surf scoters (*Melanitta perspicillata*) and black scoters (*Melanitta nigra*) that pass through the area on their way to wintering grounds in the Chesapeake Bay or to states further south (Doug Forsell, unpublished data).

The waters off the coast of the Eastern Shore have relatively high occurrences of federally *threatened* loggerhead sea turtles (*Caretta caretta*) and federally *endangered* Kemp's ridley sea turtles (*Lepidochelys kempii*) from May through October. Federally

83-033

threatened green sea turtles (*Chelonia mydas*) and federally endangered leatherback sea turtles (*Dermochelys coriacea*) may also pass through these waters, primarily during spring and fall migration periods. In addition, loggerhead sea turtles are known to nest occasionally on mainland beaches extending from Fort Story to the North Carolina/Virginia border and on the Eastern Shore's barrier islands. A total of 102 loggerhead nests have been documented in Virginia since 1970.

These waters are also home to many marine mammal species including the federally endangered northern right whale (*Balaena glacialis*) and the federally endangered humpback whale (*Megaptera novaeangliae*). Moreover, the coastal form of the bottlenose dolphin (*Tursiops truncatus*) is resident in Virginia's state waters from May through October with occasional sightings reported during other times of the year (Sue Barco, personal communication).

The Eastern Shore's seaside lagoon system and barrier island chain serve as globally important stopover areas and migration corridors for thousands of shorebirds annually. Moreover, they support various species of breeding terns, gulls, wading birds, shorebirds, rails, waterfowl and other waterbirds. With the exception of a few private inholdings, the barrier islands are owned and managed by various federal, state and private conservation organizations and therefore are protected from future development in perpetuity. These islands provide important nesting habitat for the federally threatened piping plover (*Charadrius melodus*). They also host numerous other beach nesting birds such as the state threatened Wilson's plovers (*Charadrius wilsonia*), least terns (*Sterna antillarum*), which are a state species of special concern, American oystercatchers (*Haematopus palliatus*), which are a species of high concern in the U.S. Shorebird Conservation Plan, and common terns (*Sterna hirundo*), brown pelicans (*Pelecanus occidentalis*), royal tern (*Sterna maxima*), sandwich terns (*Sterna sandvicensis*), Forster's terns (*Sterna forsteri*) and common terns. Several species of wading birds, waterfowl, and gulls are also known to nest on the barrier islands. Approximately 10 breeding pairs of the State threatened peregrine falcon (*Falco peregrinus*) nest in the Eastern Shore's seaside lagoon system located westward of the barrier islands. Moreover, thousands of shorebirds and sea ducks use the barrier islands and lagoon system as stopover sites during spring and fall migration and as a wintering area.

Millions of migratory landbirds (passerines and raptors) funnel through the lower Delmarva Peninsula each fall making it one of the most important staging areas along the Atlantic flyway. To date, little is known about landbird occurrences over Virginia's nearshore waters and virtually no information exists regarding flight paths to and from land based stopover sites. Forest and shrub habitats located at the southern tip of the Delmarva Peninsula serve as major foraging and resting areas for many landbirds.

Lastly, there are bats. Although bats are periodically seen aboard sea vessels and in and around coastal areas, there is very little information about how or if these species utilize areas off the coast for migration or foraging. We recommend consideration of bats and research into how they use coastal and offshore areas and what, if any, impacts upon them may result from a wind energy project.

83-034

Wind Energy Development in the OSC Mid-Atlantic Region:

The PEIS addresses the possibility that wind energy projects will be proposed in the OCS off of Virginia and that MMS proposes to develop a program for, and promulgate regulations around, alternative energy production in the OCS. In order to make detailed comments regarding a wind energy project off the coast of Virginia's Eastern Shore, we need to know exactly where the turbines are proposed, how many turbines are proposed, how they are to be constructed, and what the associated infrastructure includes. Based on the information available at this time, we make the following comments and recommendations about a possible wind energy project off the coast of Virginia.

83-035

Given the high occurrences of sea ducks and seabirds in this area, it is likely that these species would be most susceptible to turbine collision fatalities or loss of important foraging and wintering habitat due to turbines and associated disturbances. It is also possible that the turbines may form a barrier along migration routes causing birds to alter their course significantly, which may result in the depletion of critical energy reserves. We recommend that any applicant and/or MME perform research into exactly how areas offshore of Virginia are used by these species and how these species and their habitats may be impacted by the installation and operation of wind turbines.

83-036

It is not clear what impacts a wind project may have on birds and bats that are closely associated with the barrier islands and seaside lagoon system. Research is needed to determine which of these species occur in the project area, the role nearshore habitats play in the life history of these species, and what kind of flight behavior they exhibit over these waters.

83-037

It is possible that a portion of the migratory landbirds mentioned above that are going to or dispersing from migratory stopover sites may select flight paths that could intersect with a wind energy project off shore. Depending on the siting of the turbines, this could put them at considerable risk of collision fatalities, especially since they will likely be flying at lower elevations prior to making landfall or following takeoffs.

Little to no information exists on potential impacts that offshore wind projects may have on marine mammals and sea turtles. We recommend that the applicant examine the effects of construction activities, lighting, and turbine operations on sea turtles and marine mammals, their habitats and the natural movements of their prey.

83-038

Because little or no information exists concerning potential impacts a wind project may have on any of the wildlife resources described above, we recommend that the Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf (OCS) program and any regulations promulgated around this program effectively address the potential ecological impacts associated with this project and offer sound alternatives to affect avoidance, minimization, and if necessary, mitigation of these impacts.

Wave Energy Capture:

The PEIS addresses the possibility that wave energy capture projects will be proposed in the OCS off of Virginia and that MMS proposes to develop a program for, and promulgate regulations around, alternative energy production in the OCS. In order to make detailed comments regarding a wave energy project off the coast of Virginia's Eastern Shore, we would need to know exactly where the projects are proposed for siting, how many structures are proposed, how they are to be constructed, and what the associated infrastructure includes. Based on the information available at this time, we make the following comments and recommendations about a possible wave energy capture projects off the coast of Virginia.

Deleted: a possible

83-039

Wave energy capture projects appear to include four technologies; point absorbers, attenuators, overtopping devices and terminators. It seems, from the information provided, that each of these systems may result in impacts upon sea life.

Point absorbers: Based on the information provided, it appears these systems use the wave energy to pressurize a hydraulic fluid that is used to drive a turbine generator. The structures used to capture the wave energy include a buoy at the surface moored to the sea floor with four concrete anchors. Although it states in the PEIS that the anchoring system is "a proprietary system that avoids any damage or threat to the sea bed or sea life" we continue to have concerns related to the mooring system and the entanglement of sea life. As described in the "Wind Energy" section of these comments, the waters off the coast of Virginia and the Eastern Shore are home to numerous wildlife species, both aquatic and terrestrial, listed and non-listed. We recommend that research be performed by any applicant or the MMS to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures my change the natural movements of prey species. Further, MMS and/or an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

83-040

Attenuators: Based on the information provided, it appears these structures are long, multi-segment floating structures that are placed parallel to the direction of wave travel. As they ride the waves, they flex and this flexing activates hydraulic pumps or other energy converters. We have less of a concern with this system than with the other wave energy capture system, but continue to have concerns related to species entanglement and behavior changes for many of the same reasons as described above. We recommend that research be performed by any applicant or the MMS to evaluate the potential of attenuators to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures my change the natural movements of prey species. Further, MMS and/or an applicant should

evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

Overtopping Devices: Based on the information provided, it appears these structures are comprised of partially submerged walls over which the waves topple, filling the reservoir and creating a head of water. As this water is released, from the reservoir it turns conversion devices thus capturing the energy of the released water. This system causes us a great deal of concern. It appears to be a huge construction project with a number of construction related impacts, the reservoirs are enormous and may serve as a total impediment to sea wildlife movement. In addition, we have concerns that some species could actually become trapped, along with the water, in the reservoir. Again, we recommend that research be performed by any applicant or the MMS to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures my change the natural movements of prey species. Further, MMS and/or an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

83-040 (cont.)

Terminators: These cause us concern for the same reasons as described above. Again, we recommend that research be performed by any applicant or the MMS to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures my change the natural movements of prey species. Further, MMS and/or an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

General:

In general, we support the research into and development of alternative energies. However, the technologies associated with alternative energy capture are new and are still in need of much research. It needs to be determined what wildlife are known from these waters, nearby lands and the air and how they may be impacted by proposed wind and/or wave energy projects, the associated infrastructure and associated vessel traffic. We agree with the list of potential impacts resulting from alternative energy industries as described in section 7.1.1. We agree with much of the information presented in section 5 including consideration of water quality and construction methods and the impacts these activities may have on wildlife. We recommend broadening the research scope to include wildlife impacts due to physical impediment, lighting, artificial prey species congregation, and physical entanglement and that mitigation for these impacts are considered.

83-041