VIRGINIA OFFSHORE ENERGY DEVELOPMENT LAW AND POLICY REVIEW AND RECOMMENDATIONS

Benchmarking Virginia's Coastal Zone Management Program's Capacity to Respond to Coastal Impacts of Potential Energy Development Activities

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I. Introduction

Virginia is facing various forms of energy development activities offshore and in the territorial waters of the Commonwealth. These include possible proposals for wind and wave energy, liquefied natural gas (LNG) transport, and natural gas drilling on the outer continental shelf, among others. State laws and policies must deal with these activities and their anticipated impacts.

The Virginia General Assembly created the Coastal Energy Research Consortium to examine technical and science-related issues. Virginia's Coastal Zone Management Program has provided support for this complementary project by the Environmental Law Institute to examine the law and policy framework in place to deal with potential activities. It specifically addresses how Virginia can be made ready to address likely issues related to coastal energy development in advance of major proposals that may require decisions.

Virginia Energy Policies and Legislation

The General Assembly has in recent years focused attention on offshore energy resources and related energy policies.

The 2005 General Assembly, in HJR 625, directed the Secretary of Commerce and Trade to study the potential of "exploring for natural gas in the coastal areas of the Commonwealth" and make recommendations. In the report submitted in 2006, the Secretary made a number of recommendations.[1] These recommendations included, among others –

(1) that no onshore facilities be located on Virginia's eastern shore, and
(2) that facilities on or near-shore should be consistent with local zoning and land use plans and not conflict with other land uses, nor that they intrude on areas critical for tourism or military operations. The discussion portion of the report further expressed the view that "Any on-shore development related to Virginia [natural gas] OCS development and pipelines bringing resources on-shore should be located in the industrial areas of Hampton Roads."[2]
(3) that Virginia and the federal Minerals Management Service (responsible for offshore energy leasing and development approvals) engage in an environmental impact study independent of the regular Environmental Impact Statement associated with the lease-sale process in order to allow more time for

[1] Secretary of Commerce and Trade, Study of the Possibility of Exploring for Natural Gas in the Coastal Areas of the Commonwealth, House Document No. 22 (2006). The report also referenced Virginia's nine coastal management enforceable policies recognized by the National Oceanic and Atmospheric Administration (NOAA) under the federal Coastal Zone Management Act (CZMA), and several advisory policies (including coastal natural areas, coastal natural hazard areas, waterfront development areas of particular concern, public beaches, the Virginia Outdoors Plan, parks and natural and wildlife areas, waterfront recreational land and facilities policies, and waterfront historic property protection).
[2] Id. at 37.

> understanding and addressing environmental issues and impacts, modeled on a prior experience when oil and gas exploration was proposed off Manteo, North Carolina.[3]

The study did not recommend any new state laws or regulations[4] and the three specific recommendations noted above are not part of Virginia's laws, regulations, or enforceable policies.

Legislation enacted by the General Assembly in 2006 required the Department of Mines, Minerals and Energy, in consultation with other Virginia departments and agencies, to prepare a comprehensive Virginia Energy Plan by July 1, 2007.[5] The same legislation declares an energy policy for Virginia.

The Commonwealth Energy Policy, among other things, promotes the use of renewable energy sources, promotes electric power generation that does not contribute to greenhouse gases, encourages the siting of "one or more liquefied natural gas terminals," and provides that "energy generation and delivery systems", including LNG and related delivery and storage systems "should be located so as to minimize impacts to pristine natural areas and other significant onshore natural resources, and as near to compatible development as possible."[6] This legislation provides that all agencies and political subdivisions of the Commonwealth, when taking *discretionary* action, "shall recognize the elements of the Commonwealth Energy Policy and where appropriate, shall act in a manner consistent therewith," but also provides that it does not amend, repeal, or override any contrary provision of applicable law, and creates no enforceable legal cause of action.[7] Thus, the Policy informs discretionary decisions of Virginia agencies and local governments, but is not itself enforceable, nor are its elements incorporated into Virginia's Coastal Zone Management Program for federal coastal consistency review.

The legislation also further codifies the "policy of the Commonwealth" to support federal efforts to "determine the extent of natural gas resources 50 miles or more off the Atlantic shoreline" and "to examine the feasibility of offshore wind energy being utilized in an environmentally responsible fashion."[8]

The Virginia Energy Plan released in 2007 includes recommendations to support "cost-effective, environmentally responsible development of…offshore wind resources," and recommends that offshore natural gas development "should be made consistent with Virginia policy."[9] Implementation recommendations in the Plan, however, do not address legal requirements or gaps, but focus on funding of research and incentives.[10]

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[3] Id. at 39.
[4] Id. at 40.
[5] Acts 2006, Ch. 939, S.B. 262, Va. Code §§67-201, 67-202.
[6] Va. Code §67-102.
[7] Va. Code §67-102(C),(D).
[8] Va. Code §67-300.
[9] Virginia Energy Plan (2007), Chapter 7-Recommendations, at 163.
[10] Id. at 170-171.

Summary of Results

We examined the environmental impacts of expected offshore energy development, the applicable federal laws and policies that govern development and permitting, the laws and policies of a number of coastal states dealing with current or anticipated offshore energy development (focusing especially on states that have undertaken spatial planning for uses of marine waters, and on states considering alternative wind and wave energy proposals), and the laws and policies of Virginia that would apply to offshore energy development in either state or federal waters.

1. We found that Virginia's laws and policies are generally sufficient to address anticipated environmental impacts from proposed offshore energy development, and are comparable to those of other coastal states that anticipate such development on a case-by-case basis.

2. However, Virginia has not adopted laws and policies that affirmatively assist in facilitating offshore energy development review.

3. Virginia also could benefit from information gathering and from policies that could allow advance identification of suitable areas for offshore energy transmission and support facilities.

4. In addition, Virginia has a number of articulated energy policies that are not reflected in enforceable legislation or regulations in ways that would ensure the desired outcomes in federal or state permitting.

Specific recommendations for legislative, administrative, and policy improvements are offered in the concluding section of this study.

II. Offshore Energy Development & Impacts

This section briefly describes the development activities and impacts associated with several forms of offshore energy development. It does not exhaustively describe impacts, which depend substantially on choice of technology, siting, regulatory controls and stipulations, and mitigation measures. But it is intended to provide a general guide for use in evaluating the potential adequacy of the legal/policy framework that must address these impacts.

Natural Gas/Oil Development on the OCS

Exploration, development, and production involve the siting, construction, operation, and eventual decommissioning of offshore drilling platforms, and facilities to convey produced hydrocarbons to shore via either pipelines or tankers. Environmental impacts of these activities are summarized in the final environmental impact statement (FEIS) prepared for the potential OCS leasing program including offshore areas of Virginia.[11]

The FEIS identifies these impacts for the construction and installation phase: Increased water turbidity from dredging; disturbance of sea bed areas; construction noise and disturbance to marine wildlife; vibration of erected facilities; habitat alteration; air and water pollution.

The drilling and production phase includes issues associated with maintenance, the operation of the pipeline, disposal of drilling fluids and cuttings (most cuttings are removed from the well and deposited on the seafloor), handling of drilling fluids, and anticipating and planning for accidental spills.

Operating impacts will include issues with vessel traffic, monitoring of activities on shore and support facilities, dealing with adverse impacts on marine wildlife, and addressing accidental spills. There are a variety of different spills that can occur from the production facilities, the most serious of which is a blow out, where an uncontrollable amount of hydrocarbon can be released until the well can be controlled.[12] The FEIS also notes that the U.S. Department of Energy "estimates that crude oil imports arriving to the United States by tanker will be 11.36 MMbbl/day by year 2030. During the 40-year life of the proposed mid-Atlantic lease sale, it is assumed that 2 oil spills greater than 1,000 bbl could occur in the mid-Atlantic area from tankers carrying imported oil (Table IV-17). Import tanker spills occur most frequently when the tankers are approaching port. Therefore, the majority of import tanker spills estimated in the cumulative case would occur in coastal waters. Spills in the coastal environment have an increased potential to negatively impact water quality. Shallow water and increased wave action increases the

[11] Minerals Management Service, Outer Continental Shelf Oil & Gas Leasing Program: 2007-2012 Final Environmental Impact Statement MMS/2007-003 (April 2007), available at http://www.mms.gov/5-year/2007-2012_FEIS.htm. Impacts in the mid-Atlantic leasing area, including Virginia, are summarized at Final EIS, IV-484 et seq.

[12] Consultants Limited. Exploring for Offshore Oil and Gas (1998).

potential for entrainment of oil in the water column. If the oil were to reach coastal wetlands or estuaries, in particular the environs of the Chesapeake Bay, water quality could be impaired."[13]

As for air quality, the FEIS predicts that "Exploration drilling, construction activities, and production platforms would result in a small increase in levels of NO2, SO2, and PM10 in the nearest onshore areas. Concentrations would be within the National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) increments. The potential effects on O3 concentrations in the region would be very small because of the relatively low emissions from the proposed action, and emission sources within 25 miles from the State seaward boundary would be offset."[14]

The FEIS assessment of potential water quality impacts assessment notes that "the primary contaminants of concern in mid-Atlantic coastal waters are nitrogen and phosphorus. In addition to these nutrients, high bacterial loads and potentially toxic organic chemicals and metals are significant concerns…. The proposed OCS lease sale in the Mid-Atlantic Planning Area would contribute to land-based sources of coastal water contamination by the use of existing service, support, and processing facilities in the Hampton Roads area, and the construction of a new gas processing facility. These activities would contribute a small incremental amount of nutrients, bacterial loads, potentially toxic organic chemicals and metals via onshore point source and nonpoint source discharges, and atmospheric deposition into mid-Atlantic waters. The overall cumulative effect of these contaminants, in context with all other sources, would be negligible to minimal... The vessel and helicopter traffic to support OCS offshore oil and gas activities will be about 1-5 service vessel trips per week and 5-10 helicopter trips per week (Table IV-16). Tanker traffic transporting light crude and condensate to shore will occur irregularly because the assumed 0.05-0.08 Bbbl of liquid hydrocarbon produced over a period of 10 to 20 years will require several days of production to produce a tanker load….Assuming a 20-year production life, about one trip per week will be required. This traffic will be a small addition to the existing vessel and air traffic in the Hampton Roads area…Some of the oil spills assumed to occur as a result of offshore activities in the mid-Atlantic could occur in coastal waters from a tanker/barge accident during transit or during offloading."[15] Routine maintenance dredging of harbors and vessel routes, as well as "turbidity caused by trenching operations to bury a natural gas pipeline under the proposed action scenario [are] anticipated to contribute temporary incremental impacts to coastal water quality. All drilling rig and/or platform installation activities would occur solely in marine waters and, due to the distance of these activities, are anticipated to have a negligible effect on coastal water quality."[16] The FEIS also identifies potential impacts on marine mammals owing primarily to seismic surveys during the exploration phase. The FEIS does not project adverse impacts on marine and coastal birds except from oil spills, if any. There is also some discussion of fisheries and sea turtles, including shore

[13] Final EIS IV 485-6
[14] Final EIS IV 484-485.
[15] Final EIS IV 485.
[16] Final EIS IV 486-7.

habitat, but apart from potential oil spills there is little information on potential adverse effects.[17]

The FEIS notes that construction and support facilities can have effects on dunes and sensitive coastal environments, noting that "Various OCS-related activities, such as the construction of a pipeline, can contribute to coastal impacts." The MMS counts on "improved techniques of bringing pipelines to shore in nondisturbing ways" to conclude that "the contribution of the proposed action to the cumulative loss of beach environments along the mid-Atlantic coast would be very small."[18] It also notes that "a new shore base would be needed to support the proposed action, but it would not be constructed in wetland areas. The maintenance of a navigation channel to the shore base already exists, and new onshore processing facilities required to process the resources developed as a result of the proposed action would be co-located with existing facilities at the Hampton Roads area," but further observes that "construction of a pipeline in coastal areas can contribute to wetland loss."[19] Impacts on the seafloor and subaqueous lands are expected, but the MMS suggests that non-oil and gas activities will have a greater impact than subaqueous excavation impacts associated with a natural gas pipeline. However, this conclusion depends upon "requiring the lessee to modify operations to ensure that significant seafloor biological populations or habitats deserving protection would not be adversely affected."[20]

Offshore Wind Energy Facilities

As with land-based wind technology, offshore wind energy consists of a number of turbines operating independently, but delivering their power via a common conduit, typically an undersea cable.[21] With the exception of a few test projects, most offshore wind facilities today are built in water depths no greater than 30 meters and constructed on structures resting on or piled into the seabed.[22] Piles are driven approximately 32-64 feet into the seabed and the turbine is then attached.[23] Wind direction sensors turn the nacelle (a shell that encloses the gearbox, generator, and blade hub) to face into the wind and maximize the amount of energy collected. [24] Wind moving over the blades makes the blades rotate around a horizontal hub connected to a shaft inside the nacelle. This shaft, via a gearbox, powers a generator to convert the energy into electricity. The wind-generated electricity from each of the turbines is transmitted via a submarine transmission

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[17] Final EIS IV 487-500.
[18] Final EIS IV 500-501
[19] Final EIS IV 501.
[20] Final EIS IV504-505.
[21] Mineral Management Service, U.S. Department of the Interior, *Technology White Paper on Wing Energy Potential on the U.S. Outer Continental Shelf* (May 2006), *available at* http://ocsenergy.anl.gov/documents/docs/OCS_EIS_WhitePaper_Wind.pdf.
[22] Offshore Wind Turbine Foundations- Current & Future Prototypes, *at* http://www.offshorewind.net/Other_Pages/Turbine-Foundations.html(last visited Aug. 11, 2008).
[23] Offshore Wind Turbine Foundations- Current & Future Prototypes, *at* http://www.offshorewind.net/Other_Pages/Turbine-Foundations.html (last visited Aug. 11, 2008).
[24] Cape Wind: Project Construction, *at* http://www.capewind.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=20&page=1 (last visited Aug. 12, 2008).

cable system to the Electric Service Platform (ESP) located offshore.[25] The ESP will then transmit the electricity to the substation onshore via submarine cables.

The development of offshore wind farms has, until recently, been limited to fixed foundations driven deep or resting on the ocean floor.[26] However, fixed monopile foundations have limited deployment to water depths of 50 meters or less. A recent proposal for an offshore wind farm on the outer continental shelf off New Jersey calls for use of a lattice-work "jacket" technology rather than a monopile, in order to operate further offshore.[27]

Floating offshore wind technology utilizes designs borrowed from the oil and gas industry that can be used at greater water depths.[28] Only a few floating offshore wind facilities exist throughout the world, and each is still in the testing phase. For example, a floating offshore wind turbine has been constructed off the coast of Italy where the turbine uses a tension-leg platform that floats below the surface of the water and is moored to the seafloor with chains.

Potential - Although there is currently no utility scale offshore wind infrastructure in Virginia, there is great potential for offshore wind energy development.[29] Several features of Virginia's climatic system make it an ideal location to harness wind energy. On a scale that measures the strength of wind areas from class 0 to class 6—with 6 being the highest wind potential—many of Virginia's offshore areas are classified as class 3 or higher. Furthermore, Virginia has a low frequency of calm periods,[30] and yet lies far enough to the north to experience very few extreme weather events, reducing the likelihood of damage to off-shore equipment while maximizing production.[31] Between the Chesapeake and the Atlantic, Virginia has the offshore potential to double the state's

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[25] Cape Wind: Project Construction, *at* http://www.capewind.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=20&page=1 (last visited Aug. 12, 2008).

[26] Andrew R. Henderson and Minoo H. Patel, *Floating Offshore Wind Energy, available at* http://www.owen.eru.rl.ac.uk/documents/bwea20_48.pdf (last visited Aug. 11, 2008).

[27] N. Gronewold, "Wind Power: N.J. regulators approve planned offshore turbine farm," E&E News, Octo. 3, 2008.

[28] Offshore Wind Turbine Foundations- Current & Future Prototypes, *at* http://www.offshorewind.net/Other_Pages/Turbine-Foundations.html (last visited Aug. 11, 2008). In Oregon, the Tillamook People's Utility District signed an agreement with Principle Power Inc. to identify sites for floating offshore wind turbines and to negotiate contracts, for production of wind power from floating triangular bases anchored by chains, about 7-9 miles offshore. Greenwire, Oct. 2, 2008, http://www.eenews.net/Greenwire/2008/10/02/13/

[29] Commonwealth of Virginia, Department of Mines, Minerals and Energy, The Virginia Energy Plan, 75 (2007), *available at* http://www.governor.virginia.gov/TempContent/2007_VA_Energy_Plan-Full_Document.pdf .

[30] Jose L. Blanco, Larry P. Atkinson and George Hagerman, *Offshore Wind Power Resource in the Virginia Coastal Ocean,* http://ccpo.odu.edu/~jlblanco/windenergy/documents/p1_Offshore%20wind%20power%20Virginia %20Coastal%20Ocean_v2.pdf (last visited Aug. 4, 2008).

[31] Virginia Coastal Energy Research Consortium, *Virginia Offshore Renewable Energy: Extreme Events in the Virginia Coastal Areas, at* http://ccpo. odu.edu/~ jlblanco/windenergy/wind03.htm (last visited August 4, 2008).

current energy generation.[32] The majority of areas with the highest wind area potential are located in federal waters, though some class 5 areas exist within the Chesapeake Bay and thus are under state jurisdiction.[33]

Types of Structure - The mean depth of the continental shelf off of Virginia is shallow, at 30 meters deep.[34] Given its shallow depths, developers will likely use turbines that are attached to the sea floor rather than floating turbines which are reserved for deeper locations. Because the Atlantic typically has lower wind speeds than the North Sea, smaller generators with barge rotors will be more appropriate and have higher revenue per unit rated capacities than the 3.0MW turbines commonly used in European projects. Appropriately sized turbines placed off-shore will have a potential capacity range of 45-50%, much higher than typical on-shore turbines.[35] Smaller near-shore projects in state controlled waters also remain a possibility for Virginia. A feasibility study to determine whether a small number of utility scale wind turbines are a viable option for community-scale projects is currently underway at Tangier Island.[36]

Anticipated Environmental Impacts from Wind Facilities[37]

Wind Turbine Generator (WTG) Construction

Wind turbines will likely be mounted on towers and other forms of support that will be anchored to the sea floor by steel monopole foundations- long steel tubes that are driven 10-20m into the sea bed.[38] Monopiles are usually installed into the seabed with a vibrating hammer or pile driving ram.[39] Monopile foundations are preferable to large steel or concrete foundation structures that require the excavation of large areas of the sea floor and would be drilled tens of meters deep into the sediment.[40] By contrast, little

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[32] George Hagerman, Benjamin K. Sovacool & Richard F. Hirsh, Challenges and Opportunities for Offshore Wind Power in Virginia, Address at the Southeast Regional Offshore Wind Power Symposium (Feb. 27, 2007), *available at* http://www.clemson.edu/scies/wind/Presentation-Hagerman.pdf.

[33] George Hagerman, Benjamin K. Sovacool & Richard F. Hirsh, Challenges and Opportunities for Offshore Wind Power in Virginia, Address at the Southeast Regional Offshore Wind Power Symposium (Feb. 27, 2007), *available at* http://www.clemson.edu/scies/wind/Presentation-Hagerman.pdf.

[34] Virginia Coastal Energy Research Consortium, *Bathymetry of Coastal Virginia Ocean, at* http://ccpo.odu.edu/~jlblanco/windenergy/wind10.htm (last visited Aug. 4, 2008).

[35] George Hagerman & Aaron Stubbins, Virginia Coastal energy Research Consortium: Offshore Wind Power and Marine Biofuels, Address at the Virginia Coastal Zone Partners Workshop (Feb. 14, 2007).

[36] Commonwealth of Virginia, Department of Mines, Minerals and Energy, *The Virginia Energy Plan*, 75 (2007), *available at* http://www.governor.virginia.gov/TempContent/2007_VA_Energy_Plan-Full_Document.pdf .

[37] For a complete review of potential impacts from offshore wind energy, *see* National Resource Council of the National Academies, *Environmental Impacts of Wind- Energy Projects* (May 2007), *available at* http://www.vawind.org/Assets/NRC/NRC_Wind_Report_050307.pdf.

[38] Byrne O'Cleirigh, Ecological Consultancy Services, Ltd & University of Southampton, *Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment*, 14 (April 2000).

[39] Minerals Management Service, U.S. Department of the Interior, Cape Wind Energy Project Draft Environmental Impact Statement 5-13 to 5-14 (Jan. 2007) (hereafter "Cape Wind DEIS")

[40] Minerals Management Service, U.S. Department of the Interior, Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer

preparation of the seabed is needed for monopile foundations. The only potential preparatory impact will be the removal of large boulders, which may injure and kill benthic organisms.[41]

Pile driving will be the principal noise disturbance during construction of WTGs—each of which will require 4-6 hours of pile driving to secure the monopile into the seafloor.[42] Noise associated with the pile driving can be audible up to15 miles away.[43] The Cape Wind project found that although pile driving during construction could be audible onshore when existing sound levels were very low, the noise would not interfere with onshore or offshore activities.[44] Noise from pile driving, however, may impact marine mammals in the vicinity, causing disturbance to normal behaviors and disrupting echo-location and masking sounds from predators.[45] Pile-driving noise may also be detected by seals and porpoises for tens to hundreds of miles from construction sites, potentially excluding them from critical habitat.[46] Marine birds, sea turtles, and fish may also be disturbed by the noise for many miles around. [47] Some fish, particularly those with sensitive hearing or swim bladders such as theAtlantic midshipman (*Porichthys plectrodon*) and Atlantic herring (*Clupea harengus*)—both of which are found in Virginia's coastal waters—could be injured and killed.[48]

The construction of WTG platforms will disturb sediment, increase turbidity, and crush benthic invertebrates within the immediate footprint of the structure. Increased turbidity could lead to decreased photosynthesis by plankton during periods of construction, although effects are likely to be short term and localized.[49] Less mobile benthic species may be killed by sediment deposition or crushing, but most fish species will relocate to nearby locations.[50] The loss of some benthic organisms may affect demersal fish which are dependent on the organisms for food. This, in turn, could reduce foraging grounds for marine birds, mammals and sea turtles.[51]

Transmission Cable Installation

A typical wind farm has a network of cables connecting the individual turbines to the electric service platform (ESP). A transmission cable brings the electricity from the ESP to a land based substation. The total length of buried cable depends on the number of

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Continental Shelf 5-16 (2007) *available at* http://www.ocsenergy.anl.gov/eis/guide/index.cfm (hereafter "PEIS").

[41] Byrne O'Cleirigh, Ecological Consultancy Services, Ltd & University of Southampton, *Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment*, 14 (April 2000).

[42] Cape Wind DEIS 5-10 (Jan. 2008).

[43] PEIS5-16 (Oct. 2007)

[44] Cape Wind DEIS 5-10 (Jan. 2008).

[45] PEIS 5-45 (Oct. 2007).

[46] PEIS 5-46 (Oct. 2007).

[47] PEIS 5-55 (Oct. 2007).

[48] PEIS 5-68 (Oct. 2007).

[49] PEIS 5-67 (Oct. 2007).

[50] PEIS 5-45 (Oct. 2007).

[51] PEIS 5-91 (Oct. 2007).

turbines and distance of the wind farm offshore.[52] To avoid damage from fishing equipment, anchors, and sea vessel traffic the transmission cable must be buried.[53] Different construction techniques can be used to install the transmission cable depending on the nature of the sea bed; cables can be buried under rocks or in trenches created for them. [54] Typically transmission cables are embedded using a jet plow process by which a blade is lowered into the sea bed that simultaneously lays and buries the cable by creating a 4-6 foot wide, 8 foot deep trench.[55] Cable-jetting should produce no sound other than rushing water and noises from the vessels employed in the operations and marine life should not be greatly disturbed. However, the creation of the trench could expose slow moving epifauna to mortality, injury, or increased rates of predation.[56]

As the cable approaches the shore, cable-jetting is likely to have a greater impact and may disturb tidal marshes, mudflats, beaches, and submerged aquatic vegetation in subtidal habitats.[57] Infauna and epifauna in these locations may suffer injury and mortality with some invertebrate communities being slower to recover.[58] Within areas of marshland, erosion areas adjacent to the cable may widen over time. This, coupled with a lack of vegetation reestablishment, could convert areas of marshland to open water, increase the flushing of marshland areas, and allow saltwater to enter into freshwater environments.[59] The construction of cable trenches near-shore could disturb marine birds if the trenching occurs close to feeding, nesting, breeding or resting grounds.[60]

Additional construction will be required to transition the submarine transmission cables from water to land.[61] The Cape Wind project plans to connect the offshore and onshore systems by use of Horizontal Directional Drilling (HDD). HDD involves the drilling of boreholes from land towards exit point of the offshore cable. Conduits will then "be installed the length of the boreholes and the transmission line would be pulled through the conduits from the seaward end toward the land."[62] Coastal habitat will be directly impacted at the marine-shore connection location through habitat loss from excavation. Additional effects could include erosion, destabilization, and vegetation loss, which would be particularly troublesome in beach and dune environments.[63] If HDD is used, dredging of an offshore exit pit may be required.[64] There is also a potential for accidental loss of bentonite drilling fluid, impacting water quality.[65]

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[52] PEIS 5-16 (Oct. 2007).
[53] Byrne O'Cleirigh, Ecological Consultancy Services, Ltd & University of Southampton, *Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment*, 14 (April 2000).
[54] Id..
[55] Cape Wind DEIS 5-10 (Jan. 2008).
[56] Id. at 5-11 (Jan. 2008).
[57] PEIS 5-85 (Oct. 2007).
[58] PEIS 5-85 (Oct. 2007).
[59] PEIS 5-86 (Oct. 2007).
[60] PEIS 5-54 (Oct. 2007).
[61] Cape Wind DEIS 5-9 (Jan. 2008).
[62] Cape Wind DEIS 2-12 (Jan. 2008).
[63] PEIS 5-86 (Oct. 2007).
[64] Cape Wind DEIS 5-12 (Jan. 2008).
[65] PEIS 5-86 (Oct. 2007).

Once the transmission cable is in place, there are potential concerns about the generation of electronic currents that could impact some fish species. Certain demersal fish, including sharks, skates, and rays, can detect weak electronic currents which they use for prey location and general orientation.[66] Although the transmission cable is installed in such a way to shield electric currents, some weak currents may remain detectable to certain species, and result in avoidance of the cable location. Some fish and invertebrates may also be sensitive to the electromagnetic fields generated by the cables, although the effect of this sensitivity is unknown.[67]

Wind Turbine Generator Operation & Decommissioning

When in motion, water birds, waterfowl, and shore birds are all prone to collide with wind turbines. Migratory passerines are the most susceptible to collision.[68] Marine and coastal birds' tendency to exhibit flocking behavior, coupled with weather conditions, may increase the potential for bird collisions in off-shore locations.[69] Raptors, which are present in Virginia, are susceptible to collisions creating the potential for community-wide impacts.[70] In addition to collisions, birds may purposively avoid offshore wind farm areas and consequently be displaced from areas of foraging habitat. Deviation from traditional flight paths will impose high energetic costs on bird species that cannot rest on the water's surface and adversely affect the possibility of their reaching their migratory destination.[71] The impact on migratory birds in Virginia is particularly troubling due to the status of Chesapeake Bay as a major migratory flyaway.[72]

Wind turbines produce two sources of sound: mechanical sound produced by the gearbox, generator, and other parts of the drive train; and aerodynamic sounds produced from the passage of the blades through the air.[73] The mechanical noise may be transmitted underwater through the turbine towers and monopile foundations.[74] The near continuous sound will be audible to fish and marine mammals. Though this may cause their avoidance of the area, the noise is not sufficient to lead to any injury or mortality in marine life. Avoidance could result in abandonment of feeding and mating grounds and alterations to traditional migration paths leading to population scale effects.[75] Aerodynamic noise is largely deflected at the surface and has minimal contribution to

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[66] PEIS 5-93 (Oct. 2007).
[67] PEIS 5-93 (Oct. 2007).
[68] National Research Council of the National Academies, *Environmental Impacts of Wind-Energy Projects* (May 2007), 52, *available at* http://www.vawind.org/Assets/NRC/NRC_Wind_Report_050307.pdf;
[69] PEIS 5-56 (Oct. 2007).
[70] National Research Council of the National Academies, *Environmental Impacts of Wind-Energy Projects* (May 2007), 50, *available at* http://www.vawind.org/Assets/NRC/NRC_Wind_Report_050307.pdf;
[71] PEIS 5-56 (Oct. 2007).
[72] U.S. Fish and Wildlife Services, Chesapeake Field Office: Migratory Birds, *at* http://www.fws.gov/chesapeakebay/Migbird.htm (last visited Aug. 4, 2008).
[73] Minerals Management Service, U.S. Department of the Interior, *Worldwide Synthesis and Analysis of Existing Information Regarding Environmental Effects of Alternative Energy Uses on the Outer Continental Shelf* (July 2007), 4-22, *available at* http://hmsc.oregonstate.edu/waveenergy/MMSAEFINALSYNTHESISREPORT.pdf.
[74] PEIS 5-26 (Oct. 2007).
[75] PEIS 5-47 (Oct. 2007).

underwater sound. It does, however, contribute to above water noise and can potentially impact onshore human communities.[76] Birds can also be impacted by above water noise, although the precise effects are not yet greatly understood and could include both avoidance and attraction.[77]

The ESP may include transformers containing large amounts of oil. It is possible that could gradually leak out of the ESP into the ocean.[78] Accidental rupture of a transformer could lead to a large slick of thousands of gallons of mineral oil potentially contaminating beach areas and aquatic life. Marine and terrestrial species could both be directly impacted by an oil spill as could local industries including tourism and fisheries. The magnitude of damage occasioned by any spill would depend on environmental conditions, the location of the spill, and the volume of oil released.[79]

The hard substrate introduced by the construction of the WTG could create habitat that opportunistic benthic species will be quick to colonize.[80] Fish, including pelagic species are also likely to be attracted to the structure, which could in turn attract fish eating seabirds. The composition of species in the vicinity of a WTG is therefore likely to differ from the previous community compositions that were previously based on a soft substrate benthic environment. For large scale projects, this change could lead to substantial changes in fish diversity and abundance.[81] Associated negative impacts include the possibility of the concentrated habitat becoming over-exploited and the possibility of invasive species colonizing the WTG structures.[82]

Submerged structures on the sea floor can increase wave turbulence which in turn causes the scouring of bottom sediments in the immediate vicinity of the structures, and between multiple structures.[83] As most WTGs are likely to be situated some distance offshore, the impacts to coastal sediment transportation are "likely to be negligible".[84] When projects are constructed in nearshore areas, the effects on sediment deposition and erosion are likely to be greater.[85]

There are a range of socio-economic impacts associated with the operation of WTGs. Vessels may collide with the WTG structures and the structural foundations of the WTGs present an obstacle to trawling operations. Consequently a safety zone has often been established around existing wind farms limiting the possibility of trawling and other fishing activities.[86] Sheringham Shoal Offshore Wind Farm in the United Kingdom, for

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[76] PEIS 5-28 (Oct. 2007).
[77] PEIS 5-28 (Oct. 2007).
[78] PEIS 5-62 (Oct. 2007).
[79] PEIS 5-62 (Oct. 2007).
[80] PEIS 5-69 (Oct. 2007).
[81] PEIS 5-69 (Oct. 2007).
[82] PEIS 5-69 (Oct. 2007).
[83] PEIS 5-3 (Oct. 2007).
[84] PEIS 5-7 (Oct. 2007).
[85] PEIS 5-69 (Oct. 2007).
[86] Byrne O'Cleirigh, Ecoserve, & University of Southampton *Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment* 17 (April 2002).

example, prohibits vessels from entering waters within 500 meters of each offshore structure.[87] Other conflicts with fisheries may include the temporary displacement of some fish species during construction, space user conflicts during construction activities and the entanglement of fishing gear with underwater transmission cables.[88]

The visibility of wind farms from onshore locations prompts concerns about coastal tourism and property values, and the loss of revenue which might be occasioned if these were both affected.[89] A study in Virginia found that offshore turbines placed 11 nautical miles from the coast would only be visible on a very clear day.[90] Positive economic impacts are expected from the development of off-shore wind energy; wind energy supply chain industries already exist in Virginia, and additional waterfront industries are expected to develop.[91] Additional onshore effects will depend on the location of the staging/maintenance areas. The proposed Cape Wind project off Massachusetts, for example, is only using maintenance bases that coincide with existing ports, thus limiting any additional onshore consequences.[92]

Decommissioning will involve the dismantling of WTGs, the ESP, and their foundations and removing them to the shore. The transmission cable will also be removed together with the onshore substation. The impacts associated with decommissioning will be similar to those discussed above for construction and installation activities, and will also prompt an increase in marine traffic, discussed below.

Marine and Air Traffic

Marine and air traffic is expected to be heightened throughout the lifecycle of an offshore wind farm as workers and materials are ferried to the offshore location. Helicopters may also be used to deploy maintenance crews during periods of unsafe marine conditions.[93] Air emissions from traffic can precipitate into the ocean and onto land.[94] Water quality may also be affected if oil leaking from machinery within a vessel contaminates the bilge water and deck drainage wastewater.[95] Water withdrawals for ballasting, engine cooling and other maintenance concerns may entrain planktonic marine life and poor swimming fish and potentially introduce invasive species to other sites.[96] An increase in marine

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[87] Scira Offshore Energy Ltd, Sheringham Shoal Offshore Wind Farm, Navigation, *at* http://www.scira.co.uk/ environment/navigation.htm (last visited Aug. 7, 2008).
[88] PEIS 5- 135 (Oct. 2007).
[89] *See e.g.* Alliance to Protect Nantucket Sound, Cape Wind Treats: Economy, *at* http://www.saveoursound.org/site/PageServer?pagename=CapeWind_Threats_Economy (last visited Aug. 4, 2008).
[90] George Hagerman & Aaron Stubbins, Virginia Coastal Energy Research Consortium: Offshore Wind Power and Marine Biofuels, Address at the Virginia Coastal Zone Partners Workshop (Feb. 14, 2007).
[91] George Hagerman & Aaron Stubbins, Virginia Coastal energy Research Consortium: Offshore Wind Power and Marine Biofuels, Address at the Virginia Coastal Zone Partners Workshop (Feb. 14, 2007).
[92] Cape Wind DEIS 5-5 (Jan. 2008).
[93] Cape Wind DEIS 5-7 (Jan. 2008).
[94] Cape Wind DEIS 5-5 to 5-6 (Jan. 2008).
[95] Cape Wind DEIS 5-1 (Jan. 2008).
[96] Cape Wind DEIS 5-2 (Jan. 2008).

vessels also opens up the potential for increased marine traffic collision and fuel spills.[97] Spilled fuels and other marine waste can travel shoreward and affect marine and coastal wildlife and human fishing and recreation activities.[98]

An increase in traffic may have other direct impacts on marine biodiversity. Marine vessel noise, coming largely from propeller cavitation, propeller singing and vibrations from propulsion engines, is likely to increase, and helicopter traffic will add noise to broad areas above and below waters.[99] This increase in noise can disturb fish, marine mammals and sea turtles,[100] and may affect human populations in near shore areas.[101] Marine mammals that inhabit coastal habitats may collide with ships as they travel between the coastal staging areas to the offshore sites.[102] The benthic environment may also be disturbed by increased traffic through the anchoring of vessels, particularly around WTG platform locations.[103]

Offshore Wave Energy Facilities

Wave energy conversion (WEC) technologies offer among the highest power densities of all renewable sources of offshore energy.[104] WEC devices capture the energy from waves created either by the interaction of wind with the ocean's surface or from fluctuations below the surface. Most wave energy technologies utilize the up-and-down motion of the water column as waves pass through it.[105] These technologies produce electricity utilizing some form of mechanical device, either on the shore, where the waves break, near shore, or in deeper waters offshore. Offshore WEC devices vary in depth requirements, but generally are in the range of 20-90 meters.[106] This means that many WEC projects in the U.S. are being proposed for construction in state waters; but the greatest potential for wave energy is found primarily on the Pacific coast.

WEC devices are generally categorized by the method used to capture wave energy. However, they are largely still in the development and piloting phases. There are four general types of WEC devices appropriate for offshore applications: terminators, attenuators, point absorbers (or buoyant devices), and overtopping devices.

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[97] PEIS 5-84 (Oct. 2007).
[98] Cape Wind DEIS 5-62 (Jan. 2008).
[99] Cape Wind DEIS 5-4 to 5-7 (Jan. 2008).
[100] Cape Wind DEIS 5-4 (Jan. 2008).
[101] PEIS 5-24 (Oct. 2007).
[102] PEIS 5-46 (Oct. 2007).
[103] Cape Wind DEIS 5-4 (Jan. 2008).
[104] EPRI, *Final Summary Report, Project Definition Study: Offshore Wave Power Feasibility Demonstration Project* (September 22, 2005), *available at* http://oceanenergy.epri.com/attachments/wave/reports/009_Final_Report_RB_Rev_2_092205.pdf.
[105] EPRI, *Ocean Options: Wave and Tidal Energy System Feasibility Assessments* (Dec. 2005), *available at* http://www.epriweb.com/public/000000000001013024.pdf.
[106] PEIS.

Terminators. These devices extend perpendicular to the direction of wave travel and capture or reflect the power of the wave.[107] Although terminators are generally installed onshore or near shore, floating devices have also been developed for offshore application.[108] The oscillating water column (OWC), a type of terminator, is a partially submerged, hollow structure in which water enters through a subsurface opening through a chamber with air trapped above it.[109] The wave action then causes the captured wave column to move up and down like a piston, in turn, forcing air through an opening connected to a turbine.[110] This turbine has the ability to rotate, which in turn generates electricity. An OWC prototype is being tested in Australia and another is under development in Rhode Island.[111]

Attenuators. These devices are long segmented floating structures oriented parallel to the direction of the waves.[112] The varying heights of waves along the device cause flexing where the segments connect.[113] The flexing parts at the points of connection are connected to hydraulic pumps or other converters, which generate electricity.[114] Examples of these devices include the McCabe wave pump and the Pelamis.[115] The Pelamis is a semi-submerged structure composed of cylindrical sections linked by hinged joints.[116] Hydraulic rams resist the motion of the joints induced by waves.[117] In turn, the motion pumps high-pressure oil through hydraulic motors via smoothing accumulators, which drive electrical generators to produce electricity.[118] Power from all the joints is fed down a single umbilical cable to a junction on the sea bed.[119] Ideally, the Pelamis would be moored in waters approximately 50-60m in depth and 5-10km from the shore, which would allow access to larger swell waves but avoid the costs involved in a longer submarine cable.[120] The first Pelamis prototype was installed in Scotland at the European Marine Energy Centre and opened on September 28, 2007.[121] A wave farm utilizing Pelamis devices is under construction in Portugal.[122]

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[107] Mineral Management Service, U.S. Department of the Interior, *Technology White Paper on Wave Energy Potential on the U.S. Outer Continental Shelf* (May 2006), 3, *available at* http://ocsenergy.anl.gov/documents/docs/OCS_EIS_WhitePaper_Wave.pdf. (hereafter "White Paper")
[108] White Paper at 3.
[109] Id.
[110] Id.
[111] Id.
[112] Id. at 4.
[113] Id..
[114] Id.
[115] Id.
[116] Id. at 5.
[117] Id.*; see also* Pelamis Wave Energy Converter, *at* http://www.pelamiswave.com/content.php?id=161 (last viewed Aug. 11, 2008).
[118] Pelamis Wave Energy Converter, *at* http://www.pelamiswave.com/content.php?id=161 (last viewed Aug. 11, 2008).
[119] Id.
[120] Renewable Energy World, "Pelamis Wave Energy Converter is Launched," (March 3, 2004) *available at* http://www.renewableenergyworld.com/rea/news/story?id=10639.
[121] White Paper at 5.
[122] Id.

Point Absorbers. These devices consist of a floating structure with components that move relative to each other due to wave action (e.g. a floating buoy inside a fixed cylinder).[123] The relative motion creates mechanical energy which is then converted into electricity and transmitted to shore over a submerged transmission line.[124] An example of one such device is the PowerBuoy ™, developed by Ocean Power Technologies.[125] This device consists of a floating structure with one component relatively immobile and second component with movement driven by wave motion.[126] The PowerBuoy system is designed to be installed one to five miles offshore in water 100 to 200 feet (60 m) deep.[127] Other point absorbers have also been tested that consist of an air-filled cylinder that moves up and down as water passes over it.[128] The motion of the cylinder, attached to a second cylinder fixed to the ocean floor, is used to drive a linear electrical generator.[129] One such prototype includes the Archimedes Wave Swing, tested in 2006.[130]

Overtopping devices. These devices consist of reservoirs that are filled by encroaching waves to levels in excess of the average surrounding ocean.[131] The reservoir water is then released, and gravity causes it to fall back to the ocean surface, creating energy.[132] This energy is used to drive hydro turbines or comparable conversion devices.[133] Overtopping devices have been tested as both onshore and off shore applications.[134] One such offshore device includes the Wave Dragon™, which consists of wave reflectors that concentrates waves towards it, thus raising the effective wave height.[135] The first grid connected prototype was deployed in Denmark in 2003.[136] In addition, Wave Dragon is currently installing another demonstration in Wales, and is to be located 2 - 3 miles off the South West Wales coast.[137] From prototypes, Wave Dragon assesses that preferable sites are typically located 5-25km offshore, which includes Europe's entire Atlantic coastline.[138]

Due to the variation in wave energy technologies and the fact that they are rapidly evolving, the impacts of a project will depend on the technology chosen and the design specifications of that technology. However, it is possible to provide a broad overview of

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[123] Id. at 6.
[124] Id.
[125] Id.
[126] Id.
[127] PowerBuoy Technologies, *at* http://www.oceanpowertechnologies.com/tech.htm (last viewed Aug. 11, 2008).
[128] White Paper at 7.
[129] Id.
[130] Id.
[131] Id.
[132] Id.
[133] Id.
[134] Id.
[135] Id.
[136] Id.
[137] Id.
[138] Wave Dragon, *at* http://www.wavedragon.net/index.php?option=com_content&task=view&id=4&Itemid=35 (last viewed Aug. 11, 2008).

the likely impacts from wave energy technology installation, operation, and decommissioning.

Site Characterization

In choosing a site and determining how best to place WEC technologies, data are collected to identify potential hazards, impacts, and potential. Activities associated with site characterization may include sonar surveys to locate shallow hazards, cultural resources and hard-bottom areas; digital depth sounding to obtain water depth measurements, bottom sampling and deep boring to obtain physical and chemical data; magnetic surveys to locate buried pipelines and other debris; and other technical studies.[139] As these are short-term activities, minimal impacts include some disturbance to the seafloor with attendant introduction of sediment into the water column.[140]

Construction

Construction of mooring systems for floating WEC technologies has the potential to affect seafloor features and processes. The magnitude of the impact depends on the siting of the mooring system and the size and design of the technology, however, the process would likely entail removal of rock and sediments. It could also cause potential impacts to coastal sediment transportation processes.[141] A very large-scale commercial wave facility could reduce wave height and lower wave energy levels along the coast, which could disrupt littoral sediment transport – causing larger amounts of sediment to be deposited between the facility and the shore and increasing erosion downdrift.[142] Floating devices that extend perpendicular to wave travel are more likely to impact coastal processes than those placed parallel to wave travel. Vessels used in construction may potentially use significant anchoring structures that could disturb the seabed.

Offshore construction activities, including the laying of transmission cables, have a great potential to disturb the seabed. This may affect benthic species and alter the composition of the biological communities. Construction also disturbs sediments and can reduce transparency of the water column, which in turn impacts benthic fauna and flora. This disturbance is often most critical closer to shore where commercial shellfish fisheries are located. Kelp beds in nearshore environments are also likely to be affected. Such impacts can be mitigated through selection of sites that avoid sensitive breeding grounds and other ecologically sensitive areas.

Water Quality Impacts. Sediments would temporarily be disturbed during construction, causing potential local impacts on water quality. The larger number of vessels required during construction would also lead to potential oil spills and other leaks or bilge

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[139] PEIS 5-146 (2007).
[140] *Id.*
[141] *Id.* at 5-147.
[142] *Id.*

discharges.[143] Installation of WEC devices might also cause release of lubricants, solvents, or other chemicals used in construction.[144]

Air quality impacts. Transportation of materials for the construction would most likely occur by shipping to the offshore site. This would result in increased vessel traffic and attendant emissions from engine exhaust and other heavy equipment used in construction, as well as fugitive dust emissions from construction. While these emissions would be short-term, they could temporarily impact local air quality.[145] Onshore construction activities of power management facilities (cable landings, substations, etc.) could also result in air emissions from increased vehicular traffic and machinery.

Impacts on ocean currents and movements. In the immediate proximity of the WEC device, potential impacts could include decreased wave height and a resulting small decrease in wave energy as waves contact the structure. These impacts are expected to be small-scale and localized.[146]

Noise. The additional vessels necessary for construction could contribute to noise pollution. Noise and pressure waves from the vessels can disturb marine life, including fish. *Electromagnetic field disturbances.* These are likely to be the same as those occurring in wind energy projects.[147]

Impacts to fish resources. Disturbance of the seafloor can disrupt reproductive habitat, shelter, and food for a variety of species of fish.[148]

Operation

Water quality impacts. Routine discharges of wastewater are not envisioned with these technologies. Some devices use hydraulic systems that could pose a risk of hydraulic fluid spills or leaks.[149] The impacts of such spills can be mitigated by using non-toxic and biodegradable fluids. Isolation valves might also be used to minimize spill volumes.[150] Significant storm events could cause mooring and other structures to break loose or wash up on shore, resulting in the release of hydraulic fluid.[151]

All structures emerged in seawater are subject to biofouling. This could be mitigated with regular maintenance.

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[143] *Id.* at p. 5-156.
[144] *Id.*
[145] *Id.* at p. 5-150.
[146] *Id.* at p. 1-154.
[147] *Id.* at p. 5- 167.
[148] *Id.* at p. 5-184.
[149] *Id.* at p. 5-157.
[150] *Id.*
[151] *Id.* at p. 5-157.

Finally, if the WEC are nearshore and large enough to remove significant energy from waves, there could be subsequent impacts on shoreline erosion and suspension of sediments in the water column.[152]

Sea traffic impacts. The presence of WEC structures could pose a collision hazard for vessels. Mitigation measures, such as safety lights, can be put in place to minimize the likelihood of collisions.

Air quality impacts. These are expected to be minor, associated with emissions from vehicles during maintenance or inspection visits, and other minor pollutants associated with actual operation of the technologies.

Impacts on ocean currents and movements. A large-scale commercial wave facility could reduce wave height and lower wave energy levels along the coast, which could disrupt littoral sediment transport – causing larger amounts of sediment to be deposited between the facility and the shore and increasing erosion downdrift.[153] These impacts could be mitigated by appropriate design and siting of the facilities. None of the technologies currently being developed and tested would extract a large portion of wave energy, and the effects are likely to dissipate within a few kilometers.[154]

Impacts on marine life. WEC devices can block migratory paths (e.g., of whales) and provide other opportunities for collisions, entanglements and/or entrapment of species.[155] Maintenance and inspection vessels can also pose a hazard. Seals can attempt to haul out on floating devices with low freeboard. This can pose issues for maintenance and repair of the devices. Additionally, increasing the potential areas for hauling out might increase the populations of these mammals, which might have impacts on the population when devices are decommissioned.[156]

Seabirds that nest on offshore rocks might also try to colonize WEC devices.[157] Airborne noise emissions might be incompatible with recreational activities, but some residual noise might help discourage birds and mitigate this issue. If nesting sites are colonized, decommissioning the device could pose a serious problem for these birds.

Cetaceans (dolphins, whales, porpoises) may be disturbed by noise emissions from some types of WEC devices (although they appear to have adapted to similar noise pollution from offshore oil and gas infrastructure). Water pollution (including accidental spills) could threaten the health of marine biodiversity, as well.

Specific impacts for critical habitats, areas of special concern (e.g., marine sanctuaries), and species, including endangered, threatened, and migratory species, would need to be

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[152] *Id.* at p. 5-157.
[153] *Id.*
[154] *Id.* at p. 5-155.
[155] G. Mc Murray, "Wave Energy Ecological Effects Workshop: Ecological Assessment Briefing Paper," *available online* at http://hmsc.oregonstate.edu/waveenergy/backgrounddocuments.html .
[156] *Id.*
[157] *Id.*

assessed and mitigated through appropriate siting and other mechanisms on a case-by-case basis.

Visual Appearance and Noise. These impacts depend on several factors, including: the distance offshore; the elevation of the shoreline observer; coastal weather conditions; size of the individual devices used; color contrast between devices and the sea; and the presence of artificial or natural structures in the offshore seascape. Safety requirements necessitate the use of lights and high contrast colors to ensure safe navigation. Some onshore transmission schemes (transformer stations, overhead lines, etc.) also will have a visual impact.

The turbines of onshore and nearshore oscillating water column devices (OWCs) can emit high levels of noise (somewhat like a siren). This can be reduced by careful design or acoustic muffling. However, even if muffled, sound can carry into nearshore waters and potentially impact military tracking operations.

Conflicts with Other Uses. This implicates the need for a multi-stakeholder consultation process in advance of siting and other related decisions related to the installation of these technologies. Installation and operation of WEC devices may compete with tourism and recreation, oil and gas, kelp harvesting, fishing, navigation, marine protected areas, etc.

Decommissioning

Decommissioning occurs at the end of the operating life of a WEC project and involves dismantling of the WEC devices and foundations; removal of associated scour protection structures; and subsequent transportation of these materials to shore for reuse or recycling.[158] Potential impacts for decommissioning would therefore likely be similar to those of construction and short-term in nature.[159]

[158] PEIS at p. 5-153.
[159] *Id.*

III. Federal Jurisdiction

States have jurisdiction over activities in their own waters and submerged (subaqueous) lands, and also exercise jurisdiction within three miles of their coasts (within 3 marine leagues in Texas and West Florida). Thus, disposition of natural resources and use of the subaqueous lands in, say, the Chesapeake Bay and within the 3-mile limit, are primarily under state jurisdiction although federal permits and other requirements apply to certain activities. For the outer continental shelf (OCS), beyond the three-mile limit, the federal government has exclusive jurisdiction. States' abilities to affect energy development actions on the OCS are based on their ability to participate in federal processes related to such decisions. These include environmental impact review under the National Environmental Policy Act)[160] and provisions in the Coastal Zone Management Act that provide for consistency review of federal actions outside the states' coastal zone that have effects on land or water uses or natural resources within the coastal zone.[161]

Fig. 1. Virginia's Coastal Zone & Territorial Waters showing 3-mile limit[162]

[160] 42 U.S.C. § 4321 et seq.

[161] 16 U.S.C. §1456(c). A subsection of this CZMA section specifically requires any person submitting a plan for exploration, development, or production from the OCS to certify consistency and undergo consistency review. §1456(c)(3)(B). MMS has proposed to treat alternative energy plans in the same manner. 73 Fed. Reg. 39419 (July 9, 2008).

[162] http://www.deq.virginia.gov/coastal/images/vaczmap.jpg

States also retain, for the most part, jurisdiction over the portions of energy projects and their support facilities that are within state waters or within the coastal zone itself. Thus, although the federal Minerals Management Service may issue an oil and gas lease or alternative energy lease on the OCS (after complying with CZMA and NEPA), nevertheless state permitting may still be needed for shore-based facilities or for pipelines and transmission lines traversing state subaqueous lands.

This section briefly summarizes the applicable federal laws in order to provide context for the state laws that are the focus of this report.[163]

The Outer Continental Shelf Lands Act and the Energy Policy Act of 2005: The Outer Continental Shelf Lands Act (OCSLA) grants the Secretary of the Interior authority over the resources of the OCS.[164] Oil and gas leasing is managed by the Interior Department's Minerals Management Service under the provisions of that Act. A Congressional legislative moratorium, renewed annually, has until recently prevented new leasing of OCS oil and gas resources off the coast of most states including Virginia, but in Fall 2008 this provision was not renewed. An executive order that also established a moratorium was also removed in 2008. Thus, oil and gas leasing in federal waters off Virginia is authorized.[165]

Section 388 of the Energy Policy Act of 2005 amended the OCSLA to grant the Secretary of the Interior authority to grant leases, easements, or rights-of-way on the OCS for activities that (1) produce or support production, transportation, or transmission of energy from sources *other* than oil and gas, or (2) allow for alternate uses of existing facilities on the OCS.[166] Section 388 also requires MMS to "issue any necessary regulations in order to carry out" the policies and objectives of the section.[167] In 2007, MMS released a final Programmatic Environmental Impact Statement "in support of the establishment of a program for authorizing alternative energy and alternate use activities on the OCS, as authorized by Section 388 of the Energy Policy Act of 2005."[168] In July 2008, MMS issued proposed regulations for granting leases, easements and rights-of-way for alternative energy projects and for alternate uses of existing facilities located on the OCS.[169]

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[163] R. Salcido, "Offshore Federalism and Ocean Industrialization," 82 Tul. L. Rev. 1355 (2008) provides a useful discussion of the interplay between federal and state jurisdiction, and considers alternative models of potential collaborative organization and law reform.
[164] 43 U.S.C. § 1331 et seq.
[165] The MMS issued a Federal Register Notice soliciting identification of areas offshore Virginia to be considered for leasing. 73 Fed. Reg. 67201-67204 (Nov. 13, 2008).
[166] 43 U.S.C. § 1337(p)(1) (2005) (amending 43 U.S.C. § 1337).
[167] 43 U.S.C. § 1337(p)(8) (2005).
[168] *See* Mineral Management Service, U.S. Department of the Interior, OCS Alternative Energy and Alternate Use Programmatic EIS Information Center, *at* http://ocsenergy.anl.gov/ (last viewed Aug. 11, 2008).
[169] *See* Alternative Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, 73 Fed. Reg. 132, 39376 (proposed July 9, 2008) (to be codified at 30 C.F.R. Pts 250, 285, and 290).

The Energy Policy Act of 2005 also vested exclusive jurisdiction over LNG terminals either offshore or in state waters in the Federal Energy Regulatory Commission (FERC), and *preempted* state jurisdiction over the siting of such facilities.[170]

Federal Power Act: FERC has asserted regulatory jurisdiction over wave energy projects pursuant to the Federal Power Act (FPA).[171] According to Section 23(b)(1) of the FPA, any non-federal hydroelectric project must be licensed if it is located in a navigable water of the United States; occupies lands of the United States; or located on a body of water over which Congress has Commerce Clause jurisdiction and the project affects interstate or foreign commerce.[172] FERC applied this provision to find jurisdiction over a proposed wave power project in Washington State waters, determining that its jurisdiction includes marine waters up to 12 nautical miles offshore.[173] FERC has continued to license hydrokinetic projects under its authority over hydropower projects. The agency has additionally developed licensing procedures and guidelines for preliminary permits and pilot project licenses. In general, an applicant for a license must first seek a preliminary permit from FERC. Preliminary permits are issued for up to three years and grant the developer priority to study a project at a specified site.[174] Preliminary permits do not authorize construction. The purpose is to reserve the right of that developer to apply for a license for the project that is being studied.[175] In its proposed rulemaking for alternative energy on the OCS, the MMS contends that FERC's jurisdiction is confined within the 3-mile limit (the historical territorial sea) and does not extend to 12 nautical miles offshore. MMS asserts that it has exclusive authority beyond the 3-mile limit. Despite consultations during the drafting of the proposed MMS rule, FERC and MMS have not agreed on the interpretation of the FPA and the precise jurisdictional divisions for wave and current energy projects.[176]

Ocean Thermal Energy Conversion Act: The OTEC Act of 1980 granted NOAA authority for licensing the construction, ownership, location, and commercial operation of OTEC plants.[177] This grant of authority was left undisturbed by the Energy Policy Act. No license applications have been received by NOAA.

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[170] 15 U.S. C. § 717(b), as amended. States will still have coastal consistency, NEPA, Clean Air Act, and Clean Water Act jurisdiction affecting these facilities.
[171] 16 U.S.C. § 12.
[172] 16 U.S.C. §817(1).
[173] FERC relied on Presidential Proclamation No. 5928 (Dec. 12, 1988), which defines the territorial sea as up to 12 nautical miles offshore. FERC also asserted that the statutory definition of a "hydroelectric project" was broad enough to include hydrokinetic projects (i.e., those utilizing wave and tidal energy technologies). The agency further found that portions of the project (including concrete anchors and submarine transmission lines) would be located on submerged federal lands within the boundaries of a marine sanctuary. Finally, the project was determined to require a license as it would be connected to an interstate electric grid. 101 FERC ¶ 62,009 (*Order Ruling on Declaration of Intention and Finding Licensing Required*) (Oct. 3, 2002).
[174] FERC, "Notice of Inquiry and Interim Statement of Policy: Preliminary Permits for Wave, Current, and Instream New Technology Hydropower Projects," (Feb. 2007), available at http://www.ferc.gov/whats-new/comm-meet/2007/021507/H-1.pdf.
[175] *Id*.
[176] Presidential Proclamation 5928, 54 F.R. 777 (1988).
[177] 42 U.S.C. § 9111.

Rivers and Harbors Act of 1899: Section 10 of the Rivers and Harbors Act requires the Corps of Engineers to review and authorize by permit any construction, excavation/dredging, or deposition of materials in or over navigable waters, or the obstruction or alteration of navigable waters.[178] If an offshore energy project or its components are located in navigable waters of the United States, development and construction activities such as the installation of offshore turbines and the transmission cable would be subject to review and permitting under Section 10.[179] The OCSLA extends this permitting jurisdiction of the Corps of Engineers to the full seaward limit of federal jurisdiction.[180]

Clean Water Act (CWA): The Clean Water Act contains several regulatory provisions relevant to offshore energy projects. Section 404 of the CWA requires a permit from the Corps of Engineers for any projects that require the "discharge of dredged or fill material into navigable waters."[181] The construction and operation of an offshore facility may involve dredging and filling for facilities that connect the offshore transmission cable with the onshore electric grid.[182] Additionally some excavation may result during the preparation of subaqueous lands in state waters for the turbines that may also require a permit. These activities within the 3-mile limit will require a permit under section 404.

Pursuant to Section 402 of the CWA, discharge of any pollutants into waters of the United States from a point source requires a National Pollutant Discharge Elimination System (NPDES) permit.[183] NPDES Construction Stormwater Permits are required for operators of a construction site larger than one acre.[184] The Cape Wind project's proposed transmission line, for example, requires an NPDES permit.[185] Under this permit, the construction manager is required to create a Storm Water Pollution Prevention

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[178] 33 U.S.C. § 401 (1983). A 2003 Massachusetts District Court ruling affirmed the Corps' authority to issue permits on the OCS, holding that the Outer Continental Shelf Lands Act (OCSLA) broadly extended the Corps' authority to grant section 10 permits on the OCS, including "the artificial islands and fixed structures." *See* Alliance to Protect Nantucket Sound, Inc. v. U.S. Dep't of the Army, 288 F. Supp. 2d 64, 72-73 (D. Mass. 2003), aff'd, 398 F.3d 105 (1st Cir. 2005).

[179] *See* 33 U.S.C. § 401 (1983). "…it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to beginning the same."

[180] 43 U.S.C. § 1333(e).

[181] *See* 33. U.S.C. § 1344 (1987).

[182] Mineral Management Service, U.S. Department of the Interior, Cape Wind Energy Project Draft Environmental Impact Statement 5-12 (Jan. 2008).

[183] 40 C.F.R. § 122.1(b) (2007).

[184] 40 C.F.R. § 122.26(b)(15)(i) (2007).

[185] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 8-3 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.

Plan and lay out the Best Management Practices (BMPs) that will minimize water pollution from the project area.[186]

Section 303 of the CWA requires states to establish and review, with EPA review, water quality standards for all water bodies within its borders.[187] A water quality standards program must, among other things, designate uses for a water body; set water quality criteria – the maximum concentration of pollutants that may occur in water bodies without impairing attainment or maintenance of a designated use; and establish a policy to prevent the degradation of existing designated uses.[188] In addition, states must establish a "total maximum daily load" of pollutants for water bodies that do not meet or are expected to fall short of a state's water quality standards.[189]

Section 401 of the CWA requires states to review federal actions and certify whether or not they will violate state water quality standards.[190] The U.S. Court of Appeals for the Second Circuit recently upheld Connecticut's denial of a 401 water quality certification for a plan to build a natural gas pipeline across Long Island Sound based on concerns for impacts of drilling and dredging on marine fish and aquatic life reflected in Connecticut water quality standards.[191]

National Environmental Policy Act (NEPA): The National Environmental Policy Act requires a comprehensive assessment of any major federal action "significantly affecting the quality of the human environment."[192] Such actions require every federal agency to submit an environmental impact statement (EIS) detailing the impacts of the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, alternatives to the proposed action, the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitments of resources involved in the proposed action should it be implemented.[193] NEPA is triggered by any major federal action, including a federal lease on the OCS, or permit under the Rivers and Harbors Act or §404 of the Clean Water Act, which will often be the only federal trigger available for a project that is wholly in state waters. For offshore oil and gas and alternative energy projects on the OCS, MMS is the lead agency for purposes of NEPA. If an EIS is required, the lead agency will hold a scoping meeting to identify issues and then will prepare a draft EIS, accept public comments, and prepare a final EIS. MMS has indicated that for competitive commercial leases for alternative energy, as for oil and gas, on the OCS there would be three NEPA reviews – one each for the lease sale, the site assessment plan, and the construction and operations plan.[194]

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[186] 40 CFR § 122.26(c) (2008).
[187] *See* 33 U.S.C. § 1313 (2000).
[188] *See* 33 U.S.C. § 1313 (2000); 40 CFR 131.6 (1983).
[189] 33 U.S.C. § 1313(d)(1)(C).
[190] 33 U.S.C. § 1341.
[191] Island East Pipeline Co. v. McCarthy, Docket No. 06-5764-ag (2d Cir. May 2, 2008).
[192] 42 U.S.C. §§ 4332 (2004).
[193] 42 U.S.C. § 4332(C) (2004).
[194] 73 Fed. Reg. 39420 (July 9, 2008).

Coastal Zone Management Act of 1972 (CZMA): 16 U.S.C. 1454 and 1465 encourage coastal states to implement state coastal zone management plans (CZMP), through a federal grant program within the Department of Commerce administered by NOAA.[195] CZMPs permit a state to review a federal project or application for a federal permit and license that may affect the coastal zone for consistency with the state CZMP. A state, in turn, has the power to concur, issue a concurrence with conditions on the applicable license or permit, or file an objection with a given project or application. Under the CZMP the state creates "enforceable policies" including "[s]tate polices which are legally binding through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, by which a State exerts control over private and public land and water uses and natural resources in the coastal zone."[196] State laws and policies are only recognized for consistency review purposes if they have been duly submitted to NOAA for review and are approved as part of the CZMP.

Applicants for federal licenses or permits for activities in or outside of the coastal zone must comply with approved state management programs.[197] A person who submits a plan to the Secretary of the Interior for activities on areas leased under the Outer Continental Shelf Lands Act must attach certification that each activity complies with approved state management programs. No federal official or agency may grant a license or permit for this activity unless the state concurs with the certification or the Secretary finds that the plan is consistent with the objectives of the Act or is necessary in the interest of national security. Likewise, federal agencies must not approve state and local government applications for federal assistance under other programs when the proposed projects are inconsistent with the enforceable policies of a management program, unless the Secretary finds the project is necessary or in the interest of national security.[198] Offshore activities may have a reasonably foreseeable effect on the coastal zone through water pollution, air pollution, noise pollution,[199] and a variety of other mechanisms. Projected potential impacts from the Cape Wind project on the coastal zone included sediment transport and erosion, disruption of benthic habitats, displacement of marine birds and impacts to fisheries.[200] The MMS has noted that multiple consistency reviews under the CZMA will occur for alternative energy projects under the OCS at each stage of the project.[201]

Migratory Bird Treaty Act (MBTA): The MBTA makes it unlawful "[t]o pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation,

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[195] 16 U.S.C. §1456 (1992).
[196] Coastal Zone Management Act Federal Consistency Regulations, 71 Fed. Reg. 788, 789 (Jan. 5, 2006).
[197] 16 U.S.C. § 1456(1)(A) (1992).
[198] 16 U.S.C. § 1456(3)(B)(iii) (1992).
[199] *See* Minerals Management Service, U.S. Department of the Interior, Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf 5-27 (Oct. 2007).
[200] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 9-1, 9-9 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[201] 73 Fed. Reg. 39420 (July 9, 2008).

carriage, or export, any migratory bird [protected under the four treaties]."[202] The MBTA attaches strict liability to the killing of a protected migratory bird and thus, offshore energy developers should avoid project locations where they may become liable.[203]

The Bald and Golden Eagle Protection Act (BGEPA): Similar to the MBTA, the BGEPA prohibits the taking of any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof, and imposes both civil and criminal penalties.[204]

National Historic Preservation Act (NHPA): Similar to NEPA, the NHPA can affect development by requiring federal agencies to take into account the effects that actions will have on items or sites listed, or eligible for listing, in the National Register of Historic Places.[205] In particular, federal agencies will need to determine the effects that a proposed development will have on historic sites where the development is built, funded, or permitted by a federal agency.[206]

Marine Mammal Protection Act (MMPA): The MMPA was established to maintain "optimum sustainable populations" of marine mammals.[207] In order to achieve this goal, the MMPA prohibits the taking of marine mammals, which includes harassment.[208] Three of the prominent risks assessed in the Cape Wind Project off Nantucket were vessel strikes, acoustic injuries, and disturbance of migratory patterns from the increased travel of vessels during construction. The Cape Wind Project found that the likelihood of direct harassment from vessel collisions and acoustic noise with marine mammals was low, because the site of the project and the transportation vessel routes were not areas with high concentrations of marine mammals nor would the vessels be moving at dangerous speeds.[209] The Cape Wind Project also found that the likelihood of indirect harassment effects on behavior from vessel noise or disturbance of migratory patterns was also low, because of the low concentrations of marine mammals in the areas to be traveled as well as the lack of evidence of long-term behavioral effects from vessel noise.[210] If the Virginia coast is home to marine mammals protected under the MMPA,

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[202] 16 U.S.C. § 703(a) (2004).
[203] 16 U.S.C. § 707(a) (1998). "[A]ny person, association, partnership, or corporation who shall violate any provisions of said conventions or of this subchapter, or who shall violate or fail to comply with any regulation made pursuant to this subchapter shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not more than $15,000 or be imprisoned not more than six months, or both."
[204] 16 U.S.C. § 668 (1972).
[205] *See generally* 16 U.S.C. § 470 (1980).
[206] 16 U.S.C. § 470(f) (1980)
[207] 16 U.S.C. § 1361(6) (1994).
[208] *See generally* 16 U.S.C. §§ 1361-1407 (1994). Harassment is defined under the MMPA to include "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal . . . or disrupt behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." 16 U.S.C. § 1362(18)(A) (2003).
[209] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 3-122, 3-132 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[210] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 3-123 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.

offshore energy developers may be liable under the MMPA, with variable likelihood depending upon the concentration and activity.

Endangered Species Act (ESA): Section 9 of the ESA makes it illegal to "take [listed] species within the United States or the territorial sea of the United States."[211] The ESA is administered by the DOI's Fish and Wildlife Service (FWS) and the Department of Commerce's NOAA National Marine Fisheries Service (NMFS). Both agencies are responsible for working with other agencies to plan or modify federal projects so that they will have minimal impacts on listed species and their habitats. In addition, the ESA commands all other federal agencies to comply with its provisions, even where such protection conflicts with the agency's primary responsibility.[212] These risks occur both in the construction phase as well as in the operational phase of the offshore energy project and should be factored in when thinking of the lifespan of the project.

A 1982 amendment to section 10 of the ESA provides FWS and NOAA authority to issue an "incidental take permit" and to allow "otherwise lawful state or private actions that would result in the incidental taking of listed species."[213] The Secretary also has authority to issue an incidental take permit to an entity engaged in an otherwise lawful activity to continue actions that may result in a taking, so long as any taking that occurs is incidental to and not the purpose of otherwise lawful activity.[214] When applying for an incidental take permit, the ESA requires a Habitat Conservation Plan (HCP) to be submitted.[215] During this process, the public must be given the opportunity to comment on both the submitted permit and the HCP.[216] Developers considering an offshore energy project may find it necessary to apply for and defend an incidental take permit prior to proceeding with construction.

Fish and Wildlife Coordination Act of 1958: This Act[217] requires all federal agencies and departments, or any public or private agency with a federal permit or license, to consult FWS, DOI, and with the state agency with authority over wildlife resources whenever "the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose."[218] The Act further requires the

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[211] 16 U.S.C. § 1538(a)(1)(B) (1988). Under the ESA, "the term 'take' includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19) (1988).

[212] *See* 16 U.S.C § 1531(c)(1) (1988); *see also* 16 U.S.C § 1536 (1988) (requiring that "[e]ach Federal agency, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is [un]likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee," while employing the best scientific and commercial data available).

[213] 16 U.S.C. § 1539(a)(1)(B) (1988).

[214] 16 U.S.C. § 1539(a)(1)(B) (1988).

[215] 16 U.S.C. § 1539(a)(2)(A) (1988).

[216] 16 U.S.C. § 1539(a)(2)(B) (1988).

[217] 16 U.S.C. §§ 661-666 (1958).

[218] 16 U.S.C. § 662(a) (1965).

Secretary of the Interior to submit a report that outlines the possible damage to wildlife resources from the proposed project, the measures that should be adopted to prevent the loss of or damage to wildlife resources, and an estimation of the wildlife benefits or losses resulting from the project.[219] If the construction of a wind power turbine or the laying of transmission cables is deemed to divert or modify federal waters, this Act may apply.

Federal Aviation Administration (FAA) Objects Affecting Navigable Airspace: 14 C.F.R. Part 77 requires notice of any proposed construction or alteration of any object that would affect the navigable airspace of aircraft. FAA conducted Aeronautical Studies for the turbine locations to assess impact on aeronautical safety.[220] FAA assessments of the Cape Wind project included whether the Project would introduce physical, electromagnetic, or line of sight interference with existing or proposed air navigation, communications, radar, or control system facilities, as well as whether the Project would result in an adverse impact upon air traffic operations, airport efficiency, runway length, or airport traffic patterns.[221] Each WTG may also require the installation of FAA recommended lighting.[222] As such, depending on the height and siting of a proposed offshore energy project, notice to the FAA may be required, and the FAA may conduct Aeronautical Studies to assess aeronautical safety of the proposed offshore energy development project.[223]

Coast Guard Regulations: 33 C.F.R. Parts 62, 64, and 66 authorize the Coast Guard to determine whether facilities on navigable waters would obstruct or create a hazard to navigation. In addition, the District Commander of the Coast Guard is permitted to recommend and require markings, lights, and other navigational tools to provide for safe navigation. The Cape Wind project proposed for Massachusetts sought permits from the Coast Guard for the establishment and operation of a Private Aid to Navigation (PATON) to a fixed structure.[224] The use of vessels in construction and transport of materials and workers to offshore energy projects will require the use of navigable waterways regulated

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[219] 16 U.S.C. §§ 662(b), (f) (1965).
[220] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 3-333 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[221] U.S. Army Corps of Engineers, Draft Environmental Impact Statement/Environmental Impact Report/Development of Regional Impact 5.12 *available at* http://www.nae.usace.army.mil/projects/ma/ccwf/section1.pdf.
[222] U.S. Army Corps of Engineers, Draft Environmental Impact Statement/Environmental Impact Report/Development of Regional Impact 5.12 *available at* http://www.nae.usace.army.mil/projects/ma/ccwf/section1.pdf.
[223] *See* 14 C.F.R. § 77.23 (1995). Triggering heights include: (1) A height of 500 feet above ground level at the site of the object; and (2) A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet. 14 C.F.R. § 77.23 (1995).
[224] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact Table 1-2 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.

by coast guard vessels.[225] Additionally, because offshore energy projects will likely create an obstruction in navigable waters, the Coast Guard will have jurisdiction to provide required recommendations.

Coastal Barrier Resource Act: The purpose of the Act, among other things, is to minimize the damage to fish, wildlife, and other natural resources associated with the coastal barriers along the Atlantic and Gulf Coasts. The Act works to restrict future federal expenditures and financial assistance that encourages the development of coastal barriers.[226] The Act establishes a Coastal Barrier Resources System, consisting of undeveloped coastal barriers and other areas on the coastal U.S. as identified on maps on file with the Secretary of the Interior and prohibits the direct or indirect federal funding of various projects in these areas that might support development.[227] Thus, funding for a wind turbine project, for example, at a location listed as an undeveloped coastal barrier in the System may be prohibited. However, the Act provides for limited exceptions, such as for the development of energy facilities.[228]

Clean Air Act (CAA): The Clean Air Act grants EPA the responsibility for regulating emissions from OCS sources. An OCS source is defined to include any activity, facility or equipment that is regulated under the OCSLA and located on the OCS.[229] Vessels that are permanently or temporarily attached to the seabed or physically attached to an OCS facility are considered a source.[230] Standards for sources located within 25 miles of the seaward boundary of Virginia must be the same as "state and local requirements for emission controls, emission limitations, offsets, permitting, monitoring, testing, and reporting."[231] New OCS sources are required to meet such standards within 24 months. During construction, operation and decommissioning stages of an OCS energy project, emissions coming from vessels traveling to and the facilities on the OCS may therefore be subject to permitting under the CAA.

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[225] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact Table 3-85 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[226] 16 U.S.C. § 3501(b) (2000).
[227] 16 U.S.C. §§ 3501-3506 (2000).
[228] 16 U.S.C. § 3505 (1990).
[229] 42 U.S.C. § 7627(a)(4)(C) (1990).
[230] 42 U.S.C. § 7627(a)(4)(C) (1990).
[231] 42 U.S.C. § 7627(a)(1) (1990).

IV. State Laws Relevant to Offshore Energy Spatial Location

State laws and programs include, generally:

1) Laws and programs that in advance of any proposals *allocate or designate areas* suitable and unsuitable for energy facilities and supporting infrastructure in marine waters, and
2) Laws and programs that *address impacts or involve case-by-case review* of proposals.

Most state laws, including those involved in CZMA coastal resource management programs and consistency review are of the second type, discussed in Chapter V. These include laws governing permit standards and review of proposals. However, several states have recently adopted measures or programs of the first type – designating uses of spatial areas of state waters and seeking to influence uses of adjacent federal waters.

Massachusetts Oceans Act of 2008

Massachusetts' Oceans Act of 2008 is state-enacted legislation that requires the development of a *comprehensive* management plan for a state's marine waters.[232] The objective of the plan is a balance between natural resource preservation and human activity, particularly renewable energy, in marine waters under state jurisdiction.[233] The Act mandates that the final plan be promulgated by December 31, 2009, after at least six months of public notice and hearings and opportunity for comment on a draft plan,[234] at which point it will be formally incorporated into the state's coastal zone management program.[235]

The Massachusetts Legislature placed all oversight, coordination, and planning authority over the Commonwealth's ocean waters and ocean-based development in the hands of the Secretary of Energy and Environmental Affairs.[236] To assist the Secretary in developing the management plan, the Oceans Act creates an ocean advisory commission and a science advisory council.[237] The commission and the council are required to meet at least quarterly but also may be assembled at the discretion of the Secretary.[238] The ocean advisory commission consists of 17 members, including nine seats for governmental officials (six of them legislators) and eight seats for representatives of nongovernmental,

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[232] Press Release, The Office of Governor Deval Patrick, Governor Patrick Signs Law Creating First-in-the-Nation Oceans Management Plan Balancing Preservation, Uses (May 28, 2008), http://www.mass.gov/?pageID=gov3pressrelease&L=1&L0=Home&sid=Agov3&b=pressrelease&f=080528_oceans&csid=Agov3.
[233] *Id*.
[234] 2008 Mass. Acts 114, Sec 2, adding Mass. Gen. Laws Ch. 21A, §4C.
[235] 2008 Mass. Acts 114, Sec. 23.
[236] *Id*. at Sec. 2.
[237] *Id*.
[238] *Id*.

stakeholder, and local government and regional interests.[239] The Act requires the commission to hold public meetings relating to the matters within the plan.[240] While the advisory commission has the general task of making plan development recommendations to the secretary, the nine-member science advisory council has more specific tasks, including creating a *baseline assessment* of the marine environment in state waters and providing the *scientific information* necessary for development of the plan as it is needed.[241]

The ocean management plan is intended to cover *all marine waters under the jurisdiction of Massachusetts.* According to the Act, the plan shall include any waters and submerged lands of the ocean beginning at the "nearshore boundary of the Ocean Management Planning Area," previously defined by the state's coastal management program and extending to the seaward boundary of the Commonwealth, three nautical miles from shore.[242] The plan also must detail the municipal, state, and federal boundaries and may recommend ways to clarify them.[243]

The Act anticipates that the plan will consider and fulfill multiple state objectives. Among these are the establishment of siting priorities and standards for ensuring protection of marine waters as well as identifying appropriate locations and performance standards for marine activities, uses, and facilities. The plan also is intended to identify and protect sensitive or unique estuarine and marine life and habitats. The plan is expected to foster sustainable uses and to coordinate activity under international, federal, state, and local authority. In the course of developing the plan, the secretary must consider the existing natural, cultural, historical, social, and economic characteristics of the regions affected by the plan.[244]

The Act explicitly states that "Nothing in this act shall be construed to alter the jurisdictional authority of the division of marine fisheries."[245] But, to the maximum extent practicable, marine fisheries shall be integrated with the ocean management plan.[246]

The Act makes a significant change in preexisting Massachusetts law, allowing the siting of offshore or floating electric energy facilities in most state waters. Prior to the Oceans Act of 2008 taking effect, a section of the Massachusetts Ocean Sanctuaries Act pertaining to prohibited activities read as follows:

> Except as otherwise provided herein, the following activities shall be prohibited in an ocean sanctuary: the building of any structure on the seabed or under the subsoil; *the construction or operation of offshore or*

[239] *Id*.
[240] *Id*.
[241] *Id*.
[242] *Id*.
[243] *Id*.
[244] *Id*.
[245] *Id*. at Sec. 21.
[246] *Id*. at Sec. 2.

> *floating electric generating stations*, the drilling or removal of any sand, gravel or other minerals, gases or oils; the dumping or discharge of commercial, municipal, domestic or industrial wastes; commercial advertising; the incineration of solid waste or refuse on, or in, vessels moored or afloat within the boundaries of an ocean sanctuary.[247]

The Oceans Act provides that the phrase "the construction or operation of offshore or floating electric generating stations" is modified by addition of the following language:

> except: (a) on an emergency and temporary basis for the supply of energy *when the electric generating station is otherwise consistent with an ocean management plan*; or (b) for appropriate-scale *renewable energy facilities, as defined by an ocean management plan* promulgated pursuant to section 4C of chapter 21A, in areas other than the Cape Cod Ocean Sanctuary; provided, however, that (i) the renewable energy facility is otherwise consistent with an ocean management plan; (ii) siting of all such facilities shall take into account all relevant factors, including but not limited to, protection of the public trust, compatibility with existing uses, proximity to the shoreline, appropriateness of technology and scale, environmental protection, public safety and community benefit; and (iii) in regions where regional planning agencies have regulatory authority, a regional planning agency may review the appropriate-scale offshore renewable energy facilities as developments of regional impact and the applicant may seek review pursuant to the authority of the energy facilities siting board to issue certificates of environmental impact and public interest …[248]

Thus, in all but one state ocean sanctuary, offshore renewable energy facilities will no longer be prohibited if they are consistent with the ocean plan.[249] This change is particularly significant given the fact that over 90 percent of territorial marine waters under the jurisdiction of Massachusetts are statutorily designated as ocean sanctuaries.[250] The Massachusetts Legislature first made these designations in 1970 under the Ocean Sanctuaries Act.[251]

According to the Massachusetts Oceans Act of 2008, once the Secretary of Energy and Environmental Affairs adopts the ocean management plan, "all certificates, licenses, permits and approvals for any proposed structures, uses or activities in areas subject to the ocean management plan shall be consistent, to the maximum extent practicable, with

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[247] MASS. GEN. LAWS ch. 132A, § 15 (emphasis supplied).
[248] 2008 Mass. Acts 114, Sec. 7, amending Mass. Gen. Laws ch. 132A, § 15..
[249] Press Release, The Office of Governor Deval Patrick, Governor Patrick Signs Law Creating First-in-the-Nation Oceans Management Plan Balancing Preservation, Uses (May 28, 2008), http://www.mass.gov/?pageID=gov3pressrelease&L=1&L0=Home&sid=Agov3&b=pressrelease&f=080528_oceans&csid=Agov3.
[250] Industrial Wind Action Group, Developer: Buzzards Bay Wind Project Seeks Community Input, *at* http://www.windaction.org/news/6438; *See* Ocean Management Planning Area and the Ocean Sanctuaries map, http://www.mass.gov/czm/oceanmanagement/oceans_act/ocean_planning_map.pdf.
[251] *See* MASS. GEN. LAWS ch. 132A, § 13.

the plan."[252] Furthermore, the Secretary must promulgate regulations for implementing, administering, and enforcing the Act.[253] The ocean management plan also will be incorporated into the existing state coastal zone management plan[254] once the change is approved by the U.S. Secretary of Commerce in accordance with Section 306(e) of the Coastal Zone Management Act (CZMA). By making the ocean plan enforceable through these measures, Massachusetts will have the authority to enforce the plan against federal agencies, state or local government activity conducted with federal assistance, and any activities under a federal license or permit "affecting any land or water use or natural resource of the coastal zone"[255] in accordance with the federal consistency provisions of the CZMA.

California: Ocean Protection Act and Marine Life Protection Act

California has two laws particularly relevant to spatial planning for uses of its marine waters. The California Ocean Protection Council was established in 2004 under the *California Ocean Protection Act* (COPA).[256] The Council is tasked with ensuring "that California maintains healthy, resilient, and productive ocean and coastal ecosystems for the benefit of current and future generations."[257] It is primarily a coordinating body and does not itself have authority to engage in ocean zoning or designation of areas suitable or unsuitable for energy facilities or other facilities.

The COPA instructs the Council to coordinate the activities, data, and research results of state agencies as they relate to coastal waters and ocean ecosystems and to identify and recommend changes to state law and federal law and policy that are needed to achieve the goals of the COPA.[258] Recommendations regarding federal law and policy are to be made to the governor and legislature along with suggestions for encouraging those changes.[259] The Council does not exercise regulatory authority.

The COPA identifies principles that the Ocean Protection Council must promote and by which state agencies must abide. Among these principles are consideration of the effects of land-based activities on the ocean ecosystem; recognition of the importance of aesthetic, recreational, and educational uses of the coast and ocean; encouragement of activities that are consistent with protecting, conserving, and maintaining healthy coastal and ocean ecosystems; adoption of ecosystem perspectives in the management of coastal and ocean resources; use of public funds in an efficient and effective manner; and inclusion of public participation in decision-making.[260] The Ocean Protection Council's

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[252] 2008 Mass. Acts 114, Sec. 2.
[253] *Id*.
[254] *Id*. at Sec. 23.
[255] 16 U.S.C. §§ 1456(c)(1)(A), 1456(d), 1456(c)(3)(A).
[256] The Cal. Ocean Prot. Council, A Vision for Our Ocean and Coast: Five-Year Strategic Plan 7 (2006), http://www.resources.ca.gov/copc/docs/OPC_Strategic_Plan_2006.pdf.
[257] *Id*. at 11.
[258] CAL. PUB. RES. CODE § 35615.
[259] *Id*. at § 35615(b)(2).
[260] *Id*. at §§ 35505, 35510.

five-year plan of 2006 details how the Council intends to meet the objectives and promote the principles of the COPA in the near-term.[261]

The Ocean Protection Council is composed of the Secretary for Resources, the Secretary for Environmental Protection, the Chair of the State Lands Commission, and two members of the public.[262] Two non-voting members also meet with the council, one a member of the California Senate and appointed by the Senate Committee on Rules and the other a member of the California Assembly and appointed by the Speaker of the Assembly.[263] The Council's meetings are to be open to the public and the Council is encouraged to "seek a broad range of public advice when establishing priorities for ocean resource protection, enhancement, and restoration."[264] The COPA requires that the Ocean Protection Council establish a science advisory team to assist the Council in fulfilling its objectives.[265] Members of the science advisory team, like the members of the Ocean Protection Council, serve without compensation, except for reimbursement of actual and necessary expenses incurred in the performance of their duties and a limited per diem.[266]

The Ocean Protection Council financially supports certain projects conducive to coastal and ocean protection. Directly, the Council uses funds received from the Resources Agency, California Coastal Conservancy, and State Water Resources Control Board to support work by public agencies, nongovernmental organizations, and others through grants, contracts, and interagency agreements.[267] Indirectly, the Council assists other state agencies and departments with the development and negotiation of budget proposals as well as investigating new funding sources, developing cross-cutting budgets, proposing the reallocation of existing funds, and working to increase contributions from the federal government and private foundations.[268] While only a few years old, the Ocean Protection Council has directed state funding priorities relative to ocean protection and has raised awareness of and devised implementation strategies for a number of issues facing the state's marine waters, most recently ocean litter.[269]

California's *Marine Life Protection Act* (MLPA), enacted in 1999, is intended to spatially define marine waters for *conservation purposes*.[270] The MLPA instructs the California Department of Fish and Game to prepare a master plan for the adoption and implementation of a Marine Life Protection Program, including a network of marine protected areas throughout state waters, and to present the plan to the Fish and Game Commission.[271]

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[261] *See* http://www.resources.ca.gov/copc/docs/OPC_Strategic_Plan_2006.pdf.
[262] CAL. PUB. RES. CODE § 35600(a).
[263] *Id*. at § 35610.
[264] *Id*. at § 35612.
[265] *Id*. at § 35615(3)(A).
[266] *Id*. at §§ 35615(d), 35600(c).
[267] The Cal. Ocean Prot. Council, A Vision for Our Ocean and Coast: Five-Year Strategic Plan 40 (2006), http://www.resources.ca.gov/copc/docs/OPC_Strategic_Plan_2006.pdf.
[268] *Id*.
[269] *See* Cal. Ocean Prot. Council, Announcements, *at* http://www.resources.ca.gov/copc/.
[270] Cal. Dept. of Fish and Game, California Marine Life Protection Act: Revised Master Plan for Marine Protected Areas 1 (2008).
[271] CAL. FISH & GAME CODE §§ 2855, 2859.

After two unsuccessful attempts, a draft of that master plan was completed in August of 2005 and revised in January of 2008. The development of a statewide network of marine protected areas currently is underway, with planning and implementation for the central coast study region, the first of five regions, having been completed in 2007 and the next region, the north central coast, scheduled for completion in 2008.[272]

Several factors prompted the passage of the Marine Life Protection Act. First, California's existing marine protected areas were established on a piecemeal basis and lacked effective management and enforcement.[273] Second, only 14 of the 220,000 square miles of state and federal waters off the coast of California had been set aside as no-take areas.[274] Third, fishing is important to California's communities and economy, and protected areas are perceived as valuable in sustaining marine fisheries.[275] Consequently, the Marine Life Protection Act identified six specific goals for the Marine Life Protection Program:

- protect the diversity of marine life and integrity of marine ecosystems;
- help rebuild, sustain, and protect marine life populations;
- improve recreational, educational, and study opportunities from minimally-disturbed ecosystems;
- protect marine life habitats unique to and representative of California's marine natural heritage;
- ensure that the state's marine protection areas have clear objectives, effective management, adequate enforcement, and are based on sound science; and
- ensure that state marine protected areas are designed and managed, to the extent possible, as a network.[276]

The MLPA directed the Department to convene a master plan team, composed of scientists and state agency representatives.[277] The MLPA also required that the plan be "prepared with the advice, assistance, and involvement of participants in the various fisheries and their representatives, marine conservationists, marine scientists, and other interested persons," including specific state and federal agencies.[278]

Between 1999 and 2004, the California Department of Fish and Game made two consecutive attempts to follow the directives of the Act, failing initially from insufficient stakeholder involvement and then from inadequate resources.[279] In 2001, the Department and the master plan team developed proposals for a statewide network of marine protected areas primarily based on the recommendations of master plan team scientists

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[272] Cal. Dept. of Fish and Game, Marine Life Protection Act Initiative, *at* http://www.dfg.ca.gov/mlpa/.
[273] CAL. FISH & GAME CODE § 2851(a).
[274] *Id*. at 2851(g).
[275] *Id*. at 2851(d).
[276] *Id*. at § 2853(b).
[277] *Id*. at § 2855(b).
[278] *Id*. at § 2855(b)(4).
[279] Cal. Dept. of Fish and Game, California Marine Life Protection Act: Revised Master Plan for Marine Protected Areas 9 (2008).

and fishery data.[280] These initial proposals were intended to serve as a base from which to consider public input.[281] After initial workshops, it became clear to the master plan team that far more constituent involvement was needed.[282] The Director of the Department of Fish and Game announced a change in the process in January 2002.[283] This new strategy involved dividing the state into seven coastal regions and forming a regional work group for each composed of stakeholder representatives, a Department of Fish and Game representative, one or more master plan team scientists, a professional facilitator, and GIS support.[284] In March 2003, the process was put on hold as the Department sought adequate funding to see the effort through completion.[285] State legislators and the Department began to realize the resources and time this would require, and this process too was halted.[286]

In August 2004, the Department of Fish and Game, California Resources Agency, and the Resources Legacy Fund began a new effort, referred to as the MLPA Initiative, to implement the Act.[287] The initiative divided the state into five study regions to be addressed independently rather than addressing the state as a single unit.[288] The initiative established a task force, composed of public leaders selected by the California Resources Agency, to oversee the regional projects, to prepare recommendations for coordinating marine protected area management with federal agencies, and to direct expenditure of initiative funds.[289] The initiative also established master plan science advisory teams for each study region.[290] The initiative established regional stakeholder advisory groups, composed of individuals selected by the Director of the Department of Fish and Game, to provide local knowledge to the planning and implementation process.[291]

The MLPA Initiative has a four-step process for implementing the Marine Life Protection Act. First, the regional stakeholder groups and science teams develop regional profiles, convene regional planning processes, and identify alternative approaches to marine protected area networks in their respective regions. Second, after evaluating new and existing marine protected areas, each regional stakeholder group must develop alternative packages of marine protected areas. Third, the blue ribbon task force will evaluate these proposals, identify a preferred alternative, and submit all proposals to the California Fish and Game Commission. The Commission then will prepare regulatory analyses of the proposals.[292]

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[280] *Id*., *id*. at C-1.
[281] *Id*. at C-1.
[282] *Id*. at C-2.
[283] *Id*. at C-3.
[284] *Id*.
[285] *Id*.
[286] *Id*. at 9.
[287] *Id*. at 9.
[288] *Id*. at iii.
[289] *Id*. at 15.
[290] *Id*. at 16.
[291] *Id*.
[292] *Id*. at iii.

When developing alternative sites and the network design options, the regional groups can use varying classifications of marine protected areas to balance marine protection and human uses. The Marine Managed Areas Improvement Act of 2000 identifies three classifications of marine protected areas: state marine reserve, state marine park, and state marine conservation area.[293] State marine reserves are the most protected areas, open to the public, research, and non-consumptive human use only when consistent with the protection of all marine resources.[294] State marine parks allow certain uses, including recreational harvesting, so long as it does not compromise the protection of species of interest, habitat, or geologic or cultural features.[295] In state marine conservation areas, the managing agency may permit commercial as well as recreational harvesting, but with similar caveats to those of state marine parks.[296] In the course of developing marine protected area alternatives for the central coast region, the science team separated the state marine conservation area category into three levels of protection: high, protects all benthic communities and allows only the take of highly transient pelagic species, moderate, allows the take of transient pelagic species and select benthic species, and low, protects some benthic species.[297]

Until the master plan is adopted, the California Fish and Game Commission must annually consider and act on petitions for adding, deleting, or modifying marine protected areas.[298] After adoption of the plan, the Commission must do the same at least every three years.[299] After implementation of marine protected areas, a comprehensive review of monitoring results should be conducted within five years[300] and every five years thereafter.[301] If the monitoring results fail to match the goals of each marine protected area or the overall network, recommendations should be made for improving the characteristics or management of the protected area.[302] Enforcement of regulations concerning each marine protected area will vary depending on the final design and location of each protected area.[303] The more easily accessible a protected area is, the more enforcement it will need. Regional management plans will identify enforcement activities and staff for proper implementation.[304]

Rhode Island: Ocean Special Area Management Plan (SAMP)

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[293] CAL. PUB. RES. CODE § 36700.
[294] *Id*. at § 36710(a).
[295] *Id*. at § 36710(b).
[296] *Id*. at § 36710(c).
[297] Cal. Dept. of Fish and Game, California Marine Life Protection Act: Revised Master Plan for Marine Protected Areas R-4 (2008).
[298] CAL. FISH & GAME CODE § 2861.
[299] *Id*.
[300] Cal. Dept. of Fish and Game, California Marine Life Protection Act: Revised Master Plan for Marine Protected Areas 63 (2008).
[301] *Id*. at viii.
[302] *Id*.
[303] Cal. Dept. of Fish and Game, California Marine Life Protection Act: Revised Master Plan for Marine Protected Areas 65 (2008).
[304] *Id*.

In early 2008, the Rhode Island Coastal Resources Management Council (CRMC) proposed the development of a special area management plan (SAMP) focused on offshore renewable energy, specifically wind generation. The SAMP is intended to zone comprehensively a 36 by 25 nautical mile stretch of ocean off the coast of Rhode Island that includes most, if not all, state marine waters as well as federal waters.[305] Since Rhode Island does not have authority beyond its three miles of state waters, planning for federal waters would require cooperation from relevant federal agencies to have any effect. By identifying current and expected uses of those ocean waters, ecologically sensitive and significant areas, and the windiest stretches of that region, the SAMP is expected to define preferred sites for offshore wind development, among other uses.[306]

Since 2006, the Governor of Rhode Island has sought the development of electrical generating capacity from wind power to supply 15% of the state's power demand.[307] With much of this effort focused on potential sites offshore, issues arose over which sites to pursue and how most efficiently to navigate state and federal permitting requirements. CRMC, the sole manager of the state's submerged lands, along with technical assistance from the University of Rhode Island, proposed the development of an Ocean SAMP as a means of effectively locating the wind turbines and simplifying the regulatory process.[308]

The federal Coastal Zone Management Act defines a SAMP as "a comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies; standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone."[309] The CRMC has experience with SAMP development, having adopted four SAMPs and currently working on two others.[310] But, the Ocean SAMP is different as it does not pertain to a "specific geographic area within the coastal zone;" rather, it would apply to substantially more area than that encompassed by state waters. This use of a SAMP is unique.

The development of the Ocean SAMP will be divided into two parts. First, the CRMC will prepare a zoning map for offshore waters within the predetermined area that will identify the location of certain uses, including energy facilities, accounting for environmental concerns and potential conflicts.[311] Second, the CRMC will create design and construction rules for the offshore energy production projects.[312] By the end of the

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[305] Timothy C. Barmann, Mapping the ocean: SAMP will target areas for renewable energy projects, Providence Journal, July 24, 2008, *at* http://www.projo.com/news/content/bz_ocean_samp18_07-24-08_8BAT7HN_v13.31a3bbf.html.
[306] *See* R.I. Coastal Res. Mgmt. Council & Univ. of R.I., The Ocean/Offshore Renewable Energy Special Area Management Plan (2008).
[307] Press Release, Office of the Rhode Island Governor, Carcieri Unveils Wind Power Siting Study (Apr. 18, 2007), http://www.ri.gov/press/view.php?id=3970.
[308] R.I. Coastal Res. Mgmt. Council & Univ. of R.I., The Ocean/Offshore Renewable Energy Special Area Management Plan 1 (2008).
[309] 16 U.S.C. § 1453(17).
[310] Timothy C. Barmann, Mapping the ocean: SAMP will target areas for renewable energy projects, Providence Journal, July 24, 2008.
[311] *Id*.
[312] *Id*.

first year, the CRMC will begin accepting wind farm applications for preliminary review.[313] The CRMC hopes that developers will use the SAMP as application guidance, reducing the likelihood of sub-standard proposals.[314] The SAMP is expected to be completed by May 31, 2010.[315] According to the CRMC, the SAMP will accomplish four objectives:

First, the CRMC hopes to "streamline cumbersome federal and state permitting processes and establish a more cost-effective permitting environment for investors."[316] The CRMC believes that the Ocean SAMP will meet its requirements for scientific analysis and planning, including stakeholder involvement, as well as those requirements of the MMS, the Corps of Engineers, NOAA, and the Rhode Island Department of Environmental Management.[317] The CRMC also anticipates that by including the Corps and other federal agencies in the SAMP process, subsequent permit applications for offshore energy development consistent with the SAMP will not need an Environmental Impact Statement.[318] Strategically siting offshore energy facilities so that they impinge upon current and future human uses as little as possible and cause minimal environmental damage, makes it more likely that a development permit will be approved on the basis of an Environmental Assessment rather than needing a full Environmental Impact Statement.[319] In other words, there may be sufficient evidence through the SAMP that development of the energy facility at the site identified by the SAMP will not cause a significant impact, and thus avoid the need to prepare an Environmental Impact Statement.

Second, the CRMC seeks to "promote a balanced approach to considering the development and protection of ocean-based resources."[320] Because a SAMP is intended to "provid[e] for natural resource protection and reasonable coastal-dependent economic growth,"[321] it may supply a sound foundation and process for this balanced approach. Third, the CRMC aims to "complete the necessary studies to yield the most accurate and current ocean-based scientific data and technologies to build knowledge critical for

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[313] R.I. Coastal Res. Mgmt. Council & Univ. of R.I., The Ocean/Offshore Renewable Energy Special Area Management Plan 1 (2008).
[314] *Id*. at 3.
[315] *Id*. at i.
[316] *Id*. at 1
[317] *Id*.
[318] Telephone Interview with Grover Fugate, Executive Director, Coastal Res. Mgmt. Council, State of R.I. (July 31, 2008). This view relies in part on Corps of Engineers Reg. Guidance Letter 86-10 (October 2, 1986), http://www.usace.army.mil/cw/cecwo/reg/rgls/rgl86-10.pdf.
[319] *See* Timothy C. Barmann, Mapping the ocean: SAMP will target areas for renewable energy projects, Providence Journal, July 24, 2008.
[320] R.I. Coastal Res. Mgmt. Council & Univ. of R.I., The Ocean/Offshore Renewable Energy Special Area Management Plan 1 (2008).
[321] 16 U.S.C. § 1453(17).

supporting the permitting process."[322] Fourth, the CRMC wishes to "foster a well-informed and committed public constituency."[323]

The CRMC also intends to use the SAMP as a means of collaborating with federal agencies. NOAA has observed that effective SAMPs include "a strong commitment and willingness at all levels of government to enter into a collaborative planning process to produce enforceable plans."[324] This cooperative approach in the Ocean SAMP is intended to streamline permitting procedures later, but perhaps more importantly, to effectively expand the planning area past state waters.[325] Federal agencies may not be bound by the SAMP in carrying out their responsibilities in federal waters, but their participation in the process will create a very strong incentive to rely on the SAMP and at least creates strong presumptions in favor of the conclusions and prescriptions it contains. Moreover, a comprehensive plan that includes all relevant ecological and economic data, rather than just what exists on one side of a jurisdictional boundary, could benefit environmental protection objectives and better consider current and future human uses.

This zoning through the Ocean SAMP is supported by a diverse array of stakeholders because of the clarity it may bring to the location of current and future uses. The SAMP ensures that the siting of energy facilities will be integrated with commercial and recreational uses as well as the preservation of natural assets.[326] Industry approves of this approach because it is expected to reduce private sector risk by improving the clarity and certainty of scientific studies and analyses as well as improving permitting predictability.[327] According to Grover Fugate, Executive Director of the CRMC, "by doing a sensible siting analysis, you can take off the map, for instance, the marine transportation routes, you can take off the map the prime fishing grounds, you can take off the map the prime habitat areas, so that you give some assurances to those groups that you don't have to fight this on a project-by-project basis all the time."[328]

Oregon: Territorial Sea Plan

While not establishing specific zones or spatial designations, Oregon has provided for detailed requirements and processes to address planning for uses of its marine waters. The Oregon Ocean Resources Management Plan was prepared by a 1987 Ocean Task Force to identify and recommend policies related to existing and potential ocean resource

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[322] R.I. Coastal Res. Mgmt. Council & Univ. of R.I., The Ocean/Offshore Renewable Energy Special Area Management Plan 1 (2008).
[323] Nat'l Oceanic & Atmospheric Admin., In Depth: Understanding Special Area Management Plans, *at* http://coastalmanagement.noaa.gov/issues/special_indepth.html.
[324] *Id*.
[325] Telephone Interview with Grover Fugate, Executive Director, Coastal Res. Mgmt. Council, State of R.I. (July 31, 2008).
[326] R.I. Coastal Res. Mgmt. Council & Univ. of R.I., The Ocean/Offshore Renewable Energy Special Area Management Plan 2 (2008).
[327] *Id*., Telephone Interview with Grover Fugate, Executive Director, Coastal Res. Mgmt. Council, State of R.I. (July 31, 2008).
[328] Nat'l Wind Watch, CRMC, Governor Split on Energy, *at* http://www.wind-watch.org/news/2008/03/01/crmc-governor-split-on-energy

management issues off the Oregon shore in both state and federal ocean areas (up to 200 nautical miles).[329] In response to the Plan, which was incorporated into the state Coastal Zone Management Program, the 1991 Oregon State Legislature determined that these policies were only a starting point and created an Ocean Policy Advisory Council (OPAC) to prepare a Territorial Sea Plan to elaborate on specific management issues related to the 0-3 mile territorial sea.

The Territorial Sea Plan (TSP) describes Oregon's ocean management framework, and also provides a process for making resource use decisions that are in line with State laws, policies, and planning goals.[330] It was adopted by the State legislature and is enforceable as part of the State Coastal Zone Management Act. Of particular relevance to energy projects are the following requirements and tools:

- *Resource inventory and effects evaluations.* Prior to making any decisions to conduct, approve, or fund any action that will occur in Oregon's territorial sea and that is related to or affects marine resources and uses in the territorial sea, an agency must prepare, or cause to be prepared, a resource inventory and effects evaluation sufficient to understand the short- and long-term effects of the proposed decision on affected resources and uses. The TSP described inventory content recommendations and decision-making factors, including consistency with Statewide Planning Goal 19 (Oceans), the Oregon Ocean Resources Management Plan policies, and other relevant State laws and requirements. The TSP also describes the required contents of an agency evaluation of an inventory.[331]
- *Limited environmental disturbances.* The TSP acknowledges that it may be necessary during the resource inventory and effects evaluation process to obtain additional information through means that cause limited environmental disturbances. The Plan therefore allows such disturbances, provided that certain protective conditions are met, including the elaboration of a written work plan. This provision could be applied to enable demonstration projects to gather necessary information without undergoing a full resource inventory and assessment.
- *Uses of the Seafloor.* Part Four of the TSP sets forth requirements related to all cables, pipelines and other seafloor utilities. In making decisions to approve such fixtures, agencies shall: protect ocean fisheries and other ocean uses from adverse effects caused by installation or operation of the cables, pipelines, or other fixtures; protect marine habitat, fishery areas, and other marine resources as required by Statewide Planning Goal 19 (Oceans); promote direct communication with other users to avoid conflicts; and bury the fixture in a way to ensure consistent burial unless approving agencies find that adverse effects of not burying them will be avoided or sufficiently mitigated. Burial is required unless the approving state agencies make findings that burial "cannot be practically achieved and all affected

[329] Oregon Territorial Sea Plan, adopted 1994, *available at* http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml.
[330] Oregon Territorial Sea Plan, adopted 1994, *available at* http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml.
[331] Oregon Territorial Sea Plan, Part Two (A)(2), adopted 1994, *available at* http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml.

parties agree that adverse effects of not burying the cable, pipeline, or fixture have been reduced, avoided, or mitigated to the extent practicable." These provisions also require burial in federal water for CZM consistency purposes.[332]

- *Joint review panels.* In response to the lack of guidance on inter-agency coordination on ocean issues, the TSP recommends setting up of Joint Review Panels (JRPs) to coordinate interagency involvement and provide technical advice to state, federal and local agencies on compliance with the TSP, Statewide Planning Goal 19 (Oceans), and the ORMP on specific proposals to alter ocean resources. This includes applications for permits, leases or other forms of approval and would thus apply to WEC permitting processes. JRPs may perform any of the following tasks: advise on preparation of resource inventories and effects evaluations, and comment on their adequacy; review and comment on the adequacy of NEPA environmental assessments and impact statements, mitigation plans, monitoring programs, and contingency plans; advise on the design of environmental disturbances, special permit conditions, construction and operational performance standards, lease stipulations, and mitigation measures; and review and comment on alternatives to the proposed action.[333]

Oregon has announced its intention to prepare "a comprehensive plan for the siting of wave energy projects" within its 3-mile limit, and FERC has recently agreed in a Memorandum of Understanding to consider each project's consistency with the state's comprehensive wave energy siting plan during its hydropower licensing procedure.[334]

Other States

It is worth noting that the Governors of California, Oregon, and Washington in 2006 entered into an "Agreement on Ocean Health," setting forth principles and a common approach, and launching the development of an Ocean Action Plan, released in draft form in October 2007 and in final in July 2008.[335] The plan identifies priorities and some common approaches, including opposition to offshore oil and gas leasing, exploration and development.

Several states that have not engaged in zoning or designation of marine waters for particular uses, or as unsuitable for particular uses, have nevertheless included in their coastal management programs enforceable policies that make explicit spatial determinations. Some states have made oil and gas production operations in certain state waters unlawful, as Virginia has for the Chesapeake Bay,[336] and as Washington has done

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[332] Oregon Territorial Sea Plan, Part Four (2) and (3), adopted 1994, *available at* http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml. 2000 amendments, *available at* http://www.oregon.gov/LCD/OCMP/docs/Ocean/otsp_4.pdf

[333] Oregon Territorial Sea Plan, Part Two (B), adopted 1994, *available at* http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml.

[334] Memorandum of Understanding between the Federal Energy Regulatory Commission and the State of Oregon (March 2008).

[335] West Coast Governors' Agreement on Ocean Health, at http://www.westcoastoceans.gov/action

[336] Va. Code § 62.1-195.1.A.

for its marine waters,[337] but such state provisions cannot control OCS activities in federal waters.

In contrast, state regulation of the location of onshore support facilities for OCS facilities, including prohibitions, is possible. For example, Delaware's coastal program notes that in that state "Offshore and onshore pipelines are permitted by the [coastal management program] provided that state and local environmental control and land use standards are met and that state-designated wetlands are avoided wherever practical. However, the terminus of offshore pipelines from both OCS operations and deepwater ports is prohibited in the coastal strip."[338] Such a provision, where backed by state law and incorporated in the coastal resource management program, can affect the feasibility of offshore operations.[339]

[337] Washington's Ocean Resources Management Act (ORMA) bans leasing of Washington's coastal waters for oil and gas exploration, development, and production. R.C.W. § 43.143.010(2).

[338] Delaware Coastal Management Program: Comprehensive Update and Routine Program Implementation (Aug. 2004), at 52. available at http://www.swc.dnrec.delaware.gov/SiteCollectionDocuments/Soil/Coastal/2004%20Policy%20Document.pdf (citing 7 Delaware Code 7001, 7002(f) and 7003).

[339] Delaware also has a policy finding that there is *no site* suitable for an LNG terminal in Delaware, *Id.* at 51, but this policy cannot effectively overcome a FERC finding under the Energy Policy Act which gives *exclusive* jurisdiction over siting LNG facilities to the FERC, preempting such state laws.

V. State Regulatory Laws Related to Offshore Energy Projects

This section examines several coastal states' responses to proposed or impending offshore energy projects, and their use or anticipated use of state laws and policies in the review process. In this section we look at Massachusetts, and specifically in the context of its consideration of an offshore wind project. We also look at North Carolina in the context of offshore oil and gas and wind energy. We look at Delaware and Texas in the context of proposed offshore wind facilities, and Oregon and Washington in the context of proposed wave energy projects.

Massachusetts

The Cape Wind project was proposed as the first commercial utility-scale offshore wind installation project in the United States. As proposed the wind farm will consist of 130 turbines and an Electric Service Platform (ESP), and will occupy twenty-four square miles of Horseshoe Shoal in Nantucket Sound.[340] The Cape Wind project will be built in federal waters—5.5 miles off the coast of Martha's Vineyard. The wind turbines will be mounted "to a single monopole foundation, which is a hollow steel pipe that will be driven [eighty] feed into the sandy seabed" for support.[341] Each turbine tower is expected to be sixteen feet in diameter and stand 258 feet tall "from the surface of the water to the center of the blades."[342] The electricity generated by each turbine will be transmitted through a 33 kilovolt (kV) submarine transmission cable to an ESP located within the wind farm.[343] The ESP will transform this electric power "and transmit it via two 12.5 mile 115 kV submarine transmission cables to the Cape Cod mainland."[344] The submarine transmission lines would transition onshore to "an upland transmission system [that] will be installed in an underground conduit system within existing roadways and rights-of-way (ROW) where it will intersect with the existing NSTAR Electric ROW."[345] The upland transmission line will attach to the Barnstable Switching Station. According to the Cape Wind Project, "the Project's interconnection with the existing NSTAR Electric transmission line will allow wind generated energy from the wind farm to be transmitted and distributed to users connected to the New England transmission system."[346] Though rated to produce up to 420 megawatts of wind energy, the project coordinators expect that average production "will be 170 megawatts, which is almost

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[340] Cape Wind: Project at a Glance, *at* http://capewind.org/article24.htm (last visited July 30, 2008).

[341] Cape Wind Associates, LLC, Frequently Asked Questions, *at* http://www.capewind.org/FAQ-Category4-Cape+Wind+Basics-Parent0-myfaq-yes.htm (last visited Aug. 03, 2008).

[342] Cape Wind Associates, LLC, Frequently Asked Questions, *at* http://www.capewind.org/FAQ-Category4-Cape+Wind+Basics-Parent0-myfaq-yes.htm (last visited Aug. 1, 2008).

[343] Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 1-1 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.

[344] Id.

[345] Id.

[346] Id.

75% of the 230 megawatt average electricity demand for Cape Cod and the islands of Martha's Vineyard and Nantucket."[347]

At the time the Cape Wind Project was proposed, neither Massachusetts nor the federal government had developed a policy or regulatory framework for the development of offshore wind energy development in federal waters. At the outset of the project, the U.S. Army Corps of Engineers was the lead agency reviewing the project. In 2001, the Corps conducted a "scope of work" for an Environmental Impact Statement (EIS).[348] The "scope of work" document required Cape Wind to comply with federal, state, and local environmental review regulations and accordingly, submit a combined EIS pursuant to NEPA; an Environmental Impact Review (EIR) pursuant to the Massachusetts Environmental Policy Act (MEPA); and participate in the Cape Cod Commission's Development of Regional Impact (DRI) process. Massachusetts Environmental Policy Act Office released the Final EIR February 15, 2007.[349] In 2005, the Energy Policy Act of 2005 vested the Minerals Management Service with authority over alternative energy uses on the OCS.[350] The MMS released the Cape Wind Draft DEIS (DEIS) for public review on January 11, 2008 and the public comment period concluded on April 21, 2008.[351] Seventeen state and federal agencies have been identified and enlisted to grant approval and permits for the project.[352] Review of the project is still ongoing, and Cape Wind expects the permitting phase of the project will be completed in 2008 or early 2009, with the facility constructed and operational by 2010.[353]

Although the wind farm by itself will be constructed in federal waters and thus falls under the authority of Section 388 of the Energy Policy Act, the underground and undersea transmission cables that will connect the farm to the onshore power grid will lie on or under submerged land under Massachusetts state jurisdiction. Like many states, Massachusetts has the authority to regulate use of the seabed within its three mile zone.

Massachusetts Environmental Policy Act (MEPA): The Massachusetts Executive Office of Environmental Affairs (EOEA) has jurisdiction to conduct environmental impact reviews (EIR) for projects requiring state agency action, including granting state

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[347] Cape Wind Associates, LLC, Frequently Asked Questions, available at http://www.capewind.org/FAQ-Category4-Cape+Wind+Basics-Parent0-myfaq-yes.htm (last visited Aug. 1, 2008)

[348] *See* Cape Wind: Permitting Update, *at* http://capewind.org/article72.htm (citing U.S. Army Corps of Engineers, Environmental Impact Statement Scope of Work Wind Power Facility Proposed by Cape Wind Associates, LLC, *available at* http://www.nae.usace.army.mil/projects/ma/ccwf/windscope.pdf).

[349] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.

[350] 43 U.S.C. § 1337(p)(1) (2005) (amending 43 U.S.C. § 1337 (1999)).

[351] *See* Mineral Management Service, Department of the Interior, Alternative Energy and Alternative Use Program, *at* http://www.mms.gov/offshore/RenewableEnergy/RenewableEnergyMain.htm (last visited July 30, 2008).

[352] *See* Cape Wind: Permitting Update, *at* http://capewind.org/article72.htm (last visited July 30, 2008).

[353] *See* Cape Wind, Cape Wind Timeline, *at* http://www.capewind.org/article26.htm (last visited Aug. 5, 2008).

permits or licenses, providing state financial assistance, or transferring state land.[354] Specific to offshore wind turbines and the necessary transmission lines, EOEA has jurisdiction over the electric transmission line if it is greater than one mile in length with a capacity of 69 or more KV.[355] If a project that requires state action meets or exceeds MEPA review thresholds,[356] the project proponent must file an Environmental Notification Form (ENF).[357] The notice of availability of the ENF is then published in the *Environmental Monitor*; the ENF review period lasts 30 days thereafter.[358] After the close of the public comment period and before the last day of the review period, the Secretary of EOEA determines whether an EIR is required.[359]

If an EIR is required, a notice of availability is published in the *Environmental Monitor*; the review period last thirty-seven days thereafter. The scope of an EIR is limited to potential environmental damages of the proposal within the subject matter of state-required permits. Within seven days after the close of comments, the Secretary issues a certificate stating whether or not the EIR adequately and properly complies with the Massachusetts Environmental Policy Act and its implementing regulations. No state permits can be issued until the Secretary certifies that the EIR complies with MEPA, that is, the environmental impacts have been fully described and all necessary plans to avoid, minimize, and mitigate adverse effects are in place.[360]

Massachusetts Energy Facilities Siting Board: The Energy Facilities Siting Board is an independent state review board within the Massachusetts Department of Telecommunications and Energy. The ESFB is responsible for licensing the construction of major energy infrastructure in Massachusetts, including power plants, electric transmission lines, natural gas pipelines and natural gas storage facilities.[361] An applicant is prohibited from constructing a "facility" unless the ESFB has granted a petition for approval.[362] A facility is defined to include "a new electric transmission line having a design rating of 69kV or more and which is one mile or more in length on a new transmission corridor."[363] In May 2005, the EFSB conditionally approved Cape Wind's petition to build and operate two underground, undersea electric transmission lines from

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[354] Massachusetts Office of Coastal Zone Management, Executive Office of Environmental Affairs, Environmental Permitting in Massachusetts 28, *available at* http://www.mass.gov/czm/docs/word/permitguide.doc.
[355] Mass. Regs. Code tit. 301 § 11.03 (7)(b)(4).
[356] Mass. Regs. Code tit. 301 § 11.03.
[357] Mass. Regs. Code tit. 301 § 11.05.
[358] Massachusetts Office of Coastal Zone Management, Executive Office of Environmental Affairs, Environmental Permitting in Massachusetts 28, *available at* http://www.mass.gov/czm/docs/word/permitguide.doc.
[359] Mass. Gen. Laws 30 §§ 61-62H.
[360] Massachusetts Office of Coastal Zone Management, Executive Office of Environmental Affairs, Environmental Permitting in Massachusetts 28, *available at* http://www.mass.gov/czm/docs/word/permitguide.doc.
[361] The Massachusetts Energy Facilities Siting Board, The Energy Facilities Siting Handbook: An Overview of the Energy Facilities Siting Board Review Process 3 (2000), *available at* http://www.mass.gov/Eoca/docs/dte/siting/shandbook.pdf.
[362] Mineral Management Service, U.S. Department of the Interior, Cape Wind Energy Project Draft Environmental Impact Statement 1-10 (Jan. 2008).
[363] Id.

the offshore wind facility to the electric grid on Cape Cod.[364] EFSB conditioned its approval on the submission of all other necessary state and federal permits.[365]

The EFSB review process consists of reviewing the potential environmental impacts of electricity-generating facilities and how the project proponents will mitigate these impacts.[366] More specifically, EFSB reviews a proposed project through an adjudicatory process that includes (1) the procedural phase, where the formal review process commencing by providing public notice, holding public comment hearings, determining who may take part in the formal proceedings and establishing the subsequent rules and schedule; (2) the evidentiary phase, where information is gathered, and written and oral testimony is given; and (3) the decision phase, where legal briefs are filed and a decision is issued.[367] This three-phase process typically is completed within a year, although the length of the review varies depending on the type and complexity of the facility proposal.[368] In conclusion, the Siting Board drafts and issues a Tentative Decision, which may approve the proposed project, approve the proposed project subject to conditions, or deny the proposed project.[369] After the Tentative Decision is issued, the comment period begins, whereby the applicant, intervenors, and limited participants may submit written comments to the Siting Board regarding the consistency of the Tentative Decision by utilizing only evidence in the record. Two weeks after the Tentative Decision is issued, the Board then holds a public meeting to address received comments and consider whether to approve, amend or reject the Tentative Decision. After the Board's final vote, a Final Decision is issued, completing the process.[370]

Waterways License: Massachusetts General Law Chapter 91 regulates water-dependent-industrial use activities on coastal and inland waterways, including construction, dredging, and filling in tidelands, great ponds and certain rivers and streams.[371] Cape Wind has applied to the Massachusetts Department of Environmental Protection (MassDEP) for a Chapter 91 Waterways License—Massachusetts' primary mechanism for regulating private development on submerged lands in state controlled waters. Chapter 91 applies to the installation and construction of the proposed submarine cable transmission lines that will traverse state controlled submerged lands and flowed

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[364] Id.
[365] *See e.g.,* In re Cape Wind Assocs., EFSB 02-2, 2005 WL 126441, at *1 (Mass. E.F.S.C. May 11, 2005).
[366] Mass. Gen. Laws 164 § 69H (2006).
[367] The Massachusetts Energy Facilities Siting Board, The Energy Facilities Siting Handbook: An Overview of the Energy Facilities Siting Board Review Process 3-4 (2000), *available at* http://www.mass.gov/Eoca/docs/dte/siting/shandbook.pdf.
[368] The Massachusetts Energy Facilities Siting Board, The Energy Facilities Siting Handbook: An Overview of the Energy Facilities Siting Board Review Process 4 (2000), *available at* http://www.mass.gov/Eoca/docs/dte/siting/shandbook.pdf.
[369] The Massachusetts Energy Facilities Siting Board, The Energy Facilities Siting Handbook: An Overview of the Energy Facilities Siting Board Review Process 10 (2000), *available at* http://www.mass.gov/Eoca/docs/dte/siting/shandbook.pdf.
[370] Id.
[371] Massachusetts Department of Environmental Protection, Chapter 91, The Massachusetts Public Waterfront Act, at: http://www.mass.gov/dep/water/resources/about01.htm (last viewed Aug. 12, 2008).

tidelands.[372] Since its application submission in 2004, Cape Wind has engaged in a lengthy discussion over whether MassDEP should classify the submarine cable as a "water dependent use" or "non-water dependent use" under Chapter 91 or grant a variance under the regulations of MassDEP. This is important because MassDEP will only issue a Chapter 91 license for "non-water dependent uses" if the use meets a strict "overriding public interest" standard.[373] Cape Wind's Final EIR determined that the proposed submarine cable is a water dependent use because: 1) "it requires direct access to, and location in, tidal waters in order to interconnect the New England electric transmission mainland system with the offshore Wind Energy Generating facility," 2) by definition, the submarine cables qualifies as an Infrastructure Facility in that the project delivers or provides electric services to the public, and 3) the transmission cable is "dependent on marine transportation.[374] Chapter 91 fees will be assessed to compensate local towns for the use of their tideland areas affected by the 115 kV submarine cable system.[375]

401 Water Quality Certification: Any applicant that applies for a federal permit to conduct activities that will result in a discharge into navigable waters must provide the permitting agency with a state Water Quality Certification. In Massachusetts, the Massachusetts Division of Wetlands and Waterways requires that any activity that results in dredging or dredged material disposal of more than 100 cubic yards obtain a 401 Water Quality Certification.[376] "The 401 application must include a description and plan of the proposed dredging area, method of dredging, a description of the material to be dredged, and the proposed disposal site."[377] Cape Wind filed a 401 Water Quality Certificate application with the MADEP on November 2, 2007 for the proposed submarine and upland transmission cable route.

Massachusetts Coastal Zone Management Consistency Review: Similar to Virginia, Massachusetts has the ability to influence the development of offshore energy activities through the federal consistency review process under the Coastal Zone Management Act. Any project proposal that is undertaken by a federal agency, requires a federal permit, requires a federal offshore oil and gas lease, or receives federal funding and that is in or may affect land or water resources of the Massachusetts coastal zone must be found to be consistent with the Massachusetts Office of Coastal Zone management's (MCZM) coastal policies.[378] The CZM review process begins after the project proponent receives a final MEPA certificate for a proposed project. The project proponent must submit to

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[372] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 3-57 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[373] Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 3-57 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[374] Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 3-57 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[375] Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact 9-24 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/FEIR%20Report_Final.pdf.
[376] Mass. Regs. Code tit. 314 § 9.04(12).
[377] Massachusetts Office of Coastal Zone Management, 401 Water Quality Certification for Dredging *at* http://www.mass.gov/czm/permitguide/regs/dredging.htm (last viewed Aug. 11, 2008).
[378] Mass. Regs. Code tit. 301 § 21.06 (1997).

MCZM a copy of the MEPA certificate, a copy of the federal license or permit application and a federal consistency certification describing the project's compliance with CZM's policies.[379] MCZM then places a public notice in the Environmental Monitor and accepts written comments for 21 days thereafter.[380] MCZM may concur with an applicant's federal consistency certification any time after the close of public comment and after it has received all other applicable state license and permits. MCZM has a maximum of 180 days to complete its review.[381] In addition, if MCZM finds that the project proposed is not consistent with its policies, the applicant can appeal that decision to the U.S. Secretary of Commerce.[382]

Massachusetts Historical Commission (MHC): Pursuant to Massachusetts General Law Chapter 9, Sections 26-27C, MHC must conduct a review of any project that requires funding, a license, or permit from any state agency. State actions subject to MHC review include Wetland Permits and Chapter 91 Waterways Licenses.[383] Project proponents must submit a Project Notification Form (PNF) to MHC. MHC will then review the form to determine whether there are known or anticipated historical or archaeological properties within the project area; whether the project will likely affect such areas; whether further MHC review is necessary; whether additional information is necessary; whether an archaeological survey or historic study is warranted; and if any mitigation measures are appropriate.[384] For example, the Cape Wind project underwent an Upland Reconnaissance Archaeological Survey and an Upland Intensive Archaeological Survey.[385]

Massachusetts Highway Department: Pursuant to Massachusetts General Law Chapter 81, Section 21, Cape Wind is required to file a Permit to Access State Highway from the Massachusetts Highway Department for the installation of the upland transmission line route under specified state highways.[386] The permit will enable Cape Wind to trench the upland transmission route under two state highways by horizontal directional drilling, horizontal boring, or pipe jacking. Cape Wind applied for an Application for a Permit to Access State Highway on November 1, 1007.

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[379] Mass. Regs. Code tit. 301 § 21.06(3)(a) (1997).
[380] Mass. Regs. Code tit. 301 § 21.06(3)(b) (1997).
[381] Mass. Regs. Code tit. 301 § 21.06(3)(f) (1997).
[382] Mass. Regs. Code tit. 301 § 21.06(3)(g) (1997).
[383] Massachusetts Historical Commission, Examples of State Agencies & Actions Typically Subject to MHC Review under 950 CMR 71 *at* http://www.sec.state.ma.us/mhc/mhcrevcom/revcomsa.htm (last viewed Aug. 12, 2008).
[384] Massachusetts Historical Commission, Examples of State Agencies & Actions Typically Subject to MHC Review under 950 CMR 71 *at* http://www.sec.state.ma.us/mhc/mhcrevcom/revcomsa.htm (last viewed Aug. 12, 2008).
[385] *See* Cape Wind Energy Project Final Environmental Impact Report/Development of Regional Impact Executive Summary Table 1-2 (Feb. 15, 2007), *available at* http://www.capewind.org/downloads/feir/Executive%20Summary.pdf.
[386] Mineral Management Service, U.S. Department of the Interior, Cape Wind Energy Project Draft Environmental Impact Statement 1-11 (Jan. 2007).

Cape Cod Commission: In Cape Cod only, wind projects are required to obtain a Development of Regional Impact (DRI) from the Cape Cod Commission.[387] The Cape Cod Commission is a regional land use planning and regulatory agency created in 1990. A DRI review is required prior to the application for any local permits. The applicant, however, may request a joint state and local review, in which a DRI and MEPA review are conducted concurrently.[388] In the case of the Cape Wind Project, the potential impacts the interconnection cables would have on the environment and natural resources triggered the DRI review. The review process begins with the applicant submitting applications for the town project. If the project meets the DRI threshold or a discretionary referral is made, the town refers the project to the Cape Cod Commission for review. Within sixty days of a project referral, the public hearing process must begin. Thereafter the applicant files a DRI application, which includes information about property ownership, project location and project description, in addition to project plans. The public hearing process then begins. The full Cape Cod Commission must then render a decision with sixty days of the close of the public hearing process. To be approved, a project must be consistent with the Cape Cod Regional Policy Plan; the local comprehensive plan; local development bylaws; and any designated "District of Critical Planning Concerns," an area that is designed for special projection. The benefits of a project to Cape Cod must also outweigh its detriments.[389] Overall, the average DRI review takes five months, but cannot exceed seven months by state law. A project/activity is exempt from Cape Cod Commission review subject to a successful petition to EFSB. The Cape Wind Project applied for such an exemption on November 21, 2007.

The Massachusetts Wetlands Protection Act: Pursuant to the Massachusetts Wetlands Protection Act, a permit is required if a wetland will be altered in any way.[390] The permit application must be submitted to the MassDEP. At the local level, the same application (known as an Order of Conditions) must be sent to the relevant Municipal Conservation Commission.[391] Because the submarine portion of the transmission line and the onshore installation will occur within the Town of Barnstable's jurisdiction, the Cape Wind project submitted its Order of Conditions to the Barnstable and Yarmouth Conservation Commission.

North Carolina

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[387] Renewable Energy Research Laboratory, University of Massachusetts at Amherst, Wind Power: Permitting in Your Community 3, *available at* http://www.ceere.org/rerl/about_wind/RERL_Fact_Sheet_7_Permitting.pdf.

[388] Cape Cod Commission, A Guide to the Review Process for Developments of Regional Impact, *available at* http://www.capecodcommission.org/regulatory/DRIbrochure.pdf.

[389] Cape Cod Commission, A Guide to the Review Process for Developments of Regional Impact, *available at* http://www.capecodcommission.org/regulatory/DRIbrochure.pdf.

[390] Mass. Regs. Code tit. 310 § 10:00.

[391] Renewable Energy Research Laboratory, University of Massachusetts at Amherst, Wind Power: Permitting in Your Community 3, *available at* http://www.ceere.org/rerl/about_wind/RERL_Fact_Sheet_7_Permitting.pdf.

Given recent interest surrounding wind energy in North Carolina, including a proposal for an *onshore* wind farm in the coastal zone, the General Assembly recently directed the Environmental Review Commission to convene an advisory group to study the feasibility of implementing a state-level permitting system for commercial wind farms that takes into consideration environmental protection, sustainable development and efficiency.[392] However, absent new legislation, North Carolina's approach will likely be piecemeal; a variety of state laws, regulations, permits and approvals will likely apply. These include: the North Carolina Environmental Policy Act, the Coastal Area Management Act (CAMA), the North Carolina Archives and History Act, the Dredge and Fill Law, Water Quality Certification, a Certificate of Environmental Compatibility and Public Convenience and Necessity, and an easement or lease of state-owned submerged land.[393] Of primary concern in the state is whether the Coastal Resources Commission or the Public Utilities Commission has jurisdiction over an offshore wind facility.[394]

North Carolina Environmental Policy Act: Pursuant to the NCEPA, projects or activities in North Carolina are subject to an environmental review if all three of the following criteria are met: (1) there is an action by a state agency, such as a permit issuance; (2) public money is granted or public land is used for a private use; and (3) there is the potential for detrimental environmental effects on, among other things, natural resources or the state's pubic health and safety.[395] If these criteria are met, an EIS must be submitted through the North Carolina State Clearinghouse process, whereby applicable North Carolina agencies can review and comment on the EIS.[396] The State Environmental Review Clearinghouse manages the N.C. intergovernmental EIS review process, notifying applicable state and local agencies of development in their jurisdiction, and also assists federal agencies in meeting NEPA requirements.[397] Under NCEPA

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[392] 2008 N.C. Sess. Laws 181.

[393] Lisa Schiavinato, *Offshore Wind Energy Development in North Carolina: Discussion of the Legal Framework*, Legal Tides: From the North Carolina Coastal Resource Law, Planning and Policy Center, Spring/Summer 2008, at 2-3, *available at* http://www.nccoastallaw.org/coastallawnc/legaltides/lt_springsummer_08.pdf; *see also* Renewable Energy Policy Project, *Offshore Wind Farm Approval Process, North Carolina*, at 5-8, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf.

[394] Generally, the Utility Commission has jurisdiction over all utilities facilities; however, there is a provision within CAMA that grants jurisdiction to the Coastal Resource Commission (CRC) if the Utility Commission does not have present or future rules governing the pertinent activity. Because the Commission does not currently have any regulations specific to offshore renewable energy facilities, the CRC may have jurisdiction given this exception. Lisa Schiavinato, *Offshore Wind Energy Development in North Carolina: Discussion of the Legal Framework*, Legal Tides: From the North Carolina Coastal Resource Law, Planning and Policy Center, Spring/Summer 2008, at 2, *available at* http://www.nccoastallaw.org/coastallawnc/legaltides/lt_springsummer_08.pdf.

[395] N.C. Gen. Stat. § 113A; N.C. Admin. Code tit. 1, r. 25.0108 (2000).

[396] N.C. Department of Administration: State Environmental Review Clearinghouse, *at* http://www.doa.state.nc.us/clearing/ (last viewed Aug. 4, 2008).

[397] N.C. Department of Administration: State Environmental Review Clearinghouse, *at* http://www.doa.state.nc.us/clearing/ (last viewed Aug. 4, 2008).

policy, a federal EIS is considered sufficient to meet the state requirements and additional documents are not necessary.[398]

The lead agency with authority over the proposed project must submit a draft EIS to the State Clearinghouse, which then publishes a notification of availability of the EIS in the *North Carolina Environmental Bulletin*, after which time the public review and comment period commences for forty-five days.[399] After the publication period, thirty days are allotted for final review.[400] Based upon the comments, the State Clearinghouse advises the applicable agency of the adequacy of the EIS and if a final EIS should be prepared. Thereafter, the agency may accept or reject the Clearinghouses' recommendation and publish a Record of Decision.[401]

North Carolina's Coastal Zone Consistency Certification: Any federal or state activity affecting North Carolina's coastal zone must establish federal consistency with the North Carolina Coastal Management Program (NCCMP).[402] North Carolina's Division of Coastal Management (DCM) within the Department of Environment and Natural Resources (DENR) is tasked with reviewing applicable activities for federal consistency before a federal permit may be issued.[403] The NCCMP enforceable policies include, among other things, the Coastal Area Management Act (CAMA), the dredge and fill law, Chapter 7 of the Title 15A of the North Carolina Administrative Code, regulations passed by Coastal Resource Commission (CRC), and local land use plans certified by the CRC.[404] Together these enforceable policies manage the state's coastal areas in a two-prong approach. First, the NCCMP regulates activities in critical resource areas, designed as "Areas of Environmental Concern (AEC), through CAMA permits.[405] AECs cover almost all coastal waters and about 3 percent of the land in North Carolina's 20 coastal counties.[406] Secondly, areas in the coastal counties are managed through a

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[398] N.C. Admin. Code tit. 1 § 25.0402; *see also* Renewable Energy Policy Project, *Offshore Wind Farm Approval Process, North Carolina*, at 6, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf.
[399] N.C. Admin. Code tit. 1, r. 25.0605 (1993).
[400] N.C. Admin. Code tit. 1, r. 25.0605 (1993).
[401] N.C. Admin. Code tit. 1, r. 25.0606 (1986).
[402] Office of Ocean and Coastal Resource Management, NOAA, Evaluations Findings: North Carolina Coastal Management Program April 2003- Feb 2006, 7, *available at* http://coastalmanagement.noaa.gov/mystate/docs/NorthCarolinaCMP2006.pdf.
[403] N.C. Admin. Code tit. 1, r. 25.0606 (1986).
[404] North Carolina Department of Environmental and Natural Resources, Division of Coastal Management: CAMA Permits: Federal Consistency, *at* http://dcm2.ehnr.state.nc.us/Permits/consist.htm (last viewed Aug 6, 2008).
[405] Office of Ocean and Coastal Resource Management, NOAA, Evaluations Findings: North Carolina Coastal Management Program April 2003- Feb 2006, 7, *available at* http://coastalmanagement.noaa.gov/mystate/docs/NorthCarolinaCMP2006.pdf.
[406] Erin Kimrey, *Regulatory Context for Wind Facility Development in North Carolina and Five Other States*, Mar. 31, 2008, at 4-5, *available at* http://h2o.enr.state.nc.us/admin/emc/documents/RegulatoryContextforWind-Kimrey.pdf.

series of state laws, local land use plans, and Executive Order 15, which requires state agency action to be consistent with the applicable local land use plans.[407]

Coastal Area Management Act Permit: North Carolina's CAMA authorizes the CRC to regulate development by issuing permits for development inside "Areas of Environmental Concern."[408] Although it has yet to be determined whether the CRC or the State Public Utilities Commission has jurisdiction over an offshore wind project, [409] if the CRC has jurisdiction, an applicant must also obtain a CAMA permit from the CRC.[410] Depending on the project type and size, a major or minor permit is required if it falls within or affects an AEC and does not meet enumerated exceptions. Given that AECs cover almost all coastal waters and about 3 percent of the land in North Carolina's 20 coastal counties, a CAMA permit is likely to be required.[411] An offshore wind project would be considered a major development and thus would require a "major development permit."[412] If a major permit is denied, an applicant may appeal the denial or ask for a variance from the CRC.[413]

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[407] Office of Ocean and Coastal Resource Management, NOAA, Evaluations Findings: North Carolina Coastal Management Program April 2003- Feb 2006, 7, *available at* http://coastalmanagement.noaa.gov/mystate/docs/NorthCarolinaCMP2006.pdf.

[408] Erin Kimrey, *Regulatory Context for Wind Facility Development in North Carolina and Five Other States*, Mar. 31, 2008, at 4, *available at* http://h2o.enr.state.nc.us/admin/emc/documents/RegulatoryContextforWind-Kimrey.pdf. The CRC classifies areas as AECs into four categories: the Estuarine and Ocean System; the Ocean Hazard System; Public Water Supplies; and Natural and Cultural Resource Areas. North Carolina Division of Coastal Management, CAMA Permits: Will my Project Require a Permit? *at* http://dcm2.enr.state.nc.us/Permits/aecs.htm (last viewed Aug. 4, 2008).

[409] It is possible that if an offshore wind energy project is not defined as "development" under CAMA, the state Public Utilities Commission will have jurisdiction. Nevertheless, the Public Utilities Commission does not currently have rules governing alternative energy facilities in ocean or coastal waters. Lisa Schiavinato, *Offshore Wind Energy Development in North Carolina: Discussion of the Legal Framework*, Legal Tides: From the North Carolina Coastal Resource Law, Planning and Policy Center, Spring/Summer 2008, at 2, *available at* http://www.nccoastallaw.org/coastallawnc/legaltides/lt_springsummer_08.pdf .

[410] Lisa Schiavinato, *Offshore Wind Energy Development in North Carolina: Discussion of the Legal Framework*, Legal Tides: From the North Carolina Coastal Resource Law, Planning and Policy Center, Spring/Summer 2008, at 3, *available at* http://www.nccoastallaw.org/coastallawnc/legaltides/lt_springsummer_08.pdf .

[411] Erin Kimrey, *Regulatory Context for Wind Facility Development in North Carolina and Five Other States*, Mar. 31, 2008, at 4-5, *available at* http://h2o.enr.state.nc.us/admin/emc/documents/RegulatoryContextforWind-Kimrey.pdf.

[412] A "major development" is any development which requires permission, licensing, approval, certification or authorization in any form from the Environmental Management Commission, the Department of Environment and Natural Resources, the Department of Administration, the North Carolina Mining Commission, the North Carolina Pesticides Board, the North Carolina Sedimentation Control Board, or any federal agency or authority; or which occupies a land or water area in excess of 20 acres; or which contemplates drilling for or excavating natural resources on land or under water; or which occupies on a single parcel a structure or structures in excess of a ground area of 60,000 square feet. N.C. Gen. Stat. Ann. § 113A-9 (West 2008).

Renewable Energy Policy Project, *Offshore Wind Farm Approval Process, North Carolina*, at 7, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf.

A major benefit of obtaining a CAMA permit is that then ensuing permitting process for an offshore wind facility would be streamlined given that a CAMA permit serves as an application for various other state and federal permits including Dredge and Fill permits, permits required by the NC Archives and History Act, a 401 Water Quality Certification, as well as federal permits, including the 404 wetlands permit from the USACE [414] Pursuant to Title 15 of North Carolina's Administrative Code, projects that have already obtained a CAMA permit or a Dredge and Fill permit and entail the excavation of materials from aquatic environments for non-navigational permits will also trigger NCEPA. Thus, if an offshore energy project required excavation in state waters, the project would be subject to both CAMA permitting and NCEPA review.

Notably, the Ocean Erodible Area, one of North Carolina' designated AECs, prohibits development that would remove or relocate oceanfront dunes or vegetation.[415] Therefore, a proposed offshore facility should be cautious to avoid crossing a transmission line in an Ocean Erodible Area given its likely prohibition.[416]

North Carolina Submerged Lands: The Department of Administration is vested with responsibility for the management, control and disposition of all state owned submerged lands.[417] Although no submerged lands may be sold, easements can be granted.[418] Easements on state lands can be granted for purposes of cooperation with the federal government; utilization of state natural resources of the State, or any other use that serves the public interest.[419] Additional easements can be granted to adjoining littoral or riparian land owners.[420] However, easements are not required for structures constructed by any public utility that provides or assists in the provision of utility service.[421] For small scale private wind operations that do not sell electricity to the public, an easement may be required for which a fee is required. North Carolina's Public Utilities Act regulates the placement of structures for public utilities and is implemented by the North Carolina Public Utilities Commission. If the installation of a transmission line involves dredging, permits will be required under the Dredge and Fill Act.[422]

Additional permits for the installation of subaqueous utility lines in coastal wetlands, estuarine water, public trust areas and estuarine and public trust shoreland must also be acquired under the Coastal Area Management Act.[423] The Division of Coastal

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[414] Renewable Energy Policy Project, *Offshore Wind Farm Approval Process, North Carolina*, at 7, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf. Renewable Energy Policy Project, *Offshore Wind Farm Approval Process, North Carolina*, at 7, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf. (citing N.C. Admin. Code 15A, r. 7H.0306 (2007)).

[416] Renewable Energy Policy Project, "Offshore Wind Farm Approval Process, North Carolina," 6, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf..

[417] N.C. Gen. Stat. Ann. § 146-1 (West 2008).

[418] N.C. Gen. Stat. Ann. § 146-3 (West 2008).

[419] N.C. Gen. Stat. Ann. § 146-11 (West 2008).

[420] N.C. Gen. Stat. Ann. § 146-12 (West 2008).

[421] N.C. Gen. Stat. Ann. § 146-12(n) (West 2008).

[422] N.C. Gen. Stat. Ann. § 113-229 (West 2008).

[423] 15 N.C. Admin. Code tit. 15A, r. 7H.1601 (2000).

Management must approve the activity.[424] Public utilities must pay a $400 fee and meet general conditions including ensuring that the utility line route and construction does not impact any species indigenous to the waterbody, and allowing periodic inspections.[425] Specific conditions include a prohibition on utility lines through productive shellfish beds, seasonal limitations on activities within nursery areas and the minimization of cuts through wetlands.[426]

North Carolina Certificate of Environmental Compatibility and Public Convenience and Necessity: Any person seeking to construct new transmission lines over 161 kilovolts must apply to the North Carolina Utilities Commission for a Certificate of Environmental Compatibility and Public Convenience and Necessity.[427] Application materials must include: the reasons the transmission line is needed; a description of the proposed location and a U.S. Geological Survey map showing the proposed route; a description of the proposed transmission line; an environmental report, including environmental impacts, proposed mitigating measures, and alternative routes; a listing of features that influence the route selection; and a complete list of all federal and state licenses, permits and exceptions required and copies of permit applications.[428] The Commission may grant a certificate depending on various criteria, including necessity, cost, alternatives and if the "impact the proposed transmission line will have on the environment is justified considering the state of available technology, the nature and economics of the various alternatives, and other material considerations."[429] The certificate requirement can be waived in the event that FERC licenses the project. FERC has jurisdiction over interstate transmission lines. Notably, if a wind facility is sited offshore of one state and decides to route its transmission line across the adjacent state's waters, FERC would likely have jurisdiction.[430]

Delaware

The Bluewater Wind Project is proposed for federal waters 11.5 miles off the coast of Delaware's Rehoboth Beach. On June 25, 2008, Delmarva Power entered into a state-arbitrated power purchase agreement with Bluewater Wind to purchase 200 MW of the power produced by the wind farm, which is expected to have an output of 600 MW.[431] Bluewater Wind also entered a Memorandum of Understanding (MOU) with Delaware Electric Municipal Corporation for the sale of approximately 100,000 to 150,000 MW

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[424] 15 N.C. Admin. Code tit. 15A, r. 7H.1602 (1990).
[425] 15 N.C. Admin. Code tit. 15A, r. 7H.1603-4 (1998).
[426] 15 N.C. Admin. Code tit. 15A, r. 7H.1605 (1998).
[427] *See* Renewable Energy Policy Project, *Offshore Wind Farm Approval Process, North Carolina*, at 7-8, *available at* http://www.repp.org/articles/static/1/binaries/REPP_Offshore_Wind_Approval.pdf; *see also* N.C. Gen. Stat. Ann. § 62-101 (West 2008).
[428] N.C. Gen. Stat. Ann. § 62-102 (West 2008).
[429] N.C. Gen. Stat. Ann. § 62-105 (West 2008).
[430] Erin Kimrey, *Regulatory Context for Wind Facility Development in North Carolina and Five Other States*, Mar. 31, 2008, at 3, *available at* http://h2o.enr.state.nc.us/admin/emc/documents/RegulatoryContextforWind-Kimrey.pdf.
[431] BlueWater Wind, *Babcock & Brown's Bluewater Wind Signs First U.S. Contract for Sale of Offshore Wind Power*, June 23, 2008, *at* http://www.bluewaterwind.com/pdfs/BluewaterWindDelawarerelease23Jun08.pdf.

hours of power and 17 MW of capacity to its nine municipal members.[432] Over the next two years, Bluewater plans to finalize the size of the wind farm and find additional buyers of power.[433] Other next steps include legislative approval of the MOU to allow the project's renewable energy credits to be credited to Delmarva Power's account, as well as conducting comprehensive scientific studies to ensure that there will be no unforeseen adverse effects for the project's planned location.[434] Because the project will be located in federal waters, it will be subject to the MMS leasing process. DNREC's Division of Soil & Water Conservation is currently reviewing existing Delaware laws and policies to determine which will apply, which policies are actually enforceable, and whether amendments are necessary.[435] Because Delaware state agencies have not officially identified which laws and policies will apply to the Bluewater project, Bluewater Wind itself identified state and federal laws and regulations that may apply to the proposed development.[436]

Delaware Coastal Zone Federal Consistency Certification: DNREC's Division of Soil and Water is responsible for consistency review for all federal actions affecting the state's coastal zone. There are four main laws incorporated into the state plan that are implicated when a federal government engages in permitting in federal offshore waters that may affect the Delaware coastal zone—the Delaware Coastal Zone Act, the Subaqueous Lands Act, the Wetlands Act, and the Beach Act.[437] The Delaware Coastal Management Program (DCMP) has up to six months to review a project, but a review may take more or less time, depending on the complexity of the project or the completeness of the original application. The review process includes an application submitted to DCMP; a public notice published in local newspapers; and public comments received, which are taken into consideration when reviewing the application. The DCMP staff then reviews the application and coordinates with other permitting agencies. After the review, DCMP will either concur with or object to the applicant's federal consistency certification.[438] .

Tidal Wetlands Act: Delaware's Wetlands Act declares that "coastal areas of Delaware are the most critical areas for the present and future quality of life in the State and that the preservation of the coastal wetlands is crucial to the protection of the natural environment of these coastal areas."[439] "State-regulated wetlands" are defined as "those lands lying at or below two feet above local mean high water which support or are capable of

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[432] Id.
[433] Id.
[434] BlueWater Wind: Delaware Project Facts, *at* http://www.bluewaterwind.com/facts.htm?cat=delaware (last viewed July 30, 2008).
[435] Telephone interview with Susan Love, Resource Planner, Delaware Costal Program, DNREC Division of Soil & Water Conservation (August 6, 2008).
[436] BlueWater Wind: Process and Timeline, *at* http://www.bluewaterwind.com/de_timeline.htm (last viewed Aug 6, 2008).
[437] Telephone interview with Susan Love, Resource Planner, Delaware Costal Program, DNREC Division of Soil & Water Conservation (August 6, 2008).
[438] Delaware Coastal Programs, Federal Consistency, *at* http://www.swc.dnrec.delaware.gov/Pages/DCMP%20Federal%20Consistency.aspx (last viewed Aug. 1, 2008).
[439] Del. Code Ann. tit. 7, § 6602 (1973).

supporting" certain plant species that are listed in the law and regulations.[440] The statute and accompanying regulations protect wetlands by prohibiting dredging, draining, filling, construction of any kind, bulkheading, mining, drilling and excavation unless a permit is obtained from DNREC.[441] The county or municipality with jurisdiction over the affected wetlands must approve the activity in question as a precondition to permit approval. Accordingly, if any such activities occur during construction or operation of a wind energy project, or during construction of transmission lines in a listed state-regulated wetland,[442] a permit from DNREC is required.

In order to obtain a permit, the project applicant must submit a permit application along with project's plans and specifications to DNREC. DNREC must then advertise in a daily, statewide newspaper and in a newspaper in the relevant county, notice of the application and a brief description of the application. If written objections are received within twenty days of the advertisement, the Secretary may then hold a public hearing.[443] Any person whose interest is substantially affected by any action of the Secretary may appeal to the Environmental Appeals Board within twenty days after the Secretary has announced the decision.[444] When determining whether to issue a permit, DNREC considers the environmental, economic, aesthetic, neighboring land use and public impacts of the activity; as well as the relevant state, country and municipal comprehensive plans.[445] A permit will not be granted unless the relevant county or municipality with jurisdiction first approves the activity by its relevant zoning procedures, where applicable.[446]

Subaqueous Lands Permit: Delaware regulates all tidal waters (up to the mean high water line) as well as all non-tidal rivers, streams, lakes, ponds, bays and inlets (up to the ordinary high water line) pursuant to its Subaqueous Lands Act and Regulations Governing the Use of Subaqueous Lands.[447] The activities regulated in these waters include the placement of any structure in, on, over or under subaqueous lands, as well as the laying of any pipeline or utility line (electric, telephone, fiber optic, water, sewer, gas, etc.), bank or channel stabilization structures, any dredging, filling, excavating or extracting of materials, or establishing an anchorage for mooring more than two

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[440] Delaware Division of Water Resources, Wetlands and Subaqueous Lands Section: What is Regulated and Where is it Regulated? *at* http://www.wr.dnrec.delaware.gov/Information/regulations/Pages/WLSLWhatsRegulated.aspx (last viewed Aug. 1, 2008).
[441] Del. Code Ann. Tit. 7, § 6603(a) (1984).
[442] A State regulated wetland map is available at: http://apps.dnrec.state.de.us/tidalwetlandmapindex/.
[443] Del. Code. Ann. Tit. 7, § 6608 (1995).
[444] Del. Code. Ann. Tit. 7, § 6609 (1995).
[445] Del. Code Ann. Tit 7, § 6604(b) (1973).
[446] Del. Code Ann. Tit 7, § 6604(a) (1973).
[447] Delaware Department of Natural Resources and Environmental Control, Regulations Governing the Use of Subaqueous Lands 6 (May 8, 1991), *available at* http://www.dnrec.state.de.us/water2000/Sections/Wetlands/regulations/SubaqueousRegs19921.pdf.

vessels.[448] Given the statutory language, a permit will likely be required for the construction of a transmission line from an offshore wind terminal to the mainland.

Pursuant to the Subaqueous Lands Act, DNREC has the authority to convey a fee simple or grant an easement for State owned subaqueous lands.[449] In order to obtain a permit or lease, the applicant must submit an application, map of the project location, and evidence of zoning approval to DNREC.[450] The Secretary of DNREC must then post the application notice.[451] A public hearing is required if (1) the grant or lease sought exceeds twenty years; (2) the Secretary determines that a pubic hearing is in the public interest; or (3) if a written object is received within twenty days of the advertisement for the application.[452] Any person whose interest is substantially affected by any action of the Secretary may appeal to the Environmental Appeals Board within twenty days after the Secretary has announced the decision.[453] The DNREC must consider and evaluate the public use impact, environmental impact, and feasible mitigation measures in its permit evaluation.[454] A project permit could be denied if the activity would cause harm to the environment and cannot be mitigated sufficiently.[455] Dredging is prohibited in biologically productive areas such as shellfish beds and submerged aquatic vegetation, "if such dredging will have a significant or lasting impact on the biological productivity of the area."[456] Delaware charges lease fees for any fill of subaqueous lands and for the crossing of pipelines and transmission lines through Delaware's subaqueous lands. The current lease fee for transmission lines less than 6 inches in diameter is $1.50 per linear feet per year. For transmission lines greater than 6 inches in diameter, the fee is 2.00 per linear feet per year. If the Blue water transmission line is greater than 6 inches in diameter, Delaware hopes to collect $30,000 per year in lease fees.[457]

Coastal Zone Act Permit: Separate from the federal CZMA, Delaware's Coastal Zone Act was enacted in 1971 to prevent the imminent development of an oil refinery adjacent to an ecologically sensitive area.[458] The Act seeks to "prohibit entirely the construction of

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[448] Delaware Department of Natural Resources and Environmental Control, Regulations Governing the Use of Subaqueous Lands 7 (May 8, 1991), *available at* http://www.dnrec.state.de.us/water2000/Sections/Wetlands/regulations/SubaqueousRegs19921.pdf.
[449] Del. Code Ann. tit. 7, § 7206 (1991).
[450] Del. Code Ann. tit. 7, § 7207(a) (1995).
[451] Del. Code Ann. tit. 7, § 7207(d) (1995).
[452] Del. Code Ann. tit. 7, § 7208(a) (2000).
[453] Del. Code Ann. tit. 7, § 7210 (1991).
[454] Delaware Department of Natural Resources and Environmental Control, Regulations Governing the Use of Subaqueous Lands 15-17 (May 8, 1991), *available at* http://www.dnrec.state.de.us/water2000/Sections/Wetlands/regulations/SubaqueousRegs19921.pdf.
[455] Delaware Department of Natural Resources and Environmental Control, Regulations Governing the Use of Subaqueous Lands 15 (May 8, 1991), *available at* http://www.dnrec.state.de.us/water2000/Sections/Wetlands/regulations/SubaqueousRegs19921.pdf.
[456] Delaware Department of Natural Resources and Environmental Control, Regulations Governing the Use of Subaqueous Lands 22 (May 8, 1991), *available at* http://www.dnrec.state.de.us/water2000/Sections/Wetlands/regulations/SubaqueousRegs19921.pdf.
[457] Telephone interview with Susan Love, Resource Planner, Delaware Costal Program, DNREC Division of Soil & Water Conservation (August 6, 2008).
[458] Jessica Wilkinson, Environmental Law Institute, *Protecting Delaware's Natural Heritage: Tools for Biodiversity Conservation*, 70 (1999).

new heavy industry in its coastal areas, which industry is determined to be incompatible with the protection of that natural environment in those areas."[459] Accompanying regulations were adopted in 1999. The regulations classify activities into three categories: 1) activities that are exempt from permitting requirements; 2) activities that are not exempt but will have no negative impact on the Coastal Zone and thus only require notification, and 3) activities that will have a negative impact on the Coastal Zone and will require a permit.[460] Under the regulations, facilities used in transmitting, distributing, transforming, switching, and otherwise transporting and converting electrical energy are listed as a non-regulated use and are thus not subject to a permit. Arguably, this may indicate that the installation of a transmission line in state waters will not trigger the need for a Coastal Zone permit. A coastal zone permit, however, may be required if an offshore energy project utilizes a staging area onshore and the General Assembly classifies the area or activity as a new "manufacturing facility" that may cause a negative impact on the environment.[461]

Beach Preservation Act: Delaware's Beach Preservation Act establishes a building line along the coast where enumerated activities including (1) the construction, modification or reconstruction of any structure or facility seaward of the designated "building line;" (2) the alteration, digging, mining, moving, removing, or depositing of any substantial amount of beach or other materials that significantly remove vegetation, on any beach seaward of the "building line;" or (3) construction landward of the "building line" cannot take place without Coastal Construction Permit of Letter of Approval.[462] Given that a transmission line will come ashore onto Delaware's shore, a Beach Preservation Act permit will likely be required.

Texas

The Texas General Lands Office (GLO) is the lead agency for offshore energy proposals within state owned waters. In 2003, the GLO Lands Office released a "Plan for Sustainable Energy" calling for an increase of renewable energy production on state owed lands, including submerged lands.[463] The Plan emphasizes wind energy development as the primary means of achieving this goal.[464]

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[459] Del. Code Ann. tit. 7, §7001 (1953).

[460] Jessica Wilkinson, Environmental Law Institute, Protecting Delaware's Natural Heritage: Tools for Biodiversity Conservation, p. 70 (1999).

[461] Delaware Department of Natural Resources and Environmental Control, Regulations Governing Delaware's Coastal Zone 9 (May 11, 1999), *available at* http://www.dnrec.state.de.us/development/CZA/czregs.pdf.

[462] Del. Code Ann. tit. 7, § 6805 (2008). "Building line" is defined as "a line generally paralleling the coast, seaward of which construction of any kind shall be prohibited without a permit or letter of approval from the Department." Del. Code Ann. tit. 7, § 6802(4) (2006).

[463] Benjamin Rhame, Texas General Land Office, *Texas Offshore Wind Energy, Proceedings of Coastal Zone* 1 (2007), *available at* http://www.csc.noaa.gov/cz/2007/Coastal_Zone_07_Proceedings/PDFs/Tuesday_Abstracts/3331.Rhame.pdf.

[464] Benjamin Rhame, Texas General Land Office, *Texas Offshore Wind Energy, Proceedings of Coastal Zone* 1 (2007), *available at*

Texas is unusual in that state submerged lands extend approximately 10.6 miles offshore, rather than the 3 mile limit applicable to most coastal states.[465] While Texas regulations do not explicitly grant the GLO authority to lease offshore lands for renewable energy purposes, GLO has interpreted its authority over such land uses as oil and gas and electricity to include renewable energy production.[466]

To date, Texas has entered into two lease agreements for the construction of utility scale offshore wind facilities in its state waters. The first lease was issued to Galveston-Offshore Wind, LLC to construct a 50-turbine wind farm seven miles off the coast of Galveston. The Galveston Island project will produce a minimum of $26.5 million in royalties to the state over the course of the 30-year lease.[467] The second lease was signed with Babcock and Brown, LLC to develop a 500 MW wind farm three miles off Padre Island but was subsequently cancelled because of high project costs.[468] Because the Galveston-Offshore Wind project will be located within state-owned waters, the Texas General Lands Office will have primary jurisdiction over the project.[469] The revenue and royalties from the lease will be placed in the Permanent School Fund (PSF) and distributed to the public school system.[470]

In Texas, offshore energy projects located within the state's 10.6-mile limit do not require the approval of the Minerals Management Service.[471] When constructing an offshore wind farm, GLO requires the proponent to submit a research plan describing the activities intended to pursue during the research period. The GLO then invites comments on the Research Plan from federal and state agencies, including the Corps of Engineers, the National Park Service, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Texas Parks Wildlife, and various other advocacy groups. Although the Galveston Project is still in the research stage, GLO notes that an Environmental Impact Statement will likely be submitted to the U.S. Army Corps of Engineers shortly. In addition to the GLO's requirements, state agencies with jurisdiction over the project include the Texas Commission on Environmental Quality, the Texas

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http://www.csc.noaa.gov/cz/2007/Coastal_Zone_07_Proceedings/PDFs/Tuesday_Abstracts/3331.Rhame.pdf.

[465] *See* Texas General Land Office: About the Land Office, *at* http://www.glo.state.tx.us/about/landoffice.html (last visited July 31, 2008).

[466] *See* Texas General Land Office: Introduction to Energy Resources, *at* http://www.glo.state.tx.us/energy/intro.html (last visited July 31, 2008); *see also* Benjamin Rhame, Texas General Land Office, *Texas Offshore Wind Energy, Proceedings of Coastal Zone* 1 (2007), *available at* http://www.csc.noaa.gov/cz/2007/Coastal_Zone_07_Proceedings/PDFs/Tuesday_Abstracts/3331.Rhame.pdf.

[467] Renewable Energy World, *Texas Bid Could be First U.S. Offshore Wind Farm*, October 31, 2005, *available at* http://www.renewableenergyworld.com/rea/news/story?id=38618.

[468] John Porretto, *Developer cites cost in nixing offshore wind farm in South Texas*, Mexia Daily News, June 13, 2007, *available at* http://www.mexiadailynews.com/statenews/local_story_164103320.html.

[469] Renewable Energy World, *Texas Bid Could be First U.S. Offshore Wind Farm*, October 31, 2005, *available at* http://www.renewableenergyworld.com/rea/news/story?id=38618.

[470] Texas General Land Office: Introduction to Energy Resources, *at* http://www.glo.state.tx.us/energy/intro.html (last visited July 31, 2008).

[471] Texas General Land Office, *at* http://www.glo.state.tx.us/about/landoffice.html (last visited July 31, 2008).

Coastal Management Program, and the Texas Parks and Wildlife Division. A permit may be required from the National Park Service if the transmission line crosses the national seashore. Other listed federal agencies with jurisdiction include: the USFWS, NMFS, US EPA, U.S. Coast Guard and the FAA.[472]

Oregon

Oregon's Ocean Resources Management Plan and Territorial Sea Plan, described above, set enforceable policies and procedures within which offshore energy facilities will be reviewed. Permitting and review procedures described below are also important.

Ocean Power Technologies' (OPT's) proposal to build a 50MW "wave park off the coast of Reedsport, Oregon, has triggered focus on these processes and procedures.[473] In response to OPT's initiative (and subsequent applications for similar developments over the past two years), Oregon has taken several steps to identify ways to use existing state institutional and regulatory frameworks to facilitate permitting and oversight of wave energy projects. In addition, the state is working to address the regulatory gaps that have arisen. These initiatives build on research being conducted by Oregon State University, which in turn is being provided with support by the state.[474]

On July 14, 2006, OPT filed a Preliminary Permit Application with the Federal Energy Regulatory Commission (FERC) to study a proposed 50-megawatt Wave Park project located in the Pacific Ocean about three miles offshore of Douglas County, Oregon.[475] The proposed project will consist of 200 PowerBuoys® with a total installed capacity of 50 MW, a proposed 2.6-mile-long power transmission line, and appurtenant facilities. OPT has signed a cooperative agreement with Pacific Northwest Generating Cooperative (PNGC Power) to assist in funding the project and to offer power purchasing rights to PNGC when the project enters its commercial phase.[476] OPT plans a phased approach, testing and evaluating in an iterative fashion first a single buoy, then installing an additional 12 prior to full project development. At the time the company plans to install

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[472] *See* Benjamin Rhame, Texas General Land Office, *Texas Offshore Wind Energy, Proceedings of Coastal Zone* 3 (2007), *available at* http://www.csc.noaa.gov/cz/2007/Coastal_Zone_07_Proceedings/PDFs/Tuesday_Abstracts/3331.Rhame.pdf

[473] Oregon Coastal Zone Management Association, "Oregon Coastal Notes," June 2008, *available at* http://www.oczma.org/pdfs/FinalWaveEnergyNewsl_361581.pdf.

[474] Oregon State University's Ocean Wave Energy Research Program focuses on three priorities: (1) creation and testing of novel direct-drive wave energy generators; (2) formation of a National Wave Energy Research and Demonstration Center in Oregon, and (3) working closely with the Oregon Department of Energy (ODOE) and a variety of stakeholders to promote Oregon as the optimal location for the nation's first commercial wave parks. For a full description of their program, *see* http://eecs.oregonstate.edu/wesrf/.

[475] Reedsport OPT Wave Park, LLC letter to FERC, March 15, 2007, *available at* http://www.orsolutions.org/docs/FERC_letter.pdf.

[476] OPT, News Release: Agreement for Development of Wave Power Park in Oregon (Feb. 22, 2007), *available at* http://www.orsolutions.org/southwest/waveenergy.htm.

12 buoys, it will apply for a full FERC license using FERC's integrated licensing process, which will include a broad array of studies and an environmental review.[477]

FERC granted the preliminary permit in February of 2007.[478] In its Order issuing the preliminary permit, FERC described a new "strict scrutiny" approach that it would take with respect to administering the permit.[479] This approach was the subject of a notice of inquiry seeking comments on how FERC should approach preliminary permitting for alternative energy hydropower projects. To ensure that permit holders are actively pursuing project studies, this approach requires semi-annual reporting on issues such as public outreach, agency consultation, and development of study plans. It also requires OPT to file a detailed schedule of activities to be carried out under the permit, including a timeframe for consulting with federal, state, and local agencies, non-governmental stakeholders, tribal entities and other interested parties.[480]

In connection with the OPT project proposal, Oregon Governor Ted Kulongoski appointed an Oregon Solutions Team to develop a coordinated, integrated permitting and licensing process among public, private, and non-profit entities and the regulatory agencies.[481] The Oregon Solutions process is a state-funded mechanism for bringing together stakeholders at the local, state and federal level to identify solutions to community sustainability issues.[482] The use of this mechanism has provided Oregon stakeholders and OPT with an opportunity to explore cooperative ways of identifying and addressing the unresolved issues surrounding the permitting and oversight of wave energy projects and might provide a useful template for Virginia. OPT filed a description of the Oregon Solutions process with FERC to meet the Commission's "strict scrutiny" requirements for a detailed schedule of activities to be carried out under the permit.

The OPT/Oregon Solutions Process: The Oregon Solutions Team was convened shortly after OPT filed for a preliminary permit to conduct studies for the Reedsport Wave Park. Its members include representatives of relevant federal, state, and local agencies, tribal authorities, NGOs, Oregon State University, and members of the

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[477] Oregon Solutions, "Reedsport Wave Energy Project Scoping Meeting," (October 4, 2006), *available at* http://www.orsolutions.org/docs/.

[478] FERC, Order Issuing Preliminary Permit to Reedsport OPT Wave Park, LLC (Feb. 16, 2007), *available at* http://www.orsolutions.org/docs/.

[479] Id.

[480] Id.

[481] Oregon Solutions, "Reedsport Wave Energy Project Scoping Meeting," (October 4, 2006), *available at* http://www.orsolutions.org/docs/.

[482] Oregon Solutions is a program at the National Policy Consensus Center of Portland State University. This multistakeholder organization was developed in response to the State's Sustainability Act of 2001 as a mechanism for identifying and implementing projects using a "community governance structure" that brings together government, businesses, and non-governmental organizations to achieve community sustainability goals. To achieve these goals, an Oregon Solutions Team is convened, consisting of all stakeholders at the community and state levels that can contribute to forming a solution and can leverage diverse resources to implement that solution. The Team forms an integrated action plan to achieve their goals. Projects are funded by the State.

Governor's office and the State Senate.[483] Their meetings are open to the public. Separate working groups within the Team have been formed to address specific issues, including: FERC licensing; Clean Water Act Section 404 permitting; crabbing and fishing; aquatic species; public information; water quality; and recreation/public safety/aesthetics.[484]

The Oregon Solutions process has provided an opportunity for members (including OPT) and the public to identify stakeholder and regulatory issues of concern and to develop mechanisms for addressing these concerns. One of the main concerns has been defining the regulatory process and identifying the mandatory and recommended state requirements. In response, the Oregon Consensus Program, at the request of the Governor's office, developed an assessment to identify issues for statewide policy and planning related to wave energy development.

Among other results, the Oregon Solutions process has enabled FERC and all the relevant stakeholders to meet on a regular basis and to maintain communication as developments occur at the federal and state levels. One example is the fact that FERC encouraged OPT to apply for a license and is facilitating an agreement to ensure that the licensing process can be expedited. Another major development that resulted from this process was the signing of a Memorandum of Understanding (MOU) between the State of Oregon and FERC on wave energy projects.[485]

A further development is the commitment by the state and others to develop a comprehensive plan for the siting of wave energy projects. To start this process, the Governor's office commissioned the Oregon Consensus Program at Portland State University to identify issues that may affect wave energy planning and policy development in Oregon and to assess opportunities for collaborative resolution of those issues.[486] The final report summarized a series of interviews with key stakeholders identifying the relevant issues and opportunities. The report recommends, among other things, a collaborative process for undertaking a strategic environmental assessment (SEA) to define needed baseline information and provide a predictable approach to environmental assessment of WEC projects in Oregon. A strategic environmental assessment evaluates programs, policies, and plans, as opposed to a single project as in an environmental impact assessment. This SEA would then be used to inform amendments to Oregon's Territorial Sea Plan.

Oregon Energy Facility Siting: Before any large energy facility is constructed in Oregon, the builder must apply for a site certification from the Oregon Energy Facility

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[483] Oregon Solutions, "Reedsport Wave Energy Project Scoping Meeting," (October 4, 2006), *available at* http://www.orsolutions.org/docs/.
[484] Oregon Solutions website: http://www.orsolutions.org/southwest/waveenergy.htm.
[485] *Memorandum of Understanding Between the Federal Energy Regulatory Commission and the State of Oregon By and Through Its Departments of Fish & Wildlife, Land Conservation & Development, Environmental Quality, State Lands, Water Resources, Parks & Recreation, and Energy, available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-or-final.pdf.
[486] Oregon Consensus Program, "Oregon Coast Wave Energy Statewide Policy and Planning Assessment," (Feb. 2008), *available at* http://www.odrc.state.or.us/WaveEnergyAssessment.php.

Siting Council (EFSC).[487] This includes the construction of transmission lines that are 230 kilovolts or more. In making a siting determination, the Council uses not only its own criteria, but also the applicable rules and ordinances of state and local agencies.[488] The siting decision is then binding on those agencies. Facilities with an average electric generating capacity of less than 100 MW can qualify for expedited review. In 2007, new legislation was passed to exempt wave energy projects off Oregon's coast generating five megawatts or less from regulations of hydroelectric projects if a FERC license is not required under the Federal Power Act. This legislation also allows university research to continue to test wave energy devices off the Oregon coast.[489]

Seafloor Leasing: In October 2007, the Oregon State Land Board adopted new rules governing the placement of ocean energy facilities on, in, or over state-owned submerged land in the territorial sea for a research project, demonstration project or commercial operation.[490] The rules require anyone proposing to undertake these activities to first acquire a temporary use authorization or an ocean facility lease from the Department of State Lands. This permit provides the holder with a proprietary authorization for the facility or equipment specific in the permit or lease. Monitoring can be a condition of the permit or lease. The facility lease issued is conditional on the receipt of all other necessary authorizations required by the Department. Except for educational or research institutions conducting research, an authorization provides the holder with the first right to apply for an ocean energy facility lease for the area specified. All authorizations and facility leases must meet the requirements of Statewide Planning Goal 19 and the Oregon Ocean Resources Management Plan and Territorial Sea Plan.[491] The Department is required to consult with all relevant local, state and tribal agencies and authorities and request comments prior to issuing an authorization or license.[492] The Department may require the holder of a temporary use authorization or lessee to obtain liability insurance if it determines that the project constitutes a risk to other uses of the ocean or ocean shore, to public safety or to the State of Oregon.[493]

Removal and Fill Permits: Pursuant to state legislation, the removal of any material from the beds or banks of any waters of the State or fill any waters of the State requires a permit from the Oregon Department of State Lands, as well as from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.[494]

CZMA Consistency: The Department of Land Conservation and Development (DLCD) is the lead agency for Coastal Zone Management in Oregon, and is therefore responsible for reviewing all federal activities directly affecting the coastal zone, federal projects within the coastal zone, and federal licenses or permits for activities affecting the coastal

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[487] ORS 469.300.
[488] Oregon Energy Facility Siting Council: http://www.oregon.gov/ENERGY/SITING/process.shtml.
[489] Press Release: "Governor Kulongoski Signs a Series of Legislation," (May 31, 2007), *available at* http://governor.oregon.gov/Gov/P2007/press_053107.shtml.
[490] OAS 141-140.
[491] OAS 141-140-0030.
[492] OAS 141-140-0060.
[493] OAS 141-140-0090.
[494] ORS 196.810.

zone for consistency with the Oregon Coastal Zone Management Program's enforceable policies.[495] Oregon's relevant enforceable policies include three components: the Statewide Planning Goals adopted by DLCD; comprehensive plans and land use regulations adopted by local governments and "acknowledged" by DLCD; and requirements of Oregon state agencies with regulatory authority integrated within the Oregon Coastal Zone Management Program.[496] Also relevant (by incorporation into the Statewide Planning Goals) is the Oregon Territorial Sea Plan.

The main enforceable policy likely to be relevant to consistency reviews for offshore energy projects is Statewide Planning Goal 19: Ocean Resources. Goal 19 provides a "checklist" of requirements for all state and federal actions "reasonably likely to affect ocean resources and uses of the Oregon territorial sea."[497] This includes assuring that long-term benefits from renewable marine resources are maintained and protection of: renewable marine resources, important marine habitat, the biological diversity of marine life and the functional integrity of the marine ecosystem; and areas important to certain fisheries.[498] Agencies are to promote beneficial uses of ocean resources, provided that those activities do not adversely affect these resources and must avoid to the extent possible, adverse effects on or operational conflicts with other ocean uses or activities.[499] Moreover, agencies must ensure compliance with all applicable requirements of the Oregon Territorial Sea Plan and other applicable Statewide Planning Goals (including Goal 16: Estuarine Resources, Goal 17: Coastal Shorelands, and Goal 18: Beaches and Dunes).

Washington

On November 8, 2006, AquaEnergy, Ltd. (now Finavera Renewables Ocean Energy, Ltd.) filed an application with FERC for a five-year license to construct, operate, and maintain a 1.0 MW wave energy project 1.9 miles offshore in Makah Bay, Washington.[500] This will be a pilot project designed to demonstrate the economic and environmental benefits of wave energy conversion near coastal communities. The project will consist of four 250 kW WEC buoys ("AquaBuoys") and a mooring/anchoring and electrical connection system. The project will also have a 3.7-mile-long direct current submarine transmission cable to a shore station. The shore station will be 15 feet by 15 feet by 10 feet. An access road and parking area will be constructed near the station. Finally, there will be an approximately 20-foot long, 12 kilovolt transmission line (which will be buried) connecting the shore station to the Clallam County Public Utility District distribution line.

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[495] OAR 660-035-0020.
[496] OAR 660-031; "Oregon Licenses, Permits and Registrations," *available at* http://licenseinfo.oregon.gov/?fuseaction=welcome_keyword.
[497] OAR 660-015-0010(4).
[498] OAR 660-015-0010(4).
[499] OAR 660-015-0010(4).
[500] Federal Energy Regulation Commission, 121 FERC ¶ 61, 288, "Order Issuing Conditioned Original License," *available at* http://www.ferc.gov/whats-new/comm-meet/2007/122007/H-1.pdf.

The Makah Bay project will occupy approximately one acre of land within the Makah Indian Reservation and 28.3 acres of land of the Olympic Coast National Marine Sanctuary, administered by NOAA.[501] It also will occupy state-owned aquatic lands administered by the Washington Department of Ecology. During the application process, the Washington Department of Fish and Wildlife, the State Department of Ecology, the Washington DNR, the Makah Tribe, the National Marine Sanctuary Program, and the NMFS all filed motions to intervene.

A conditional license was granted by FERC on December 20, 2007. The Washington Department of Natural Resources, the Makah Tribe, and the Washington Department of Ecology filed a request for a rehearing of the decision to grant the permit. The agencies argued that no permit could be granted prior to completion of federal consistency review under the CZMA and CWA. FERC's response was that the CZMA consistency review and CWA 401 certification had subsequently been completed in February 2008 and so the issue was moot. In addition, the conditionality of the permit prevented any construction or operation prior to meeting the legislative requirements of the CMZA and the CWA. The license was also conditioned on receipt of FWS' biological opinion, which was filed on February 20, 2008 and was therefore also moot. On March 20, 2008, FERC granted the rehearing in part, and affirmed its issuance of the license, as amended to reflect the additional findings.[502] The Washington Department of Ecology filed a petition in the U.S. Court of Appeals for the District of Columbia to protect the state's role in these licensing procedures. Ecology claims that a conditioned license process does not provide the certainty or deference to state agencies that is necessary and that it will confuse matters when state agencies choose to write in conditions for construction and operation.[503]

Ocean Resource Management Act: Pursuant to Washington's Ocean Resource Management Act (ORMA), when state or local governments develop plans for the management, conservation, use or development of natural resources in Washington's coastal waters, the following legislative policies are among those that must guide the decision-making process:[504] When conflicts arise among uses and activities, priority shall be given to resource uses and activities that will not adversely impact renewable resources over uses which are likely to have an adverse impact on renewable resources.[505] It is the policy of the state of Washington to actively encourage the conservation of liquid fossil fuels, and to explore available methods of encouraging such conservation.[506]

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[501] Federal Energy Regulation Commission, 121 FERC ¶ 61, 288, "Order Issuing Conditioned Original License," *available at* http://www.ferc.gov/whats-new/comm-meet/2007/122007/H-1.pdf.

[502] Finavera Renewables Ocean Energy, Ltd, Project No. 12751-001, ORDER ON REHEARING AND CLARIFICATION AND AMENDING LICENSE (Issued March 20, 2008).

[503] Department of Ecology News Release (May 15, 2008), "Ecology Challenges FERC for Bypassing Environmental Reviews of Energy Projects," *available at* http://www.ecy.wa.gov/news/2008news/2008-130.html.

[504] RCW 43.143.030.

[505] RCW 43.143.010.

[506] RCW 43.143.010.

Moreover, for any uses or activities that require federal, state, or local government permits or other approvals and that will ***adversely*** impact renewable resources, marine life, fishing, aquaculture, recreation, navigation, air or water quality, or other existing ocean or coastal uses, the use may be permitted only if: There is a demonstrated significant local, state, or national need for the proposed use or activity; there is no reasonable alternative to meet the public need for the proposed use or activity; there will be no likely long-term significant adverse impacts to coastal or marine resources or uses; all reasonable steps are taken to avoid and minimize adverse environmental impacts; all reasonable steps are taken to avoid and minimize adverse social and economic impacts, including impacts on aquaculture, recreation, tourism, navigation, air quality, and recreational, commercial, and tribal fishing; compensation is provided to mitigate adverse impacts to coastal resources or uses; plans and sufficient performance bonding are provided to ensure that the site will be rehabilitated after the use or activity is completed; and the use or activity complies with all applicable local, state, and federal laws and regulations.[507]

The ORMA applies by its terms from the high tide line seaward to 200 miles, although its ability to regulate activities in federal waters is necessarily limited by federal jurisdiction to the authority provided through CZMA consistency review.[508]

Shoreline Management Act: The Shoreline Management Act (SMA) and its implementing regulations form a land use and environmental protection framework for land and water uses in Washington's coastal zone.[509] It establishes a planning and regulatory permit system that takes place at the local government level under state guidance.[510] The SMA applies to all shorelines of the state, which by statutory definition include 2,761 miles of marine shoreline and 3,000 square miles of marine waters (all marine waters below the ordinary high water mark).[511]

The policy of the State of Washington is "to provide for the management of the shorelines of the state by planning for and fostering all reasonable and appropriate uses. This policy is designed to insure the development of these shorelines in a manner which, while allowing for limited reduction of rights of the public in the navigable waters, will promote and enhance the public interest."[512] Pursuant to these policies, the State agency tasked with implementation of the SMA, the Department of Ecology, developed guidelines for shorelines of statewide significance and for local governments to use in

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[507] RCW 43.143.030.
[508] RCW 43.143.005(4) ("Since protection, conservation, and development of the natural resources in the exclusive economic zone directly affect Washington's economy and environment, the state has an inherent interest in how these resources are managed.").
[509] Washington State Coastal Zone Management Program, *Managing Washington's Coast* (2001), *available at* http://www.ecy.wa.gov/pubs/0006029.pdf.
[510] Washington State Coastal Zone Management Program, *Managing Washington's Coast* (2001), *available at* http://www.ecy.wa.gov/pubs/0006029.pdf.
[511] Washington State Coastal Zone Management Program, *Managing Washington's Coast* (2001), *available at* http://www.ecy.wa.gov/pubs/0006029.pdf.
[512] RCW 90.58.050.

creating shorelines master programs. The final version of these guidelines was adopted in 2003.[513]

Local shoreline master programs are based on inventories of land and water uses, ownership patterns, and natural shorelines characteristics.[514] The shoreline master program is a land use planning document. It includes basic goals and objectives, shoreline environmental designations, and regulations developed in accordance with the State guidelines. All 39 counties and over 200 cities in the State have developed master programs, which are essentially an integrated vision of use and development of the shoreline. Revisions to the plans require public involvement and the approval of the Department of Ecology, which must ensure consistency with the State guidelines. Each local government must also establish a system of permitting for shoreline development. Substantial Development Permits are required for any projects over $5000.[515] Conditional Uses and Variances can be granted with the review of the Department of Ecology. If Ecology disagrees with a conditional use or variance, it can appeal to the Shorelines Hearing Board.

The SMA created preferred uses of shorelines.[516] If shoreline alteration takes place, the following uses are given priority: Single family residences; ports; shoreline recreational uses; industrial and commercial developments that are dependent on their location on or use of shorelines; and other developments that will enable a substantial number of people to enjoy the shorelines.[517] Preferred uses for shorelines of statewide significance are those that:

- Recognize and protect the statewide interest over local interests;
- Preserve the natural character of the shoreline;
- Favor long-term over short-term benefits;
- Protect the resources and ecology of the shoreline;
- Increase public access to publicly-owned shorelines; and
- Increase shoreline recreational opportunities.[518]

There is no specific reference within the SMA Guidelines to alternative energy.

State Environmental Policy Act: The SEPA provides for environmental impact assessments. The process is meant to integrate the provisions of Washington's Growth Management Act (GMA) and ensure that environmental analyses are incorporated into the planning and decision-making under the GMA.[519] It provides for a full environmental impact statement process, which is coordinated with federal NEPA where a federal permit or approval is also involved.

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[513] WAC 173-26, *available at* http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/SMP_Guidelines_Final.pdf.
[514] Washington State Coastal Zone Management Program, *Managing Washington's Coast* (2001), *available at* http://www.ecy.wa.gov/pubs/0006029.pdf.
[515] Washington Department of Ecology website: http://www.ecy.wa.gov/programs/sea/sma/st_guide/administration/substantial_development.html.
[516] RCW 90.58.020.
[517] RCW 90.58.020.
[518] RCW 90.58.020.
[519] WAC 197-11-210.

Water Quality Certification: Finavera applied to both the Washington Department of Ecology and the Makah Tribe for water quality certification pursuant to §401 of the federal Clean Water Act. Ecology in February 2008 identified the license conditions that would be needed to meet water quality standards. The Tribe issued its certification in June 2007, noting that there would be no violations of tribal water quality standards or other appropriate requirements of tribal law. The Tribe attached no conditions to the certification.

CZMA Consistency: The Department of Ecology is the state's CZMA review authority, and federal activities that affect any land use, water use, or natural resource of the coastal zone must comply with the enforceable policies within six state laws:[520] The Shoreline Management Act (including local government shoreline master programs); State Environmental Policy Act (SEPA); State Clean Water Act; State Clean Air Act; Energy Facility Site Evaluation Council (EFSEC);[521] and the Ocean Resource Management Act (ORMA). In the Makah Bay project, Finavera applied to Ecology for a CZMA consistency certification and received it in February 2008.[522]

[520] Washington Department of Ecology Coastal Zone Management website: http://www.ecy.wa.gov/programs/sea/czm/fed-consist.html.

[521] The Energy Facility Site Evaluation Council is the Washington State permitting facility for large thermal facilities, oil refineries that process petroleum transported over marine waters, and petroleum and natural gas pipelines. The EFSEC does not specifically have jurisdiction over wind and wave energy projects.

[522] Federal Energy Regulatory Commission, 122 FERC ¶ 61,248 *Order on Rehearing and Clarification of Amending License* (March 20, 2008), available at http://www.ferc.gov/whats-new/comm-meet/2008/032008/H-2.pdf.

VI. Virginia Law & Policy

Virginia has a number of laws and policies with applicability to potential offshore energy development and control of impacts on Virginia's environment. In addition to the recent Commonwealth Energy Policy, which directs Virginia agencies and political subdivisions to act consistently with the policy "where appropriate," these laws and policies provide authority for review of energy project approvals on a case-by-case basis. However, they also contain gaps.

Virginia's Coastal Zone Management Program

1) Energy facilities. The federal Coastal Zone Management Act provides that each state's coastal management program shall include, among other elements, "a planning process for energy facilities likely to be located in, or which may significantly affect, the coastal zone, including a process for anticipating the management of the impacts resulting from such facilities.[523] Virginia's coastal management program approved in 1986 focuses on four types of energy facilities where these are of "such size or magnitude of impact to make them subject to state review through the federal environmental impact statement process:"

> (1) Electric generating facilities of 100 megawatts or more and transmission lines of 100 kilovolts or more, or either,
> (2) Plants for processing or refining petroleum or natural gas,
> (3) Onshore facilities for the support of outer continental shelf *oil and gas* exploration and development, and
> (4) Coal exporting piers subject to either state or federal EIS processes.[524]

This list did not specifically anticipate *electric* power generation facilities located offshore (wind, wave, etc.), nor facilities that generate or convey lesser amounts of power, nor did it anticipate liquefied natural gas (LNG) facilities. The reference to outer continental shelf energy facilities was limited to onshore support facilities for oil and gas on the OCS. Virginia should consider revising the coastal management program's review processes in the context of the energy development activities now anticipated by the Commonwealth. Defining this process could improve Virginia's readiness for offshore activities.

2) Enforceable Policies. Virginia's coastal management enforceable policies referenced in the coastal program serve as the basis for federal "consistency" review under the CZMA.[525] Consistency review offers Virginia's main opportunity to review and seek to impose conditions on federally-authorized activities occurring on the OCS and the coastal zone. The enforceable policies recognized by NOAA consist of:

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[523] 16 U.S.C. §1455(d)(2)(H).
[524] U.S. Department of Commerce and Virginia Department of Environmental Quality, Virginia Coastal Resources Management Program, Chap. VII.
[525] 16 U.S.C. §1456(c).

- Fisheries management – administered by the Virginia Marine Resources Commission (Va. Code §28.2-200 thru §28.2-713) and the Department of Game and Inland Fisheries (Va. Code §29.1-100 thru §29.1-570).
- Subaqueous lands management – administered by the Virginia Marine Resources Commission (Va. Code §28.2-1200 thru §28.2-1213).
- Wetlands management – administered by the Virginia Marine Resources Commission (Va. Code §28.2-1300 thru §28.2-1320), and the Virginia Water Protection Permit program administered by the Department of Environmental Quality (Va. Code §62.1-44.15.5 and the Water Quality Certification requirements of Section 401 of the federal Clean Water Act).
- Dunes management – administered by the Virginia Marine Resources Commission (Va. Code §28.2-1400 thru §28.2-1420).
- Nonpoint source pollution control – administered by the Department of Conservation and Recreation (Va. Code §10.1-560 *et seq*.).
- Point source pollution control – administered by the State Water Control Board (Va. Code §62.1-44.15).
- Shoreline sanitation – administered by the Department of Health (Va. Code §32.1-164 thru §32.1-165).
- Air pollution control – administered by the State Air Pollution Control Board (Va. Code §10-1.1300).
- Coastal lands management – administered by the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater Virginia (Chesapeake Bay Preservation Act, Va. Code §10.1-2100 thru §10.1-2114 and regulations, Virginia Administrative Code 9 VAC 10-20-10 *et seq*.)[526]

Virginia advisory policies (that are not binding for consistency review purposes) include policies dealing with coastal natural resource areas, coastal natural hazard areas, waterfront development areas, public beaches, the Virginia outdoors plan, parks and natural areas and wildlife management areas, waterfront recreation land acquisition and facilities, and waterfront historic properties.[527]

The Virginia Department of Environmental Quality (DEQ) handles consistency review for the Commonwealth.

Virginia Marine Resources Commission Permit Programs

The Virginia Marine Resources Commission (VMRC) has jurisdiction over the Commonwealth's territorial sea (to three miles),[528] and it issues three kinds of permits dealing with encroachment upon and use of lands and waters that are potentially relevant to energy facilities (generating facilities, pipelines, transmission lines) located in state

[526] Virginia Department of Environmental Quality, Enforceable Policies Comprising Virginia's Coastal Resources Management Program, http://www.deq.virginia.gov/eir/federal.html
[527] Id.
[528] Va. Code §28.2-101.

waters or the coastal zone. These are all part of Virginia's approved coastal management program, and were recently updated:[529]

- subaqueous lands
- tidal wetlands
- coastal primary sand dunes

Permit applicants must complete a Joint Permit Application (JPA). The application addresses the three VMRC permits, the Corps of Engineers' federal §10/404 permits under federal law, the DEQ's water protection permit and water quality review of federal permits under §401 of the federal Clean Water Act, and review and permitting by local government wetlands boards. Placement of facilities in state waters and on state subaqueous lands will trigger permitting.

The subaqueous lands program provides for granting or denying permits for use of state-owned bottomlands. The VMRC must consider "the public and private benefits of the proposed project" consistent with the "public trust" doctrine and Article XI §1 of the Virginia Constitution. VMRC must also consider the effect of the proposed project on:

- "other reasonable and permissible uses of state waters and state-owned bottomlands;
- marine and fisheries resources of the Commonwealth;
- tidal wetlands [except as separately determined under wetlands permitting];
- adjacent or nearby properties;
- water quality; and
- submerged aquatic vegetation."[530]

Under its guidelines, the VMRC also considers whether or not the project is water-dependent, and must consider alternatives for reducing impacts.[531] Royalties must be charged unless otherwise prohibited.[532] Maintenance and removal of facilities upon abandonment is required, although public service corporations may abandon cables, conduits and pipes upon prior approval by VMRC.[533] In addition to permitting, VMRC may grant easements and leases with the approval of the Governor and Attorney General outside of Baylor grounds (which requires an act of the General Assembly). Easements for public service corporations and interstate natural gas companies are granted for a payment of $100 and for 40 years.[534]

The VMRC's Subaqueous Guidelines, Section V, are relevant to the siting and configuration of energy facilities in or traversing Virginia's subaqueous lands. These guidelines are used by VMRC in applying the statutory tests. The guidelines were

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[529] http://www.mrc.state.va.us/regulations/hm-permits.shtm
[530] Va. Code §28.2-1205.A.
[531] http://www.mrc.state.va.us/regulations/subaqueous_guidelines.shtm (Guidelines I.C.2).
[532] Va. Code §28.2-1205.E.
[533] Va. Code §28.2-1209.
[534] Va. Code §28.2-1208.

submitted to NOAA as part of Virginia's Coastal Management Program's enforceable policies in 1986; but *November 2005 revisions were not submitted as an update.* The Guidelines specifically provide that "overhead and/or submarine crossings are *normally permitted* if reasonable measures are taken to protect aquatic resources and other uses of the waterway." Submarine crossings are evaluated in accordance with the following guidelines:

1. Submarine crossings should be designed such that a minimum of three feet of cover will be provided over the upper extremity of the submerged structure when placed in an area where fishing devices are normally employed.
2. Alteration of submerged aquatic vegetation, shellfish beds and wetlands should be minimized wherever possible in the planning and location of submerged structures.
3. Backfill material for submarine crossings should clean and serve to restore, as closely as possible, the depth and natural condition of the original bottom.
4. In general, directional drill methodologies are preferred over trenching.[535]

The recent application by Virginia Natural Gas for a pipeline crossing Hampton Roads, decided by the VMRC in March 2008, illustrates the kinds of evaluation that may be triggered by future energy development impacts from either electric cables from offshore generating facilities or pipelines for gas production wells on the OCS. The VMRC approved the permits, but required a substantial amount of directional drilling for the pipeline segments nearest the shorelines; the remainder was approved for dredging including sidecasting of the dredge material on state bottomlands.[536]

Tidal wetlands permitting is governed by Va. Code §28.2-1300 and is part of Virginia's approved coastal management program. The VMRC has adopted guidelines to assist in the decision process,[537] and for compensatory mitigation.[538] The goal of this law is to "preserve and prevent the despoliation and destruction of [tidal] wetlands while accommodating necessary economic development in a manner consistent with wetlands protection."[539] The Wetlands Act vests wetland regulatory authority with local governments. The law creates a Wetlands Zoning Ordinance that any county, city, or town may adopt through creation of a wetlands board.[540] (A similar approach applies to coastal dunes). The local wetlands board has jurisdiction over wetlands from the mean low water mark to the mean high water mark where no emergent vegetation exists and to 1.5 times the mean tide range where marsh is present.[541] The Virginia Marine Resources Commission has jurisdiction over permitting of projects within state owned subaqueous

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[535] http://www.mrc.state.va.us/regulations/subaqueous_guidelines.shtm
[536] VMRC, *Virginia Natural Gas* #07-1036 (March 25, 2008).
[537] http://www.mrc.virginia.gov/regulations/wetlands_guidelines.pdf
[538] 4 VAC 20-390-10 et seq.; http://www.mrc.virginia.gov/regulations/bankguide.shtm
[539] VA. Code Ann. § 28.2-1302.
[540] VA. Code Ann. § 28.2-1303.
[541] Krista Trono, An Analysis of the Current Shoreline Management Framework in Virginia: Focus on the Need for Improved Agency Coordination 20 (Nov. 1, 2003) (unpublished report in partial fulfillment for the degree of M.A., University of Miami), *available at* http://www.deq.state.va.us/coastal/documents/shorelin.pdf.

lands seaward of the mean low water mark. VMRC also reviews proposed projects affecting wetlands, sand dunes, and beaches in localities that have not yet adopted the Wetland Zoning Ordinance.[542]

In developing wetland regulations "the Commission shall consult with all affected state agencies. Consistent with other legal rights, consideration shall be given to the unique character of the Commonwealth's tidal wetlands which are essential for the production of marine and inland wildlife, waterfowl, finfish, shellfish and flora; serve as a valuable protective barrier against floods, tidal storms and the erosion of the Commonwealth's shores and soil; are important for the absorption of silt and pollutants; and are important for recreational and aesthetic enjoyment of the people and for the promotion of tourism, navigation and commerce."[543] Virginia has detailed guidelines for activities affecting dunes[544] and barrier islands.[545] These include prohibitions on certain kinds of alterations, and requirements for permitting by VMRC or local wetlands boards or both.

In addition to these permitting programs, the VMRC has *some authority to define spatial uses of the waters and submerged lands*. It may establish areas off limits to fishing and use of particular types of equipment "to conserve and promote the seafood and marine resources of the Commonwealth"[546] and it may adopt habitat management regulations and guidelines.[547] It may also "following consultation with the U.S. Coast Guard and the U.S. Army Corps of Engineers" establish by regulation "state water safety zones and restricted areas within the tidal waters of the Commonwealth wherein public access shall be restricted or prohibited in the interest of public safety." Such zones must be consistent with federal law.[548] It is not clear whether VMRC authority extends to the advance designation of particular areas for cable or pipeline rights-of-way or energy facilities or that existing law authorizes area-based zoning of submerged lands (except on a habitat or safety zone basis). The VMRC "may promulgate regulations and guidelines necessary to carry out" the function of Title 28.2.[549] This rulemaking authority may or may not allow it to designate areas for particular activities – such as preferred pipeline or transmission corridor routes.

The VMRC prepares a management plan for the ungranted shores of the sea, marsh and meadowlands.[550] It also prepares fisheries management plans.[551] Management areas have been set aside for submerged aquatic vegetation and for other habitat protection purposes.

Department of Game and Inland Fisheries (DGIF)

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[542] *See* VA. Code Ann. § 28.2-1302.
[543] Va. Code § 28.2-1301.D.
[544] http://www.mrc.virginia.gov/regulations/dune_guidelines.pdf
[545] 4 VAC 20-440-10, et seq. Barrier island policy.
[546] Va. Code §28.2-201 (regulatory authority).
[547] Va. Code §28.2-103, §28.2-209 et seq.
[548] Va. Code §28.2-106.2.
[549] Va. Code §28.2-103.
[550] Va. Code §28.2-1504.
[551] Va. Code §28.2-203.

The DGIF may have significant issues to raise with regard to offshore energy projects. Recently in commenting on a draft Environmental Assessment issued by the Minerals Management Service in connection with the MMS's proposed rule for alternative energy facilities on the OCS, the DGIF recommended that there be "federal standardized avian monitoring and mitigation guidelines" applicable to such facilities.[552] It also sought guarantees that states could "impose additional requirements as needed."[553] The DGIF is aware of numerous land birds, shorebirds, turtles, marine mammals and other living resources in the coastal zone that may be affected by OCS oil and gas as well as alternative energy developments, and has particular concern for the barrier islands and associated coastal systems on the eastern shore. The DGIF recommends numerous studies and information on limiting impacts to these habitats and species.[554]

At this time, the DGIF cannot impose these requirements or guidelines on its own; it must either persuade a federal permitting agency to do so through comments on permits and environmental impact documents, or persuade other Virginia agencies (such as VMRC or the State Corporation Commission) to do so in the context of their permitting and licensing programs.

Virginia's Endangered Species Act is not incorporated into Virginia's approved coastal management program. It requires all Virginia boards and agencies to cooperate with DGIF in protecting endangered species. It does not provide for "incidental take" of protected species.[555]

Sediment and Erosion Control

Permitting or general permitting for sediment and erosion control will be required for land disturbing activities, and for construction stormwater management as administered by the Department of Conservation and Recreation. The former is incorporated in the approved coastal management program.[556] Activities exempt from construction stormwater requirements include: oil and gas operations, land-disturbing activities that disturb less than one acre of land area except for land-disturbing activity exceeding an area of 2,500 square feet in jurisdictions subject to the Chesapeake Bay Preservation Area Designation and Management Regulations or activities that are part of a larger common plan that is one acre or greater of disturbance; and linear development projects, provided that (i) less than one acre of land will be disturbed per outfall or watershed, (ii) there will

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[552] Virginia DEQ to Minerals Management Service, Alternative Energy and Alternate Uses, DEQ #08-157F (Sept. 4, 2008).
[553] Id.
[554] Virginia DEQ to Minerals Management Service, "Scoping Comments on the Interior Department's 5-year Outer Continental Shelf Oil and Gas Leasing Program," (Sept. 11, 2008).
[555] Va. Code §29.1-563 et seq. It applies only to animal species, not plants.
[556] Va. Code §10.1-563; §10.1-603 et seq; http://www.dcr.virginia.gov/soil_&_water/vsmp.shtml. However, the Erosion and Sediment Control program was last updated with NOAA in 1993, and the approved coastal program does not expressly address the VPDES construction stormwater aspects moved from DEQ to DCR in 2005. The regulations at 4 VAC 3-20-10, 50-60 et seq. have not been submitted to NOAA, although the remaining DEQ stormwater regulation at 9 VAC 25-31-120 was prepared for auto-incorporation in 2007.

be insignificant increases in peak flow rates, and (iii) there are no existing or anticipated flooding or erosion problems downstream of the discharge point.[557]

Chesapeake Bay Preservation Act

Resource protection areas (RPAs) in Tidewater Virginia local jurisdictions include wetlands, perennial waters, tidal shoreline, 100-foot buffer areas, and other lands.[558] The CBPA is part of Virginia's approved coastal zone management program. It should be noted that Northampton County applies the CBPA to the Atlantic side as well as to the Bay side in its plans and ordinances. There are limitations that apply in the protection areas that can affect onshore facilities.

Local governments also retain some authority over "areas and dimensions of land, water, and air space" to be occupied by buildings, structures, and uses under Virginia's land use planning and zoning laws.[559] These authorities are not directly incorporated into Virginia's coastal zone management program, but may provide some means of controlling activities on shore that require building permits or zoning amendments..

Historic preservation

Viewshed elements may be considered by the Department of Historic Resources if federal activities or federally-licensed activities (undertakings) may affect properties listed or eligible for listing on the National Register of Historic Places. DHR recommendations are also provided to the State Corporation Commission and other state agencies empowered to conduct public interest reviews of projects within their jurisdiction.

Visual/scenic resources

The Department of Conservation and Recreation reviews projects that may affect scenic and recreational resources, but does not exercise permitting authority or veto authority with regard to such projects.

Local governments may provide for review of visual impacts in their planning and zoning and subdivision ordinances. The applicability of these ordinances to offshore energy facilities will depend upon whether there are facilities within the local jurisdiction that require some sort of permit approval or zoning change.

Environmental Impact Review

[557] Va. Code § 10.1-603.8.B.
[558] Va. Code § 10.1-2100 et seq.; 9 VAC 10-20-120 et seq.
[559] Va. Code § 15.2-2280.

Virginia law provides for environmental impact reports for "major state projects," defined as land acquisition or state construction which costs $500,000 or more.[560] This provision will not apply to most foreseeable energy development activities, as the Commonwealth will not likely be the project owner. So for the most part, environmental impact review, if any, will be either under the federal NEPA process in connection with federal permitting or OCS leasing activities, or in connection with DEQ's review of certain energy licensing and certificate activities within the jurisdiction of Virginia's State Corporation Commission, discussed below.

Virginia state law also provides for environmental impact assessment for oil and gas wells in tidewater Virginia. However, drilling in the Bay and within 500 feet of the shoreline of the Bay or tributaries is prohibited outright.[561] The law specifies the content of the assessment to be submitted by the applicant and the review process; the DEQ has adopted guidelines for the assessment.[562] These provisions offer examples of content, if the General Assembly were to adopt environmental assessment legislation applicable to landward and coastal effects of OCS natural gas and petroleum development, in addition to relying on NEPA.

State Corporation Commission

The State Corporation Commission, among many other functions, reviews applications to construct electric generating facilities for retail or wholesale power, transmission lines exceeding 138 kilovolts, and intrastate natural gas pipelines.[563] (This jurisdiction does not extend beyond Virginia's territorial waters). Although SCC regulation is complex and cannot be fully explored in the context of this report, several relevant features are discussed in this section where they appear particularly relevant to energy activities involving offshore and territorial waters. The Department of Environmental Quality (DEQ) is required to examine the environmental impact of energy generating facilities in connection with SCC reviews.[564] The SCC and DEQ have a Memorandum of Agreement on coordinating environmental impact review of proposed electric generating plants and associated facilities.[565] The review process is not part of Virginia's approved coastal management program, nor is the SCC's authority to establish environmental conditions (discussed below).

In 2006 the General Assembly directed the State Corporation Commission and Secretary of Natural Resources to develop a proposal for coordinated review of permits for energy facilities subject to SCC licensing.[566] The resulting recommendations were enacted by the General Assembly in 2007. They allow an applicant to request a pre-application process that will produce a plan that includes a list of the permits or other approvals likely to be

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[560] Va. Code §10.1-1188.
[561] Va. Code §62.1-195.1.
[562] 9 VAC 15-20-10 et seq.
[563] http://www.scc.virginia.gov/pue/resp.aspx
[564] Va. Code §§10.1-1186.2:1.B, C.
[565] Va. Code §§ 10.1-1186.2:1B, 56-46.1.G. PUE-2002-00315, MOA (August 14, 2002)
[566] Acts 2006, Ch. 939, Sec. 4.

required, a specific plan and preliminary schedule for the reviews, a plan for coordinating reviews and related public comment processes, and designation of points of contact in each agency or for the Commonwealth as whole to facilitate the coordination.[567]

The SCC review of electric generating facilities and transmission corridors includes *evaluation of environmental factors*:[568]

> A. Whenever the Commission is required to approve the construction of any electrical utility facility,[569] *it shall give consideration to the effect of that facility on the environment and establish such conditions as may be desirable or necessary to minimize adverse environmental impac*t. In order to avoid duplication of governmental activities, *any valid permit or approval* required for an electric generating plant and associated facilities issued or granted by a federal, state or local governmental entity charged by law with responsibility for issuing permits or approvals regulating environmental impact and mitigation of adverse environmental impact or for other specific public interest issues such as building codes, transportation plans, and public safety, whether such permit or approval is granted prior to or after the Commission's decision, shall be *deemed to satisfy the requirements of this section with respect to all matters that (i) are governed by the permit or approval or (ii) are within the authority of, and were considered by, the governmental entity in issuing such permit or approval, and the Commission shall impose no additional conditions with respect to such matters*….In every proceeding under this subsection, the Commission *shall receive and give consideration to all reports that relate to the proposed facility by state agencies concerned with environmental protection*; and if requested by any county or municipality in which the facility is proposed to be built, to local comprehensive plans….Additionally, the Commission (i) shall consider the effect of the proposed facility on economic development within the Commonwealth and (ii) shall consider any improvements in service reliability that may result from the construction of such facility.
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> B. No electrical transmission line of 138 kilovolts or more shall be constructed unless the State Corporation Commission shall…determine that the line is needed and that the corridor or route the line is to follow will *reasonably minimize adverse impact on the scenic assets, historic districts and environment of the area concerned*….If the local comprehensive plan of an affected county or municipality designates corridors or routes for electric transmission lines and the line is proposed to be constructed outside such corridors or routes, in any hearing the county or municipality may provide adequate evidence that the existing planned

[567] Va. Code §56-46.1.H.
[568] Va. Code §§56-46.1.A, B.
[569] Va. Code §56-580D contains similar language to §56-46.1.A with respect to approval of "electric generating facilities."

> corridors or routes designated in the plan can adequately serve the needs of the company….[570]

Thus, as to *electric generating and associated facilities* subject to SCC approval, the SCC cannot impose additional environmental requirements upon subjects that are within the purview of other agencies' permits or approvals. (This limitation does not apply to approval of transmission corridors). However, where an environmental issue is outside the subject area of such an agency permitting program – such as, perhaps, visual impacts – the SCC may impose such conditions. And where there is not a permit program – as, perhaps, with respect to protection of birds – the SCC may (but is not required to) impose conditions recommended by DEQ and Virginia state agencies (such as the DGIF) and by other parties to its proceedings.

The SCC's environmental protection authority is murkier where a permitting scheme exists but does not fully address a set of environmental issues, or where the record is unclear about whether a subject that is not directly addressed in a permit was, in fact, "considered by, the governmental entity in issuing such permit or approval." DEQ is required to identify for the SCC environmental permits and approvals and whether environmental issues are not governed by the permits or approvals or are not within the authority of and not considered by the issuing agency.[571] In *Application of Highland New Wind Development*, PUE-2005-00101 (Dec. 20, 2007), the SCC found that Highland County's conditional use permit under its zoning ordinance and comprehensive plan, considered property values, tourism, viewshed, height restrictions, setbacks, lighting, color of structures, fencing, security, erosion and sediment control, signage, access roads, and decommissioning, and hence no additional measures can be imposed by SCC. In the same order, it considered the monitoring and mitigation plan for bats and birds recommended by DGIF and adopted it with modifications.

Virginia law further prescribes that "When considering the environmental impact of any *renewable energy*…electrical utility facility, the Department [of Environmental Quality] shall consult with interested agencies of the Commonwealth that have expertise in natural resource management. The Department shall submit recommendations to the State Corporation Commission that take into account the information and comments submitted by such natural resource agencies concerning the potential environmental impacts of the proposed electric generating facility. The Department's recommendations shall include: (i) specific mitigation measures considered necessary to minimize adverse environmental impacts; (ii) any additional site-specific studies considered to be necessary; and (iii) the scope and duration of any such studies."[572]

The SCC has rules that are meant to facilitate the review of applications for approval to construct electric generating facilities and incidental or associated facilities. These

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[570] The SCC has "Guidelines of Minimum Requirements for Transmission Line Applications" (May 10, 1991). These do require some environmental impact disclosures.
[571] Va. Code §10.1-1186.2:1.C and the August 14, 2002, MOA between DEQ and SCC on coordinating environmental impact review for electric generating facilities.
[572] Va. Code §10.1-1186.2:1.B

require submittal to DEQ and the SCC of an analysis of the environmental impact of the project including at a minimum: air quality, water source, discharge of cooling water, tidal and nontidal wetlands, solid and hazardous wastes, natural heritage and threatened and endangered species, erosion and sediment control, archeological and historic, scenic, cultural or architectural resources, Chesapeake Bay Preservation Areas designated by the locality, wildlife resources, recreation, agricultural and forest resources, pesticide and herbicide use, geology and mineral resources, and transportation infrastructure.[573]

However, in July 2008, the Commission proposed new rules that would allow construction of electric generating facilities with a rated capacity of 5 MW or less upon filing in lieu of an application a letter to the SCC specifying the facility's location, size, and fuel type, provided that the facility complies with all other requirements of federal, state, and local law.[574] If adopted, the proposal may mean that small renewable energy projects in the coastal zone will not have the automatic 'backstop' of DEQ/SCC review available under current regulations. Certainly it would not provide the data that serve as the basis for initiating DEQ review under the current system. It is not clear whether the SCC would still make environmental findings, consider recommendations and impose conditions, or whether the "all other requirements" means that only permitting provisions would apply directly.[575]

The SCC in reviewing the construction of a pipeline for the transmission or distribution of natural gas, must "consider the effect of the pipeline on the environment, public safety, and economic development in the Commonwealth, and may establish such reasonably practical conditions as may be necessary to minimize any adverse environmental or public safety impact. In such proceedings, the Commission shall receive and consider all reports by state agencies concerned with environmental protection; and, if requested by any county or municipality in which the pipeline is proposed to be constructed, local comprehensive plans…"[576] Interstate natural gas pipelines, which may include those bringing OCS gas through Virginia for sale elsewhere, are regulated by FERC rather than by the SCC.

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[573] 20 VAC5-302-10 – 5-302-40.
[574] Order for Notice and Comment, PUE-2008-00066 (July 25, 2008).
[575] Different SCC staff members interpreted the proposal differently. *Comments are due to SCC on or before September 26, 2008*. Other parts of the proposal focus the required environmental information for facilities above 5 MW in some instances more directly on permits and requirements and less on issues; this too may limit the usefulness of the review.
[576] Va. Code § 56-265.2:1.

VII. Recommendations

Virginia can use its existing state laws, and its participation in federal environmental impact reviews under NEPA, coastal consistency, and water quality certification, to respond to most concerns related to offshore energy proposals on a case-by-case basis.

Nevertheless, Virginia can improve its readiness to address these issues. Energy development is a long term enterprise and will benefit from certainty and clarity in review and approach. A number of states have addressed offshore energy by initiating processes that support development of alternative energy facilities – such as Delaware and New Jersey on wind energy,[577] and Oregon on wave energy.[578] Virginia's General Assembly thus far has preferred an approach that funds energy research through the Virginia Coastal Energy Research Consortium, and through legislative endorsement of potential development of natural gas in federal waters 50 miles or more off the coast and examination of the feasibility of offshore wind energy.[579] Virginia has also adopted a *voluntary* renewable energy portfolio standard of 4 percent renewables by 2012, 7 percent by 2017, and 12 percent by 2022, some of which may best be met by offshore wind energy.[580]

This report is the first review of Virginia's regulatory laws and policies that may affect offshore energy development, and it focuses on potential environmental impacts and accommodating multiple uses of the coastal zone in accordance with Virginia's laws and policies conserving unique coastal resources.

Virginia should consider at least the following measures.

1. Enact legislation or by executive order or other means establish a single administrative process that coordinates the development and review of energy facilities in state and federal coastal waters.

Under current procedures, coordination of environmental impact review and coastal consistency for proposed facilities in federal waters will be carried out at DEQ. DMME has policy input under the Virginia Energy Plan. Evaluation of transmission facilities, facilities in state waters, and support facilities will be carried out by various state agencies including VMRC, DEQ, SCC, and others. Given the significant tradeoffs at stake from siting of energy facilities and transmission facilities (and supporting services) in both state and federal waters, and the competing uses for some of the marine waters

[577] The Delaware process leading to selection of the Bluewater Wind proposal is described above. In New Jersey, after a brief moratorium, the state initiated a competitive process to support offshore wind with up to $19 million in state subsidies; the PSEG proposal for a 96 turbine wind farm 16 miles off the Jersey shore was recently selected, and will receive a $4 million subsidy. N. Gronewold, "Wind Power: N.J. regulators approve planned offshore turbine farm," E&E News, October 3, 2008. In each case, the environmental reviews have not yet been initiated.

[578] The collaborative planning process is described above.

[579] Va. Code § 67-300.

[580] The Virginia Energy Plan, at 162. The Virginia Energy Plan also notes that the Renewable Electricity Production Grant Program and Photovoltaic, Solar, and Wind Energy Utilization Grant Program established by Virginia legislation have not been funded.

and onshore areas, it may be desirable to establish a *primary coordinator* to get ahead of potential energy proposals. This might be designated by legislation, or might be specified administratively. The obstacles to offshore alternative energy development encountered thus far in some states have come from the lack of a straightforward path for planning, evaluation, and permit coordination. Thus, even in states supportive of offshore development, the review process has been uncertain. Designation of a coordinating entity or body could improve the clarity of the process without changing any of the underlying review standards or the jurisdiction of any of the Virginia agencies responsible for applying these standards. It might also serve as a guardian or advocate for the elements of the Commonwealth Energy Policy and Virginia Energy Plan as applied to the various permitting processes.

2. Map ocean and coastal resources and identify potential conflicting uses.
Investments in mapping ocean and coastal resources and conflicts could substantially aid in the protection of Virginia's coastal environment, and the identification of preferred areas and corridors where permitting could be readily carried out. This information could result in the avoidance of unnecessary delays and encourage appropriate project proposals. It could also help prevent the occurrence of inconsistent decisions on land that would prevent the development of suitable facilities or impede desired energy activities. Some of the necessary work is underway through Virginia's examination of its "blue infrastructure," some of the data are available in coastal GEMS, and some of the assessments are partly done in Virginia's Energy Plan, and the initials work of VCERC. The Virginia Institute of Marine Science has substantial technical capacity that could enable such work. The General Assembly, Virginia's Coastal Program, NOAA, and other funders may seek to provide further support for the necessary mapping and identification of uses. It is possible that the Department of Defense may be interested in this as well given its numerous facilities and uses for the offshore and onshore environment. This work could be undertaken under existing authority if funding could be found, or supported by appropriate federal funding (if available). One potential vehicle for this approach might be an Ocean SAMP along the lines of the Rhode Island proposal. Other state data-gathering approaches (which have from had difficulty in finding funding at times) include planning efforts under state laws in California and Oregon. Some excellent work to compile biological data geospatially has been done by The Nature Conservancy with support from Virginia's Coastal Program in 2008.

3. Enact legislation to prevent location of OCS oil & gas support facilities on the eastern shore without approval of the General Assembly and Governor.
Virginia's 2006 *Study of the Possibility of Exploring for Natural Gas in the Coastal Areas of the Commonwealth*, prepared in response to HJR 625, recommends that "no onshore facilities should be located on Virginia's eastern shore."[581] While it is possible that coastal consistency review and VMRC permitting requirements could prevent the construction of such facilities on case-by-case review, there is no current state law or enforceable policy that would ensure this result.

[581] Secretary of Commerce and Trade, Study of the Possibility of Exploring for Natural Gas in the Coastal Areas of the Commonwealth, House Document No. 22 (2006), at 40.

4. Authorize the designation of preferred corridors for electric transmission and gas pipelines through Virginia's coastal waters.

Current law provides limited ability to VMRC to do spatial planning and place areas off limits or designate preferred areas. Authority relates primarily to closing areas to fishing and boating activities, and protection of certain areas and structures. While VMRC might be able to assert authority to designate preferred corridors, legislation is probably needed. Such legislation could take either of two forms: (1) it could task VMRC (or another agency) in consultation to designate such corridors, and provide the factors to be taken into account in such designations, and define the consequences and implications of such designations; or (2) it could authorize an ocean planning/zoning program like that recently adopted by Massachusetts.

5. Adopt an enforceable provision that "energy generation and delivery systems…should be located so as to minimize impacts to pristine natural areas and other significant onshore natural resources, and as near to compatible development as possible."[582]

(A) This provision currently only requires discretionary deference by Virginia agencies and local subdivisions "where appropriate" and is not binding in any way for federal consistency purposes. This provision of the Commonwealth's Energy Policy could, for offshore energy purposes at least, be re-enacted as a provision that applies directly and of its own force to offshore energy (in the same fashion as the Virginia Code provisions prohibiting oil and gas drilling in the waters of the Chesapeake Bay). Then it could be readily incorporated into the Virginia Coastal Management program as an enforceable policy.

(B) Virginia agencies with regulatory jurisdiction, such as VMRC, could adopt this provision through rulemaking as their way of implementing the Commonwealth's Energy Policy. Coastal counties and cities could include it in their comprehensive plans and zoning ordinances.

(C) In order to apply this provision to federal consistency, Virginia could submit the Commonwealth's Energy Policy or relevant provisions of it to NOAA for incorporation into the Virginia Coastal Management Program.

(D) Virginia should also consider adopting a requirement that all applicants engaged in energy development offshore or in the coastal zone have a duty to consult Coastal GEMS.[583]

(E) Specific sensitive lands could be protected more specifically. For example, over 28,500 acres of ungranted state lands on the eastern shore are covered by a management plan.[584] The VMRC has the power to promulgate regulations to implement these policies to protect and preserve these lands, with the advice and assistance of other state and local bodies, and to resolve cases involving conflicting uses. VMRC should consider adding provisions that exclude incompatible energy activities. And Virginia should consider incorporating into the Virginia Coastal Program the VMRC management plan for these ungranted state lands in Accomack and Northampton Counties

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[582] Va. Code §67-102.
[583] http://www.deq.virginia.gov/coastal/coastalgems.html
[584] 4 VAC 20-30-10 et seq.

6. Require directional drilling for bringing transmission pipelines and (possibly) electric lines ashore and protecting dunes, wetlands, barrier islands.
VMRC has the power to require directional drilling in determining whether to issue the appropriate permits, and such provisions are often attached to subaqueous permits; a preference for such drilling is included in the November 2005 subaqueous guidelines. VMRC could adopt further rules making this an outright requirement, or the General Assembly could enact legislation establishing such a requirement for offshore energy facilities or directing VMRC to adopt regulations implementing this policy if it were desired to make this a standard requirement.

7. Consider provisions for state review of visual impacts for facilities in state waters.
Currently there is no clear mandate for *state* review for visual and other impacts in Va. waters, such as wind and wave/tide facilities in the Chesapeake Bay. Such issues might be considered under current law by VMRC in connection with subaqueous lands permitting under the authority of its general public interest review, or by the SCC where it has jurisdiction, or for protection of historic viewsheds in some circumstances where there is a historic preservation provision, or on the basis of county government review where land use jurisdiction over the facilities exists. However, there is no clear, consistent, or mandatory basis for such review.[585] Virginia should consider whether it would be desirable to adopt legislation or other regulatory measures to guide agencies in their discretionary review. Conversely, Virginia may want to limit or bound the scope of such consideration.

8. Improve coordination with local land use planning and zoning.
The HJR 625 study also recommended that all "on- or near-shore" facilities for natural gas and petroleum must be "consistent with local zoning and land use plans and not conflict with other land uses near the facilities. Facilities should not be located to intrude on areas critical for tourism or military operations in the region."[586] Currently, federal environmental impact review comment processes and coastal consistency are the only tools for this coordination. The report concludes that "no new state laws or regulations should be needed to address OCS [oil and gas] development." Certainly, planning can be improved or facilitated if local governments and Planning District Commissions are engaged in coordination with the Commonwealth through a suitable point of contact to identify issues and likely needs prior to the commencement of any lease sale process. This could be coordinated by DMME, DEQ, the Governor, the Coastal Policy Team, or other suitable entity (See recommendation #1).

9. Enhance the opportunity for environmental review in advance of lease sales on the OCS.
The HJR 625 report endorsed the idea that Virginia and the MMS should engage in an environmental impact study independent of the regular EIS/lease-sale process in order to

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[585] The reference to the "aesthetic" value of tidal wetlands in Virginia's wetlands law (Va. Code § 28.2-1301.D) may allow VMRC to adopt regulations relating to visual impacts to tidal wetland resources.
[586] Secretary of Commerce and Trade, Study of the Possibility of Exploring for Natural Gas in the Coastal Areas of the Commonwealth, House Document No. 22 (2006), at 40.

allow more time for understanding and addressing environmental issues and impacts, modeled on prior experience off Manteo, North Carolina. This is not currently provided for either oil & gas or for alternative energy on the OCS, where in each instance the trigger for environmental impacts review will be the plan for a *lease sale*.[587] Three possible ways to trigger earlier study would be: (1) seeking appropriated federal funding for a preliminary study (not likely for alternative energy since Virginia has no active proposals and is not in the initial round, but maybe possible for oil & gas); (2) amendment of the state environmental impact assessment law to cover offshore energy development planning and proposals, which may give Virginia more leverage in the federal EIS scoping process; and (3) entering into a Memorandum of Understanding with MMS.

FERC and the state of Oregon entered into a Memorandum of Understanding in March 2008 governing wave energy projects located in state marine waters. The MOU provides for early coordination, joint scheduling, coordination of environmental review, recognition of Oregon's intention to prepare "a comprehensive plan for the siting of wave energy projects in the Territorial Sea of Oregon" and FERC's commitment to consider projects' consistency with the plan, the need to include fish and wildlife protection and mitigation and enhancement.[588] This is not a direct analogy, as it deals with a federal agency with direct permitting authority in state waters, but does suggest a potential model that may be worth exploring with MMS, and which may enable MMS to engage in environmental study in advance of a proposed lease sale offering.

10. Apply fish/fisheries protection to facility operation as well as construction.
Virginia's fishery protection provisions are currently applied by VMRC to construction and operating activities only where there is a subaqueous or similar permit triggering review. There is not currently a state-law vehicle to impose conditions addressing the impacts of offshore platforms on fish species that spend part of their lifecycle on the OCS and part in Virginia waters. VMRC may need to adopt regulations implementing its general regulatory authority not just to regulate fishing and closing or opening certain state waters, but to assure the health of fish and fisheries even when a state permit is not being sought, and to incorporate these provisions into the Virginia Coastal Program as enforceable policies for coastal consistency purposes. This will help ensure that such protections can be incorporated by federal lease conditions on the OCS. This will be important as well to address the impacts and foreseeable impacts of vessels serving LNG facilities.

11. Adopt enforceable provisions to protect birds, bats, fish, and wildlife.
The federal Migratory Bird Treaty Act, Marine Mammal Protection Act, and Endangered Species Act are not always sufficient on their own to address anticipated impacts to living

[587] Governor Kaine's letter of December 19, 2008 to the MMS concerning the Notice of Intent and Call for Nominations for Lease Sale 220 off Virginia's coast also makes this point. The Virginia Energy Plan and Energy Policy call for federal investigation of natural gas resources 50 miles or more off the coast, rather than endorsing the MMS commencing with a lease sale.
[588] Memorandum of Understanding between the Federal Energy Regulatory Commission and the State of Oregon (March 2008).

resources from energy facilities such as those proposed for the OCS or in state waters.[589] Virginia's DGIF has a great deal of expertise that could be used to establish avoidance, monitoring, and adaptive management requirements,[590] but is dependent upon other state and federal agencies to impose these practices as regulatory requirements (e.g., the Highland Wind project described above). In the OCS context, DGIF has advised MMS to adopt such provisions,[591] but it has not done so in a systematic way by developing its own suite of enforceable provisions. DGIF currently implements its protections by commenting on permit applications before the VMRC, the SCC, the MMS and other entities with regulatory or decisionmaking authority. DGIF could by regulation adopt requirements for the protection of these resources, or could, alternatively, elect to develop standard guidelines and conditions, and seek to enter into an MOU with MMS assuring that state guidelines will be supplied to lease applicants and implemented. (Similarly, DGIF could identify these conditions and advise SCC that these would ordinarily be applied to those facilities seeking state licensing).

12. Virginia should review its applicable water quality standards for marine waters for Clean Water Act 401 certification.

Water quality standards and designated uses can make a profound difference on federally-licensed activities. For example, Connecticut's narrative water quality standard referring to fish and shellfish uses, coupled with its designation of most of its state marine waters as "habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption; recreation; industrial water supply; and navigation" were sufficient to allow the state to deny water quality certification to a proposed federally-licensed subaqueous gas pipeline based on the dredging, plowing, and backfilling techniques proposed for its installation.[592] DEQ and the Virginia State Water Control Board should examine Virginia's existing standards for coastal and Bay waters and their designated uses to determine whether they are sufficiently protective for these newly anticipated activities.[593] Such a review could be conducted in conjunction with a coordination process for future energy facilities such as that suggested in recommendation #1.

13. The State Corporation Commission should coordinate with DEQ to assure that the SCC is able to apply environmental standards and conditions that may arise from offshore activities and transmission and support facilities subject to licensing.

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[589] Virginia has its own endangered species program, but this program, which could be incorporated into the Virginia Coastal Program, does not appear to add significantly to the species protections applicable under federal legislation.

[590] VIMS also has information that could be useful. See also Recommendation #2 above.

[591] DEQ to MMS, "Draft Environmental Impact Assessment: Alternative Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, Proposed Rule, 101GAD30 (DEQ #08-157F)," September 4, 2008 ("Having guidelines in place and presented to lease applicants as part of the wind energy development lease application package would ensure that standardized monitoring occurs…, aid in the site selection process, and help industry understand its role in identifying, minimizing and mitigating for avian resource impacts.") Similar concerns have been identified by DGIF staff in connection with potential offshore wind generation facilities entire in state waters off Tangier Island, where the permitting entities would include VMRC and presumably the Corps of Engineers, and possibly SCC, but not MMS.

[592] Islander East Pipeline Co. v. McCarthy, No. 06-5764-ag (2d. Cir. May 2, 2008).

[593] Va. Code § 62.1-44.15(3a).

Current law provides an environmental review coordination function for DEQ for electric generation facilities, and also provides the SCC with authority to impose environmental conditions not otherwise addressed by permits. DEQ could assist in the process by identifying, in advance of proposals for offshore alternative energy, the kinds of issues that the SCC will need to address and what may or may not be covered by permits (which may include issues of visual impacts, avian and wildlife impacts, and other issues, depending in part upon whether the recommendations above are implemented).[594] Having the issues identified in advance will assist applicants and the SCC so that there is no argument about whether something is or is not covered by some other permitting scheme, thus streamlining the process while ensuring environmental protection.[595]

14. VMRC should consider adopting provisions addressing decommissioning, fees, bonds, and similar provisions related specifically to offshore energy and related pipeline and transmission facilities.

VMRC has this authority under existing law, but has not previously had to consider whether OCS natural gas pipelines traversing the entire three mile zone or submerged electric transmission lines, or wind and wave power platforms or anchors in state waters present new issues. VMRC could undertake an evaluation of likely needs or impacts; or the General Assembly could direct it to do so.

15. Make several administrative changes to the Virginia Coastal Program's review processes to anticipate offshore energy proposals and impacts.

Virginia's coastal consistency review depends in part on what activities are and are not listed. Several updates will facilitate Virginia's ability to review offshore activities.

(A) Update the Virginia Coastal Program's energy facilities review process.

Each state's coastal management program must include a review process for energy facilities. This portion of the Virginia Coastal Program is outdated and should be revisited in view of the types of coastal and offshore energy facilities now anticipated. The original provisions rely entirely on federal EIS thresholds, and they do not list newer forms of energy activities, such as offshore *alternative electric power* generation. Consider seeking NOAA funding to support this update, which should at least –

- Add offshore electric power generation (wind/wave) and transmission facilities regardless of MW capacity
- Add offshore Rights of Way (ROW) and Rights of Use and Easement (RUE) including those which may affect Virginia's territorial waters and coastal zone but do not come ashore in the Commonwealth.
- Identify the approach for review of energy generating facilities in state waters for which a federal EIS may not be prepared
- Consider possible designation/description of a one-stop state application or coordination process for OCS energy proposals.

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[594] DEQ can currently do this on a case-by-case basis, Va. Code §10.1-1186.2:1.B, but doing this in advance could greatly facilitate the coordination and review process.

[595] Coordination between the SCC and DEQ may need additional attention for small renewable generation facilities in view of the SCC's proposal to eliminate the submission of an application for generating facilities under 5MW capacity. Small wind power projects may fall below this threshold (such as the proposed Tangier Island offshore wind proposal).

The content of such an update may depend upon the adoption of recommendations above, including recommendations #1, 7, 8, 12, or alternatives.

(B) Revise Virginia's coastal consistency lists

Virginia's coastal program currently states that an OCS plan submitted to the Secretary of Interior requires a consistency determination.[596] Virginia is likely to rely on this item in order to assure that it is entitled to sufficient review of MMS energy-related activities on the OCS. However, federal regulations advise states to *list* activities subject to coastal consistency under three circumstances: federal activities, federal permits and licenses, and OCS activities. Federal regulations further provide that "management program lists required pursuant to §930.53 shall include a reference to OCS plans which describe *in detai*l federal license or permit activities affecting any coastal resource."[597] Currently Virginia only lists MMS "permits for pipeline rights-of-way" for oil and gas on the OCS but *not* rights-of-way for electricity transmission in Table 2 (federal licenses and permits); and it does not list any MMS development actions in Table 1 (federal actions). It may be helpful for Virginia to list additional activities (and particularly electrical ROW/RUE) in order to ensure consultation, and to eliminate any issue as to whether a given activity is believed to have "any reasonably foreseeable effect" on Virginia's coastal zone.[598] This may be particularly helpful to ensure that Virginia obtains consistency review for facilities that *do not* traverse Virginia territorial waters.

[596] This is in accordance with 16 U.S.C. § 1456(c)(3)(B).

[597] 15 CFR 930.74 (Subpart E).

[598] MMS has proposed that a competitive lease sale or ROW/RUE grant for alternative energy is "federal activity" for consistency under 15 CFR 930 subpart C; and a noncompetitive lease sale or grant is a nonfederal activity that requires a license or permit for consistency per 15 CFR 930 subpart D. 73 Fed. Reg. at 39388.