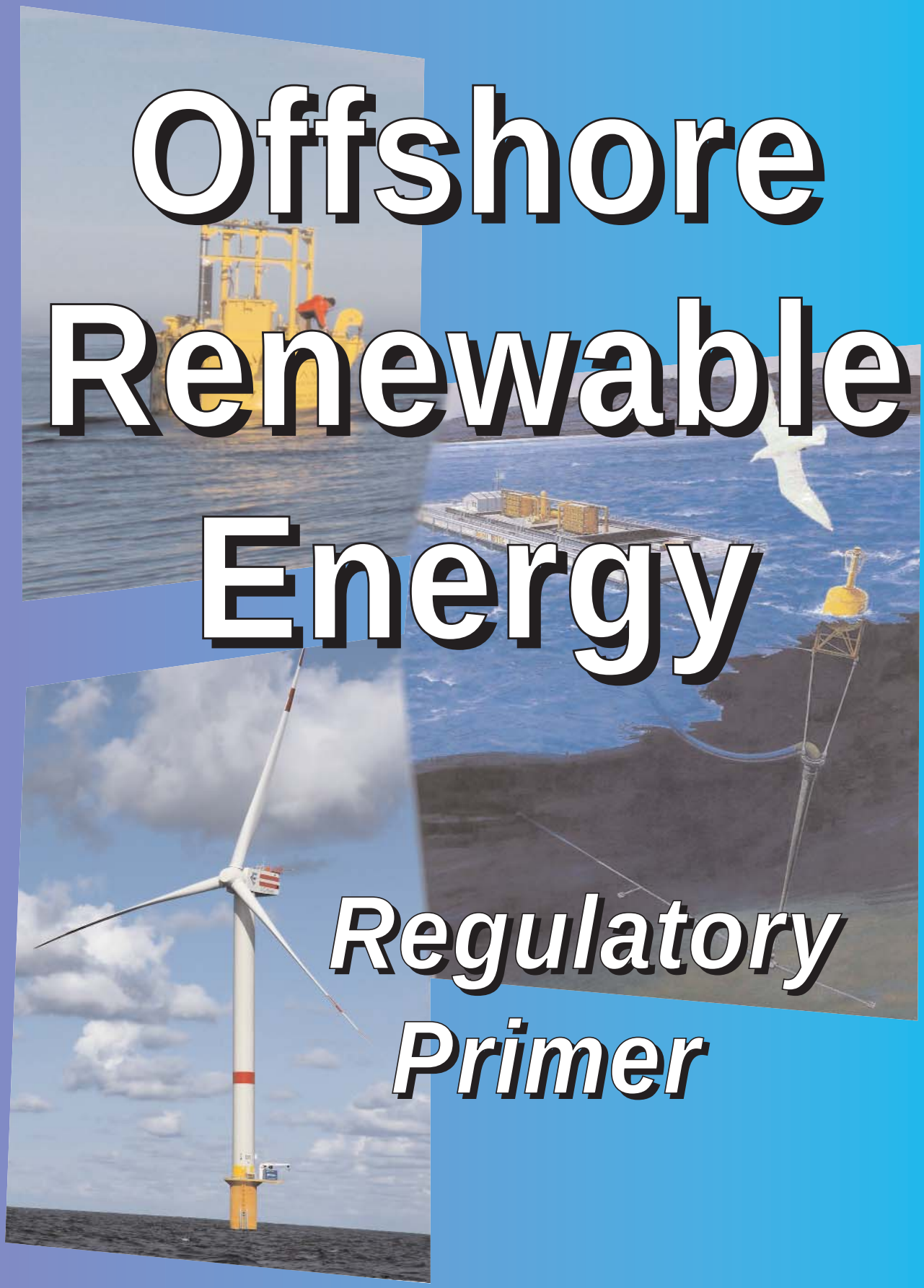
Offshore Renewable Energy



Regulatory Primer

Offshore Renewable Energy Regulatory Primer

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The United States' reliance on foreign oil presents pressing national security, public health, and environmental risks. Despite a variety of technological challenges and political obstacles, offshore renewable energy potentially offers part of the solution to mitigate these risks. Interest in offshore renewable energy has been growing for several years and a handful of companies have begun testing prototypes and acquiring permits. The existing regulatory regime for offshore renewable energy is complex and varies significantly depending upon the source of energy harnessed.

Several federal agencies bear responsibility in the offshore renewable energy permitting process. The Energy Policy Act of 2005 gave the Department of Interior's Minerals Management Service authority to issue easements, leases, and rights-of-way on the U.S. Outer Continental Shelf for renewable energy projects. In addition, the Federal Energy Regulatory Commission, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and the U.S. Army Corps of Engineers are engaged in the permitting system, in light of their respective authorities under the Federal Power Act, the Endangered Species Act, the National Environmental Policy Act, and the Coastal Zone Management Act. Because coastal states have authority over submerged waters up to three nautical miles (nm)from shore, the success of any offshore renewable energy project may hinge on state approvals of transmission lines and Coastal Zone Management Act consistency determinations.

This regulatory primer is designed to serve as an introduction to the major federal laws and regulations governing renewable energy development offshore and coastal state authority under those laws. The primer also discusses local concerns about offshore renewable energy projects and marine spatial planning, a possible emerging solution, to provide a backdrop to controversy surrounding these types of projects. As this is a developing area of the law, readers are encouraged to visit the agency websites listed in the resources sections of each chapter for the most up-to-date information about the regulatory process.

Photograph of the Pelamis wave power generator courtesy of Pelamis Wave Power.

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Top: The Finavera Renewables Aquabuoy gets towed to an ocean testing location off of Newport, Oregon; photograph courtesy of Kaety Hildenbrand, Oregon Sea Grant.

Middle: Illustration of Mini-Otec courtesy of Makai Ocean Engineering.

Bottom: Wind turbine off Thornton Bank, Britain, courtesy of Hans Hillewaert.

Overview - Ocean Jurisdictional Zones

In general, coastal states have primary authority over activities or projects located within three nautical miles (nm) of their coasts. The federal government regulates projects located in federal waters, which extend from the states' offshore boundaries to at least 200 nm from the shore.

Federal Jurisdiction

The United Nations Convention on the Law of the Sea (UNCLOS)[1] is a comprehensive international agreement governing the use of the world's oceans and marine resources. Although the U.S. has not ratified UNCLOS, it has incorporated many of the treaty's provisions into U.S. law, including its provisions on maritime boundaries and zones, through several executive orders.[2] UNCLOS delineates several maritime zones, which are measured from a nation's coastline, including: the Territorial Sea (0-12 nm), the Contiguous Zone (12-24 nm), the Exclusive Economic Zone (12-200 nm), and the Continental Shelf (0–200 nm, or out to 350 nm if continental shelf extends farther).

Under UNCLOS, nations have "sovereign rights" to explore, exploit, conserve, and manage marine resources within their Exclusive Economic Zones.[3] In the Contiguous Zone, a coastal nation may regulate to protect its Territorial Sea and to enforce its customs, fiscal, immigration, and sanitary laws. Within the Territorial Sea, a nation may claim sovereignty over the airspace, water, seabed, and subsoil.[4] Under UNCLOS, coastal nations also have jurisdiction over "the establishment and use of artificial islands, installations and structures" in these areas, subject to some limitations.[5]

State Jurisdiction

Under the Submerged Lands Act, Congress gave all coastal states title to submerged lands within 3 nm (3 marine leagues (9 nm) for Texas and the Gulf coast of Florida) of the coast.[6] Within their offshore boundaries, coastal states have title to and ownership of the lands beneath navigable waters and the right and power to manage, administer, lease, develop, and use the lands and any natural resources therein. These rights, however, are subject to federal regulation for commerce, navigation, national defense, and international affairs.

1. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 21 I.L.M. 1261 (entered into force Nov. 16, 1994).
2. Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf, Proclamation No. 2667, 10 Fed. Reg. 12,303 (Sept. 28, 1945); Exclusive Economic Zone of the United States of America, Proclamation No. 5030, 48 Fed. Reg. 10,605 (Mar. 14, 1983); Territorial Sea of the United States of America, Proclamation No. 5928, 54 Fed. Reg. 777 (Dec. 27, 1988); Contiguous Zone of theUnited States, Proclamation No. 7219, 64 Fed. Reg. 48,701 (Aug. 2, 1999).
3. UNCLOS, *supra* note 1, arts. 56, 58.
4. *Id.* arts. 2.1, 2.2, 3.
5. *Id.* art. 56.1(b).
6. 43 U.S.C. §§ 1301 *et seq*.

Energy Policy Act of 2005

The Energy Policy Act of 2005 (EPAct) authorizes the Secretary of the Interior to grant leases, easements, and rights-of-way on the Outer Continental Shelf (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.[7] The OCS encompasses those submerged lands seaward of state submerged lands that are subject to the jurisdiction and control of the U.S.

Prior to the EPAct, uncertainty surrounded federal authority over renewable energy projects on the OCS. The U.S. Army Corps of Engineers (Corps) claimed jurisdiction over the first offshore renewable energy projects under § 10 of the Rivers and Harbors Act[8] (RHA), as amended by the Outer Continental Shelf Lands Act (OSCLA). Those laws give the Corps jurisdiction to permit obstructions to navigation within the "navigable waters of the United States" and on the OCS.[9] The Corps' authority to permit such projects was called into question when a power company, Cape Wind Associates, LLC, sought a permit from the Corps for the construction of a data collection tower on the OCS to assess the feasibility of constructing a wind energy facility. Litigation ensued, and the courts ultimately ruled that the Corps is authorized to exercise RHA § 10 authority for any offshore structure, regardless of purpose, in state or federal waters.[10]

In 2005, the EPAct amended the OCSLA to grant authority to the Secretary of the U.S. Department of the Interior to issue leases, easements, and rights-of-way for renewable energy activities on the OCS. The Secretary delegated his authority to the Minerals Management Service (MMS). Under the EPAct, federal agencies that have permitting authority under other federal laws, such as the Corps under the RHA, retain their jurisdiction. This means that the Corps retains its jurisdiction over permitting obstructions in navigable waterways, while MMS is now the lead agency with respect to issuing leases for project siting.[11] Within MMS, the Office of Alternative Energy oversees permitting activities.

In 2007, the MMS completed a Programmatic Environmental Impact Statement on the effects of renewable energy projects on marine resources. The agency subsequently published a Record of Decision adopting Best Management Practices that will be used by the agency to review projects.[12] That same year, the MMS established an interim policy on offshore data collection and technology testing in federal waters that would be in effect until MMS promulgated final rules.[13] In July 2008, MMS issued a proposed rule establishing the permitting process and setting forth a royalty structure.[14]

In April 2009, the Department of the Interior published final rules "to establish a program to grant leases, easements, and rights-of-way (ROW) for renewable energy project activities on the [OCS], as well as certain previously unauthorized activities that involve the alternate use of existing facilities located on

7. EPACT 2005, P.L. 109-58, § 388(e) (August 8, 2005).
8. 33 U.S.C. §§ 407-687.
9. Adam Vann, Congressional Research Service, Wind Energy: Offshore Permitting (Jan. 29, 2009).
10. *Id*. at 6; *Alliance To Protect Nantucket Sound, Inc. v. U.S. Dept. of Army*, 288 F.Supp.2d 64, 75 (D. Mass. 2003).
11. Other federal agencies also retain their jurisdiction, such as the National Marine Fisheries Service under the Endangered Species Act.
12. MMS, Record of Decision: Establishment of an OCS Alternative Energy and Alternative Use Program (Dec. 2007), *available at* http://ocsenergy.anl.gov/documents/docs/OCS_PEIS_ROD.PDF (last visited July 13, 2009).
13. 72 Fed. Reg. 62,673 (Nov. 6, 2007).
14. 73 Fed. Reg. 39,376 (July 9, 2008).

the OCS."[15] The leasing program, which MMS refers to as a "Framework," provides for two types of leases: commercial leases and limited leases. Commercial leases, which will be available for a term of up to twenty-five years, grant the developer the necessary access and operational rights for full construction and commercial production of renewable energy. Limited leases are issued for a shorter term, five years, to authorize data collection and technology testing activities. The leases grant the developer an easement over a portion of the OCS for the purpose of installing the necessary lines, pipelines, and substations. The Framework outlines the lease issuance process, with different processes for competitive and noncompetitive leases.[16]

The Framework also provides requirements for site assessment, construction and operation, payments, and decommissioning. Applications for commercial leases require a Site Assessment Plan (SAP) and a Construction and Operations Plan (COP). Technology testing and resource assessment activities performed under a limited lease require a General Activities Plan (GAP). After approval of the SAP, COP, or GAP, lessees must submit reports on final design, fabrication and installation of facilities. There are also requirements for safety management, inspections, monitoring, and facility assessments.

Because the private developments will be located on federal submerged land, MMS will collect rent and operating fees from lessees. All commercial and limited leases will be charged an annual rent of $3.00 per acre.[17] Once a project on a commercial lease begins producing electricity, rent payments cease and lessees begin paying annual operating fees. Operating fees "will be determined by a formula related to the anticipated, rather than actual, gross value of the electricity generated on the lease."[18] The formula is based on installed capacity.[19] Operating fees do not apply to limited leases because commercial production of energy is not permitted under those leases.

The MMS provided the following example to illustrate the calculation of lease rent and operating fees.

> An offshore wind lease . . . on 12,000 acres of the OCS would be required to pay $36,000 annually based on a charge of $3 per acre in rent during the site assessment term. . . Once [MMS approves] the COP and the generating facility begins generating electricity commercially, the operating fees will be payable. For a lease with an installed capacity of 200 MW and an operating capacity factor of 0.38, i.e., 38 percent, the operating fee would be $666,000 annually if the applicable wholesale power price was $50 per megawatt hour. Additionally, if the approved project plan has easements covering 2,000 acres, an additional $10,000 in rents ($5.00 per acre) would be collected per year.[20]

The EPAct also provides for revenue sharing with states. For any project located wholly or partially within the area extending 3 nm seaward of the state's submerged lands, the EPAct requires the federal government to share 27% of the revenues received from the project with any state that has a coastline located within 15 miles of the geographic center of the project.

15. MMS, Renewable Energy and Alternative Uses of Existing Facilities on the Outer Continental Shelf, Final Rule, 74 Fed. Reg. 19,638, 19,638 (Apr. 29, 2009).
16. The EPAct requires the Department of Interior to issue leases on a competitive basis, unless it determines after public notice that there is no competitive interest. *Id.* at 19,661.
17. *Id.* at 19,679-80. This is less than the rent charged for oil and gas development activities. According to the final rule, in 2007 annual rent per acre for oil and gas leases in shallow waters of the Gulf of Mexico was $6.25.
18. *Id.*
19. Installed capacity x hours per year x capacity factor x power price x fee rate = annual operating fee.
20. *Id.* at 19,680 – 81. The MMS will grant right-of-way easements for cables and pipelines. The annual rent is $5.00 per acre, or a minimum of $450 per year. *Id.* at 19,682.

Offshore Wind Energy

Lead Agency: Minerals Management Service (MMS)

Offshore wind energy projects are designed to convert offshore winds into energy. Wind produces kinetic, or motion, energy. Turbines convert kinetic energy from the wind that passes over the rotors into electricity.

Photograph of wind turbine being erected courtesy of Centrica, PLC.

Wind energy has become one of the fastest-growing renewable energy sources in the world. In fact, wind-generated electricity increased 45% between 2005 and 2006 and 21% between 2006 and 2007.[21] In 2007, renewable energy sources provided 7% of energy consumed in the U.S. and wind energy accounted for 5% of that energy.[22]

Onshore wind energy is one of the lowest-priced renewable energy technologies available.[23] It is estimated that wind energy costs between 4 and 6 cents per kilowatt-hour, depending upon the wind resource and financing of the individual project.[24]

Although the wind energy industry in general has seen growth, the development of offshore wind energy projects has been a slower process. In fact, all wind power facilities in the United States are based on land.[25] By the end of 2008, onshore-based projects were producing more than 25,000 megawatts (MW) of power.[26]

One hurdle facing the offshore wind projects is the cost of anchoring the turbines in the ocean. Traditionally, offshore wind turbines have been placed in relatively shallow water (less than 20 meters) where the shaft of the turbine can be anchored into the ocean floor.[27] In deeper water, the turbines must be placed on a floating platform, increasing the cost of the supporting structure. Current offshore wind floating foundation technology has not been used on a commercial scale.[28]

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21. U.S. Dep't of Energy, *Energy in Brief: How much renewable energy do we use?*, http://tonto.eia.doe.gov/energy_in_brief/renewable_energy.cfm (last visited Feb. 9, 2009).
22. *Id.*
23. *Id.*
24. *Id.*
25. Vann, *supra* note 9.
26. North American Offshore Wind Project Information, http://www.offshorewind.net/index.html (last visited Apr. 1, 2009).
27. S. Butterfield *et al.*, National Renewable Energy Laboratory, Engineering Challenges for Floating Offshore Wind Turbines, *Conference Paper* NREL/CP-500-38776 at 1 (Sept. 2007), *available at* http://www.nrel.gov/wind/pdfs/38776.pdf (last visited July 13, 2009).
28. North American Offshore Wind Project Information, *supra* note 26.

There are proposals for offshore wind energy projects in the states of Maryland, Delaware, Massachusetts, New York, Rhode Island, New Jersey, Washington, Oregon, Texas, and Wisconsin.[29] Notable projects include the Cape Wind Energy Project in federal waters off the coast of Massachusetts and the Galveston-Offshore Wind project, which is under the jurisdiction of Texas.

Photograph of wind turbines in Middelgrunden, Copenhagen, Denmark, courtesy of Clemson University Restoration Institute.

Regulatory Framework:

The MMS has primary authority for the siting of offshore wind energy projects. Leasing for offshore wind projects would proceed pursuant to the Framework discussed in the previous section. Although the MMS leasing program was not in force at the time, the EPAct gave the Secretary of the Interior responsibility for the two existing offshore renewable energy projects, the Cape Wind project and the Long Island Offshore Wind Park.

Because § 388 of the EPAct preserves the jurisdiction of state and federal agencies operating under other federal laws, projects in federal waters are subject to regulation by coastal states and other federal agencies.[30] For instance, coastal states (in addition to regulating projects in state waters) may play a role in projects located in federal waters, pursuant to consistency requirements of the Coastal Zone Management Act (CZMA). Additionally, projects will undergo environmental review under the National Environmental Policy Act (NEPA). Other environmental laws affecting the permitting process might be the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Migratory Bird Treaty Act (MBTA).

Offshore Wind Projects:

Cape Wind

The Cape Wind project remains one of the most high-profile offshore wind energy projects in the United States. This proposed project in Nantucket Sound in federal waters 5.5 miles off the coast of Martha's Vineyard would consist of 130 turbines embedded in the ocean floor, spread over 24 square miles.

Pursuant to NEPA, the Corps released a favorable Draft Environmental Impact Statement (DEIS) in November 2004. However, when the EPAct was passed in 2005, the project transferred to the MMS, which assumed the environmental review process. In February 2007, Cape Wind filed a Final Environmental Impact Report with the Commonwealth of Massachusetts. The MMS issued Cape Wind a favorable DEIS in January 2008 and a favorable Final EIS in January 2009.[31]

29. *Id.*
30. 43 U.S.C. § 1337(p)(9).
31. MMS, Cape Wind Final Environmental Impact Statement, *available at* http://www.mms.gov/offshore/AlternativeEnergy/PDFs/FEIS/Cape%20Wind%20Energy%20Project%20FEIS.pdf (last visited Apr. 1, 2009).

Long Island Offshore Wind Park

A proposal from Long Island Power Authority (LIPA) was under review by MMS for the construction and operation of a wind park consisting of 40 3.6-mw wind turbine generators covering 8 square miles in federal waters, approximately 3.6 miles south of Jones Beach Island, Long Island, New York.[32] As a first step towards preparing an EIS, in 2006 the MMS hosted two scoping meetings to obtain public comment on the project. In 2007, MMS began preparing the EIS; however, the project was suspended as the company reevaluated the need for the park.

In April 2009, LIPA and Con Edison formed a collaborative to move forward with a 300-mw offshore wind project approximately thirteen miles off the Rockaway Peninsula.[33] Other members of the collaborative include the New York Power Authority, the Metropolitan Transportation Authority, the New York City Economic Development Corporation, the New York State Energy, Research and Development Authority, and the Port Authority of New York and New Jersey.[34]

Bluewater Wind

Bluewater Wind in Delaware is also moving forward with an offshore wind proposal. In 2005, the Delaware General Assembly passed a bill requiring that 10% of electricity generation come from renewable sources no later than 2018.[35] The legislature also passed a bill requiring Delmarva Power and Light, the state's largest electric utility, to provide stable-priced electricity to its customers.[36] In 2008, Delmarva reached a 25-year power purchase agreement to buy as much as 200 mw of power from Bluewater Wind.[37] Since winning the contract, Bluewater Wind is seeking permits to build a 150-turbine wind farm 11.5 nm from shore.[38] The project would consist of giant 3 MW wind turbines, with 160-foot long blades. The company predicts that the planning, permitting, and construction will take approximately two years from the time it was awarded the contract.[39]

Additional Resources:

MMS Alternative Energy Program web site –
http://www.mms.gov/offshore/AlternativeEnergy/index.htm

U.S. Department of Energy, Wind and Hydropower Technologies Program website –
http://www1.eere.energy.gov/windandhydro/wind_technologies.html

32. MMS, *Projects: Long Island Offshore Wind Park*, http://www.mms.gov/offshore/AlternativeEnergy/LIOWP.htm (last visited Apr. 1, 2009).
33. Press Release, LIPA, *LIPA and Con Edison Form Collaborative for Major Offshore Wind Initiative*, Apr. 20, 2009.
34. Long Island-New York City Offshore Wind Project, http://www.linycoffshorewind.com/about.html (last visited July 9, 2009).
35. Bluewater Wind, *Process and Timeline*, http://www.bluewaterwind.com/de_timeline.htm (last visited Apr. 2, 2009).
36. *Id.*
37. Associated Press, *Agreement Reached on Delaware Wind Farm*, The Washington Post, June 24, 2008 at page B02, *available at* http://www.washingtonpost.com/wp-dyn/content/article/2008/06/23/AR2008062302217.html (last visited April 1, 2009).
38. Bluewater Wind, *Overview*, http://www.bluewaterwind.com/de_overview.htm#background (last visited Apr. 2, 2009).
39. *Id.*

Hydrokinetic Energy

Lead Agencies: Minerals Management Service (MMS)
Federal Energy Regulatory Commission (FERC)

Hydrokinetic energy projects are electric generation projects designed to harness the power of waves, tides, or river currents without utilizing dams or other impoundments.[40] The Electric Power Research Institute (EPRI) estimates that ocean wave and current energy could provide about 10% of U.S. national energy demand.[41]

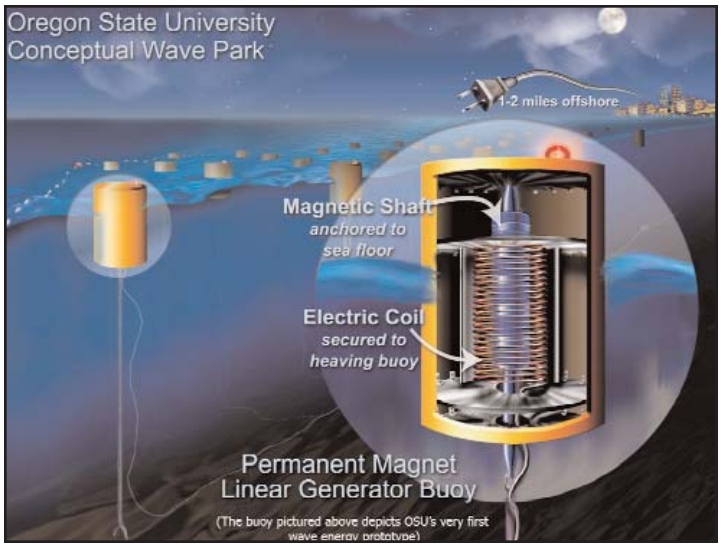


Figure 1. Conceptualization of wave park courtesy of Oregon State University.

Wave Energy

Wave energy uses the motions of the waves to generate electricity. Most projects would be located in waters more than 40 meters deep. Some wave power devices use the up and down motion of the waves to power a pump (Figure 1). Others, like Pelamis's wave power generator, use the undulations of surface floats to rotate a turbine. (Figure 2). There are also systems that can use the power of breaking waves to generate electricity. The west coast of the country has the greatest potential for significant wave energy production in the United States.

Figure 2. Photograph of the Pelamis wave power generator courtesy of Pelamis Wave Power.

Only one wave power project is currently deployed in the U.S. In 2008, Ocean Power Technologies installed one of its PowerBouys, which will be connected to the Oahu power grid by traditional submarine cables, about one mile offshore Kaneohe Marine Base Hawaii.[42] (Figure 3). Finavera deployed the nation's first prototype wave energy buoy off the coast of Oregon in 2007, but it sank one day before engineers planned to remove it.[43] The company recovered the buoy in 2008.[44]

40. Nic Lane, Congressional Research Service, Wave, Tidal, and In-stream Energy Projects: Which Federal Agency has the Lead? (Oct. 7, 2008).
41. Roger Bedard et al., North American Ocean Energy Status – March 2007, *available at* http://oceanenergy.epri.com/attachments/ocean/reports/7th_EWTEC_Paper_FINAL_071707.pdf .
42. howstuffworks, *Why are the Waves on the U.S. West Cast larger than the waves on the East Coast?*, http://Science.howstuffworks.com/ question623.htm . (last visited May 29, 2009).
43. *Test Buoy for Wave Energy Sinks off Oregon Coast*, Seattle Times, Nov. 1, 2007, *available at* http://seattletimes.nwsource.com/html/localnews/2003987587_webbuoy01.html (last visited July 15, 2009).
44. *Crews Recover Test Buoy off Oregon Coast*, Corvallis Gazette Times, July 30, 2008, *available at* http://gazettetimes.com/articles/2008/08/02/news/community/4loc16_crewsrecover.txt (last visited July 15, 2009).

Tidal Energy

Whereas wave technologies harness the energy at the surface of the ocean, tidal energy technologies generate electricity by drawing on the power of currents below the surface. Most systems rely on underwater turbines, some of which resemble windmills, which are driven by the twice-daily tidal shifts. The Pacific Northwest and the Atlantic Northeast are the most likely candidates for tidal power plants.

The most advanced hydrokinetic project in the United States is located in New York's East River. In the summer of 2008, after several years of testing prototypes, Verdant Power placed two turbines in the East River that are turned by powerful tidal currents. The project is generating electricity for a grocery store and parking garage on Roosevelt Island.[45] The company eventually hopes to install a field of turbines that could generate as much as 10 MW of power.[46]

Figure 3. Photograph of PowerBouy® courtesy of Ocean Power Technologies, Inc.

Regulatory Framework:

MMS asserts jurisdiction pursuant to § 388 of the EPAct. FERC asserts jurisdiction pursuant to the Federal Power Act (FPA) and a provision of § 388 that states that MMS's authority does not supercede the existing authority of other federal agencies.

FERC unquestionably retains regulatory authority over hydrokinetic projects located in rivers and inland waters. For example, FERC was the lead federal agency for Verdant Power's project in the East River. Following the passage of the EPAct, however, MMS challenged FERC's authority when such projects are located on the OCS. FERC argued that developers needed to obtain both a lease from MMS and a license from FERC.

The FPA authorizes FERC to issue licenses "for the purpose of constructing, operating, and maintaining dams, water conduits, reservoirs, power houses, transmission lines and other project works" located on navigable waters or "upon any part of the public lands and reservations of the United States."[47] Since 2002, FERC has taken the position that this authority extends to hydrokinetic projects located within 12 nm of the coast. For example, FERC asserted jurisdiction over a wave project after concluding that the project buoy, because it housed a generator, operated as a "powerhouse."[48]

In addition, FERC asserted that its jurisdiction over "navigable waters" extends to the continental shelf. FERC started by asserting jurisdiction out to 12 nm from shore. On December 27, 1988, President Ronald Reagan issued a proclamation extending the U.S. territorial sea from three to twelve nm.[49] The proclamation goes on to state that "nothing in this Proclamation . . . extends or otherwise alters existing

45. Kate Galbraith, *Power from the Restless Sea Stirs the Imagination*, New York Times, Sept. 23, 2008.
46. Verdant Power, The RITE Project, http://www.verdantpower.com/what-initiative (last visited July 13, 2009).
47. 16 U.S.C. § 797(e).
48. AquaEnergy Group, Ltd., Order Denying Rehearing, Docket No. DI02-3-001, 102 FERC ¶ 61,242 (Feb. 28, 2003).
49. Presidential Proclamation No. 5928, 54 Fed. Reg 777 (Dec. 27, 1988).

Federal or State law or any jurisdiction, rights, legal interests, or obligations derived therefrom."[50] That limiting language has lead other federal agencies, such as the Corps, to generally limit their jurisdiction over "navigable waters" to three miles from shore when operating under statutes passed prior to 1989.

FERC, however, took the position that "navigable waters" under the FPA includes the entire territorial sea extending 12 nm from shore[51] and the waters above the continental shelf out to 200 nm.[52] Such waters are navigable and FERC's assertion of jurisdiction primarily rested on the fact that the FPA grants the agency the authority to license projects located on "*any of the streams or other bodies of water* over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among several States."[53] The MMS formally challenged FERC's assertion of jurisdiction beyond 3 nms from shore.[54]

FERC's licensing process under the FPA, designed for large hydroelectric dams, is cumbersome and expensive. If a project makes it through, however, the license holder has exclusive rights to the site for up to fifty years.[55] Preliminary permits, in contrast, are easier to obtain. Preliminary permits are valid for three years and, while they do not authorize construction, they grant the holder priority in the licensing process.[56] Because the holder has, in essence, a guaranteed right to file his license application first, he can study the site and prepare the application without worrying about whether another developer will come in and lay claim to the site.

FERC has discovered that its traditional licensing process is not well-suited for these new hydrokinetic projects. In July 2007, FERC announced the availability of a new five-year pilot project license. Pilot project licenses are available for projects that are "(1) small (5 MW or less), (2) removable or able to be shut down on relatively short notice, (3) not located in waters with sensitive designations, and (4) for the purpose of testing new technologies or determining appropriate sites for ocean, wave and tidal energy projects."[57] To avoid delays associated with obtaining approvals from other federal and state agencies, FERC announced that it would issue licenses for hydrokinetic pilot projects even if other authorizations were outstanding.[58]

Hydrokinetic Projects:

On December 20, 2007, FERC issued its first conditional license for a hydrokinetic energy project.[59] Finavera Renewables Ocean Energy received a license for the Makah Bay Offshore Wave Pilot Project, a 1 MW project located about two miles off the coast of Washington State. Finavera later obtained all the necessary federal permits and received permission from FERC to begin construction in March 2008.[60] However, Finavera asked FERC to terminate its license in February 2009, citing economic concerns.[61]

50. *Id.*
51. AquaEnergy, *supra* note 48.
52. Pacific Gas & Electric Co, Order on Rehearing, 125 FERC ¶ 61,045 (Oct. 16, 2008).
53. 16 U.S.C. § 797(e).
54. AquaEnergy Group Ltd., Protest of the U.S. Mineral Management Service, P-12752-000 (Jan. 30, 2007).
55. 16 U.S.C. § 799.
56. FERC, Hydropower-Licensing, Preliminary Permits, http://www.ferc.gov/industries/hydropower/gen-info/licensing/pre-permits.asp (last visited July 13, 2009).
57. FERC, Statement of Chairman Joseph T. Kelliher, Hydrokinetic - Energy Pilot Project Licensing Process, Docket No. AD07-14-000 (July 19, 2007) *available at* http://www.ferc.gov/news/statements-speeches/kelliher/2007/07-19-07-kelliher-hydro.asp (last visited July 13, 2009).
58. Press Release, FERC, *FERC Hydrokinetic Energy Project Policy Statement Allows Conditional Licensing*, Nov. 30, 2007.
59. Press Release, FERC, *FERC Issues First License for Hydrokinetic Energy Project*, Dec. 20, 2007.
60. Esther Whieldon, *Lack of Financial Backing Prompts Finavera to Surrender Wave Power Project License*, *Permit*, Inside FERC, Feb. 16, 2009.
61. *Id.*

Despite this setback, hydrokinetic energy proponents are continuing to explore sites. FERC issued 123 preliminary permits in 2008, a significant increase from the 32 permits it granted in 2007.[62] Most of those projects are not ocean projects, but rather in-river current systems. Only six preliminary permits were issued for wave projects and one for a tidal project.[63]

In March 2008, FERC issued preliminary permits to Pacific Gas & Electric Company (PGEC) for two wave energy projects located off the coast of northern California, near Humboldt and Mendocino counties. These projects, unlike Finavera's, would be located within both state and federal waters. In January 2009, FERC issued a preliminary permit for a project proposed by Ocean Wave Energy Partners II that would be located three to six miles off the coast of Lincoln County, Oregon.[64]

MMS also has asserted its jurisdiction over wave energy projects under the EPAct. In November 2007, MMS announced its interim policy for authorization of the installation of offshore data collection and technology testing facilities for renewable energy projects on the outer continental shelf.[65] In April 2008, MMS identified the PGEC proposed sites as areas that will be given priority consideration for limited leasing under the interim policy.[66] The PGEC projects may be the first to receive the necessary authorizations from both agencies.

Critics long decried FERC's permitting process as a "land grab."[67] While that characterization may be a harsh assessment, the FERC and MMS processes have led to significant conflicts. For example, while three wind developers selected by the state of New Jersey to provide renewable energy to its citizens waited for MMS to finalize its leasing program, Grays Harbor Ocean Energy Company filed seven preliminary permit applications with FERC for offshore wave projects covering the area proposed for two of the three wind facilities.[68]

On April 9, 2009, the U.S. Department of Interior and FERC entered into a Memorandum of Understanding (MOU) "to clarify jurisdictional understandings regarding renewable energy projects in offshore waters on the [OCS]."[69] In the MOU, the agencies recognize that MMS has exclusive jurisdiction to grant leases, easements, and rights-of-way for all renewable energy projects on the OCS, including hydrokinetic projects and exclusive jurisdiction over the permitting of non-hydrokinetic projects, such as wind and solar. The agencies also recognize that FERC has exclusive jurisdiction to issue licenses for hydrokinetic projects. The MOU states that FERC will not issue a license until the applicant obtains a lease, easement, or right-of-way from the MMS. To avoid future situations like that raised by the Grays Harbor applications, FERC has also agreed to refrain from issuing preliminary permits for hydrokinetic projects on the OCS.[70] Annual rents and operating fees for hydrokinetic projects, unlike wind and solar projects, will be set on a case-by-basis.[71]

62. Esther Whieldon, *FERC-Issued Permits for Hydrokinetic Projects Experience Fourfold Hike in 2008*, Inside FERC, Jan. 5, 2009.
63. *Id.*
64. Oregon Wave Energy Partners II, LLC, Order Issuing Preliminary Permit, 126 FERC ¶ 62,059 (Jan. 29, 2009).
65. 72 Fed. Reg. 62,673 (Nov. 6, 2007).
66. Press Release, MMS, *MMS Moving Forward With Alternative Energy Leases on the Outer Continental Shelf*, July 23, 2008.
67. Amy Quinton, *Tidal Energy Turf War*, New Hampshire Public Radio, July 16, 2007.
68. Sandy Bauers, *A Clash of Wind, Wave Energy Permits off N.J.*, Philadelphia Inquirer, Apr. 4, 2009.
69. Memorandum of Understanding between the U.S. Department of Interior and the Federal Energy Regulatory Commission, April 9, 2009 *available at* http://www.doi.gov/news/09_News_Releases/FERCMMSDOI-FERCMOU.pdf (last visited July 13, 2009).
70. Consistent with the MOU, FERC dismissed Gray Harbors preliminary permit applications on April 17, 2009. FERC, Order Dismissing Preliminary Permit Applications, 127 FERC ¶ 62,047 (Apr. 17, 2009).
71. MMS, Renewable Energy Final Rule, *supra* note 15, at 19,834.

Figure 2. Photograph of the Pelamis wave power generator courtesy of Pelamis Wave Power.

While the MOU seems straightforward on its face, there are still several details that will need to be worked out. For example, the MOU potentially could result in duplicative environmental reviews under NEPA. According to the MOU, MMS will issue leases, easements, and rights-of-way and "conduct any necessary environmental reviews, including those under [NEPA], related to those actions." Similarly, FERC will issue licenses for such projects and "will conduct any necessary analysis, including those under NEPA, related to those actions."

In the MOU, the agencies also agree to work together to develop "processes to address hybrid (wind/hydrokinetic) projects and projects that straddle the boundaries between state waters and the OCS." The Grays Harbor applications, for example, proposed placing wind turbines on top of wave generators to produce 10% wave energy and 90% wind energy.[72] It is unclear whether a single permitting process will be developed for hybrid systems, or whether developers will have to seek a lease from MMS and then two licenses, one from MMS for the wind turbines and one from FERC for the wave turbines.

Additional Resources:

FERC Hydrokinetic Power website - http://www.ferc.gov/industries/hydropower/indus-act/hydrokinetics.asp

EERE Consumer's Guide: Ocean Wave Power website - http://apps1.eere.energy.gov/consumer/renewable_energy/ocean/index.cfm/mytopic=50009

72. Mark Clayton, *Ocean Power Surges Forward*, The Christian Science Monitor, Apr. 27, 2009.

Ocean Thermal Energy Conversion

Lead Agency: National Oceanic and Atmospheric Administration

Ocean Thermal Energy Conversion (OTEC) generates electricity by exploiting the difference between the temperature of seawater near the surface and in the deep ocean. This process works best in tropical waters where the temperature difference is about 20º C (36º F).[73] In the U.S., such areas are located primarily in Hawaii, Puerto Rico, and the U.S. territories.

An OTEC facility can be mounted on a platform or a free-floating vessel. Closed OTEC systems use the warm ocean surface waters to heat a fluid with a low-boiling point, such as ammonia. As the fluid vaporizes, the gas turns a turbine to generate electricity. Cold water, pumped from the deep ocean through fiberglass pipes, is used to condense the vapor back into liquid form which can then be recycled through the system. Open OTEC systems work in a similar manner, except seawater is the operating fluid. In open systems, seawater is pumped through evaporators to generate steam which drives the turbines. The steam is condensed into water and pumped into the ocean. Because the evaporation process removes the salt from the water, open systems can also serve as desalination plants.

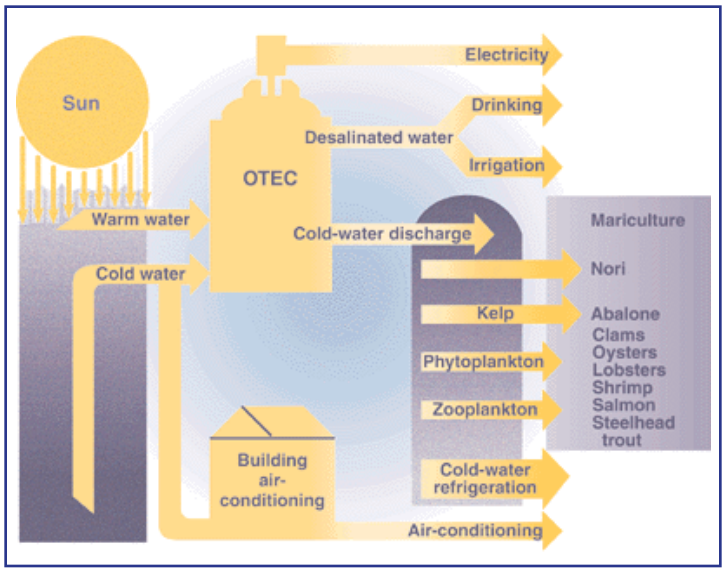


Diagram courtesy of national Renewable Energy Laboratory, http://www.nrel.gov/otec/applications.html .

Regulatory Framework:

Pursuant to the Ocean Thermal Energy Conversion Act of 1980 (OTECA), a license from NOAA is required to "to engage in the ownership, construction, or operation of an ocean thermal energy conversion facility" (1) located on standing platforms located within the U.S. territorial sea, (2) located on vessels documented under the laws of the U.S. or (3) connected by a cable or pipeline to any state.[74] Demonstration projects approved by the Department of Energy are exempt from the licensing requirement.[75] The EPAct of 2005 did not alter NOAA's licensing authority. MMS's authority to issue leases, easements, and rights-of-way for renewable energy projects located on the OCS does not extend to renewable activities authorized by other laws, such as the OTECA.[76]

NOAA issued regulations establishing its Ocean Thermal Energy Conversion Licensing Program in 1981. No applications for commercial facilities or plantships were ever received by NOAA and the low level of

73. U.S. Department of Energy, A Consumer's Guide to Energy Efficiency and Renewable Energy, Ocean Thermal Energy Conversion, http://apps1.eere.energy.gov/consumer/renewable_energy/ocean/index.cfm/mytopic=50010 (last visited July 15, 2009).
74. 42 U.S.C § 9111.
75. *Id.* § 9126(b).
76. 43 U.S.C. § 1337(p)(1)).

activity and interest led the agency to remove its regulations in 1996.[77] Increased interest could lead NOAA to issue new regulations to reinstitute its licensing program.

Ocean Thermal Energy Conversion Projects:

The only successful floating, net power producing OTEC plant was built in Hawaii in 1979. In 1979, Mini-OTEC, a 50-kilowatt closed-cycle OTEC demonstration plant, was built at National Energy Laboratory of Hawaii.[78] The demonstration plant, which produced 52 kW of gross power and 15 kW of net power, was mounted on a converted U.S. Navy barge moored 1.5 miles offshore. The State of Hawaii, Lockheed Missiles and Space Company, Alfa Laval Thermal and Dillingham Corporation partnered for the project.[79] Last year, Taiwan Industrial Technology Research Institute and the Lockheed Martin Corporation formed a partnership to develop a 10 megawatt (MW) OTEC test plant in Hawaii.

Photograph of Mini Otec courtesy of *Makai Ocean Engineering.*

Additional Resources:

National Renewable Energy Laboratory's website - http://www.nrel.gov/otec/

Department of Energy's Consumer's Guide to Energy Efficiency and Renewable Energy - http://apps1.eere.energy.gov/consumer/

77. NOAA, Ocean Thermal Energy Conversion Licensing Program, Final Rule, 61 Fed. Reg. 21,073 (May 9, 1996).
78. National Renewable Energy Laboratory, Achievements in OTEC Technology, http://www.nrel.gov/otec/achievements.html (last visited July 15, 2009).
79. Makai Ocean Engineering, Deep Pipelines for Ocean Thermal Energy Conversion, http://www.makai.com/p-otec.htm (last visited July 15, 2009).

Coastal State Authority

Leasing Submerged Lands

Coastal states have the authority to lease land to developers for offshore energy projects, except for hydrokinetic projects,[80] and transmission lines within state waters. In Texas, for example, Galveston Offshore Wind, a subsidiary of Louisiana-based Wind Energy Systems Technologies (WEST) received a lease from the Texas General Lands Office (GLO) to install 50 wind turbine platforms 10 miles offshore of Galveston Island. Because the project is located in state waters, it is under Texas, not MMS, jurisdiction. Wind energy projects in state waters must still comply with federal environmental laws such as the Endangered Species Act and the Migratory Bird Treaty Act. The Texas GLO allowed the company to purchase a 30-year lease on an 11,355-acre area in state waters, paying $10,000 a year for the first five years and a royalty fee upon energy production.[81] In 2007, the GLO awarded WEST four additional leases for offshore energy development using a competitive bid process.[82] According to the GLO, the company's plans for the offshore wind projects are on hold.[83]

Other states are actively planning for the future by incorporating offshore renewable energy policies and guidelines into their coastal management programs. For example, in response to the Cape Wind proposal, Massachusetts passed the Oceans Act in May 2008, which requires the Secretary of Energy and Environmental Affairs to develop a comprehensive ocean management plan. Once the plan is approved, the siting of "appropriate scale" offshore renewable energy facilities will be allowed in state waters, except in ocean sanctuaries, if the proposed facilities are consistent with the ocean management plan.[84]

In 1994, Oregon adopted a Territorial Sea Plan (TSP), a "management-oriented" comprehensive plan that "provides detailed guidance to state and federal agencies in managing the area from 0 – 3 miles [offshore]."[85] Oregon is in the process of amending the TSP to provide guidance to state and federal agencies for the siting of ocean-based energy power generation facilities in Oregon state waters.[86] On March 27, 2008, FERC announced the execution of a MOU with the state of Oregon "to coordinate procedures and schedules for review of wave energy projects in state waters off the coast of Oregon."[87] According to the MOU, once Oregon finalizes its amendments to the TSP, FERC will "consider the extent to which the proposed project is consistent with the Oregon plan" when issuing permits and licenses.[88]

In June, FERC signed an MOU with the state of Washington to coordinate the review of hydrokinetic projects in state waters.[89] Pursuant to the agreement, FERC and Washington will coordinate environmental

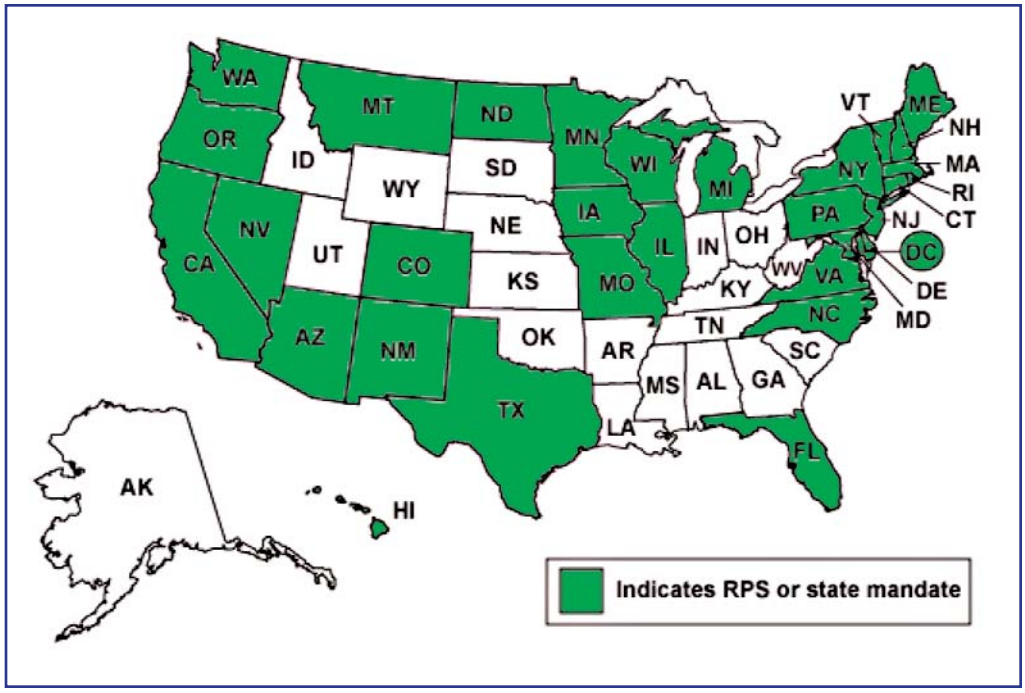
80. The Federal Power Act grants FERC exclusive jurisdiction to license hydropower projects in navigable waters, including those within three miles from shore.
81. Press Release, Texas General Lands Office, *Texas General Land Office Signs Historic Coastal Lease to Develop Offshore Wind Energy*, Oct. 24, 2005, *available at* http://www.glo.state.tx.us/news/archive/2005/events/offshorewind.html (last visited July 13, 2009).
82. Press Release, Texas General Lands Office, *Texas Awards First Competitive Wind Leases in the United States*, Oct. 2, 2007, *available at* http://www.glo.state.tx.us/news/docs/2007-Releases/10-02-07-wind-lease.pdf (last visited July 13, 2009).
83. Interview with Jim Suydam, Office of Communications, Texas General Lands Office (July 9, 2009).
84. Mass. G. L. 132 A § 15(2).
85. State of Oregon, Oregon Territorial Sea Plan, Part 1-A (History of Ocean Planning in Oregon) (1994) *available at* http://www.oregon.gov/LCD/OCMP/docs/Ocean/otsp_1-a.pdf (last visited July 13, 2009).
86. Oregon Department of Land Conservation and Development, *Territorial Sea Plan Advisory Committee: Introduction*, http://www.oregon.gov/LCD/tspac.shtml (last visited July 13, 2009).
87. Press Release, FERC, *FERC, Oregon Sign Memorandum of Understanding for Wave Energy Projects*, Mar. 27, 2008.
88. Memorandum of Understanding between the Federal Energy Regulatory Commission and the State of Oregon, 3 (Mar. 27, 2008), *available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-or-final.pdf (last visited July 13, 2009).
89. Press Release, FERC, *FERC, Washington Sign MOU for Hydrokinetic Energy Projects*, June 4, 2009.

reviews, provide each other with notification of potential applications, and coordinate a processing schedule.[90]

Coastal Zone Management Act

Federal agency activities, including permits and licenses, "that affect any land or water use or natural resource of [a state's] coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies" of that state's coastal management program.[91] The CZMA requires that applicants for federal licenses or permits "provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the enforceable policies of the state's approved program and that such activity will be conducted in a manner consistent with the program."[92] The authorizing federal agency cannot approve a license or permit unless the state concurs with the applicant's consistency finding or the Secretary of Commerce overrides the state's objection.[93]

Applications for federal leases and permits for offshore renewable energy projects will be subject to this consistency review, unless the applicants and the federal agencies can show that the project will not have an effect on the state's coastal zone. Projects significantly far from shore with small environmental footprints may be able to make such a finding.



This map, by the Database of State Incentives for Renewable Energy, identifies states with renewable portfolio standards or other state mandates for renewable energy. A renewable portfolio standard is a state policy that requires electricity providers to obtain a minimum percentage of their power from renewable energy resources by a particular date. The standards in North Dakota, South Dakota, Utah, Virginia, and Vermont are voluntary.

90. Memorandum of Understanding between the Federal Energy Regulatory Commission and the State of Washington, (June 4, 2009), *available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-wa.pdf (last visited July 13, 2009).
91. 16 U.S.C. § 1456.
92. *Id.* § 1456(c)(3)(A).
93. *Id.*

Local Concerns

There is some concern that offshore renewable energy projects may be vulnerable to "NIMBYism." The Oxford English Dictionary (OED) defines NIMBY ("Not in My Backyard") as

> 1. An attitude ascribed to persons who object to the siting of something they regard as detrimental or hazardous in their own neighbourhood, while by implication raising no such objections to similar developments elsewhere. 2. A person holding such an attitude; an objector to local (esp. building) development.[94]

Legal scholars have defined a land use subject to NIMBYism "as a socially desirable land use that broadly distributes benefits, yet is difficult or impossible to implement because of local opposition."[95] The local opposition to the Cape Wind facility off the coast of Massachusetts, one of the first offshore renewable energy projects proposed in the U.S., may have been driven by NIMBYism.

The Alliance to Protect Nantucket Sound, a nonprofit organization established in 2001 in response to the Cape Wind proposal and supported by influential residents of Nantucket, including Senator Ted Kennedy, has been the most vocal and active opponent.[96] The Alliance claims to support the development of wind power as a renewable energy source, but "oppose[s] the proposed Cape Wind plant in Nantucket Sound due to potential adverse economic, environmental and public safety impacts."[97] Opposition on such grounds would seem to fit the first OED definition.

It is important to note, however, that not all local concern about development projects is the result of NIMBYism. Sometimes project opposition is grounded in environmentalism. Environmentalism, as opposed to NIMBYism, "is characterized by attitudes and behaviors that focus on protecting the natural environment from destruction or pollution."[98] Researchers examining protests of offshore oil drilling in California and Alaska in the 1970s and 2000s, for example, recently concluded that NIMBYism "had little to do with attitudes towards oil development."[99] Because proximity to the oil drilling appeared to have no influence of people's attitudes towards oil development, the researchers suggested that environmentalism was the driving influence.[100]

Coastal residents and coastal resource users often have other legitimate concerns about how a new use will impact their homes, lives, and communities which can be voiced at public meetings. Many of the concerns voiced by these groups have focused on environmental and aesthetic impacts.[101] For example, questions have arisen on the effect of the projects on migratory bird populations. Perhaps as a response,

94. Hélène Hermansson, *The Ethics of NIMBY Conflicts*, 10 Ethical Theory and Moral Practice 23, 25 (2007).
95. Barak D. Richman and Christopher Boerner, *A Transaction Cost Economizing Approach to Regulation: Understanding the NIMBY Problem and Improving Regulatory Responses*, 23 Yale J. on Reg. 29, 37 (2006).
96. For an in-depth discussion of the Cape Wind controversy, *see* Wendy Williams and Robert Whitcomb, Cape Wind: Money, Celebrity, Class, Politics, and the Battle for our Energy Future on Nantucket Sound (2007).
97. Alliance to Protect Nantucket Sound, Our Mission, http://www.saveoursound.org/site/PageServer?pagename=About_Us_Mission (last visited Mar. 31, 2008).
98. Kristy Michaud, Juliet E. Carlisle, and Eric R.A.N. Smith, *Nimbyism vs. Environmentalism in Attitudes Toward Energy Development*, 17(1) Environmental Politics 20, 22 (2008).
99. *Id.* at 21.
100. *Id.*
101. However, proponents of the offshore industries cite low environmental impacts and claim that on a clear day the wind turbines would be visible a mere one half-inch above the horizon. Cape Wind, *Project Siting and Visual Simulations*, http://www.capewind.org/article7.htm (last visited Mar. 31, 2009).

in June 2009, the MMS and the U.S. Fish and Wildlife Service signed an agreement to improve the protection and conservation of migratory bird species during offshore renewable energy development.[102] Residents have also expressed concern over the construction, maintenance, and decommissioning of the projects.[103] For example, residents may be concerned over the environmental impacts of the decommissioning process or question who would be financially responsible for decommissioning if a company walks away from a project.[104] Even after a project is decommissioned, questions remain over who would address any lingering environmental effects. Other groups expressing concern over offshore energy projects have included commercial shippers and yachtsmen concerned with navigational issues, commercial fishermen concerned with species protection, and surfers anxious over a loss of waves.[105]

Commercial fishing groups have claimed that offshore energy projects would have a negative impact on their industry by limiting available fishing area and harming fish species. For example, the Massachusetts Fishermen's Partnership, Inc. (MFP), the state's largest commercial fishing organization, has actively protested the Cape Wind project. The group has submitted petitions protesting the project to the Massachusetts Ocean Management Task Force.[106] MFP, along with the University of Rhode Island, completed an economic study concluding that the project would have a total economic loss of over $8 million dollars if the project area remains open to mobile gear fishing and a loss of up to $13 million if the area is ultimately closed.[107] This is in contrast to the MMS's finding that the project would have no significant impact on the fishery.

Surfers in countries outside the U.S. have opposed wave projects. For instance, when a wave project off the southwest coast of England was introduced, surfers voiced concern that the project would reduce the size of the waves in the area, citing one study showing that the project could reduce the wave height by 13%.[108] Despite the surfers concerns, the project received government approval in 2007.

The challenge for governmental agencies, developers, and non-profit organizations will be to separate legitimate grievances from NIMBYism. For example, many saw NIMBYism masking as a legitimate concern when U.S. Senator John Warner, a frequent visitor to Cape Cod, inserted an amendment into a defense spending bill ordering officials to study whether wind farms would interfere with radar signals of small aircraft.[109] Despite MMS' previous finding of no significant impact, in February 2009, the Federal Aviation Administration (FAA) issued a determination that the Cape Wind project would pose a "presumed hazard" for airplanes due to interference with air traffic control radar systems.[110] The FAA suggested that improvements to one of the three air traffic control radar systems that cover Nantucket Sound could resolve the problem.[111]

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102. Press Release, U.S. Dep't of the Interior, *Salazar Hosts First Offshore Renewable Workshop, Announces Efforts to Strengthen Migratory Bird Protections*, June 4, 2009.
103. *See* Summary of Scoping Comments for Cape Wind, *available at* http://www.mms.gov/offshore/PDFs/SummaryofScopingComments.pdf (last visited July 13, 2009).
104. *Id*.
105. Elizabeth Mehren, *Controversy Over Wind Farm Roils Predictable Nantucket*, Los Angeles Times, Aug. 11, 2002 at 20.
106. Jay Fitzgerald, *Fishermen Petition Rips Offshore Wind Turbines*, The Boston Herald, July 31, 2003, at 43.
107. Massachusetts Fishermen's Partnership, Project Summary, Economic Analysis of Mobile Gear Fishing Within the Proposed Wind Energy Generation Facility Site on Horseshoe Shoal in Nantucket Sound, http://www.fishermenspartnership.org/social-wind.html (last visited Apr. 2, 2009).
108. Brendan O'Neill, *Backstory: Cornwall's Battle of the Breaks*, Christian Science Monitor, Aug. 21, 2006, at 20.
109. Michael Hawthorne, *FAA Takes the Wind out of Wind Farms; Critics Blame Politics After Agency Suspends Projects in Midwest*, Chicago Tribune, May 31, 2006 at Zone C, pg. 1.
110. Martin Finucane, *FAA Report Says Cape Wind Plan May Pose Hazard; Upgrades to Radar System a Possibility*, The Boston Globe, Feb. 14, 2009 at B3.
111. *Id*.

Conclusion - Marine Spatial Planning

Dozens of activities take place in offshore waters from commercial fishing, aquaculture, recreational boating and diving, oil and gas drilling, and commercial shipping. Offshore renewable energy projects will have to compete for space among all the other uses of the nation's waters. As noted above, the federal regulatory framework is complex and many agencies have overlapping jurisdictions. In federal waters alone, over twenty agencies operating under dozens of laws regulate multiple activities.[112]

An alternative management framework is starting to emerge, however. Comprehensive ocean zoning, or marine spatial planning, is promoted by policymakers, academics, activists, and industry officials as a way to better coordinate activities, mitigate the impact of offshore activities, and reduce user conflicts.[113] A comprehensive ocean management plan, similar to land-based zoning schemes, could manage ocean activities on the basis of geography, as opposed to the current activity-based management.[114] While ocean zoning would not replace existing regulations, marine spatial planning could define areas within which compatible activities could occur thereby providing guidance to federal and state agencies during individual permitting decisions.[115] The zones could be based on topography, oceanography, use, and distribution of biotic communities.[116]

In addition to providing better management of an ecosystem, marine spatial planning could address the significant agency overlaps in offshore energy regulation. Federal agencies, like MMS and FERC, would be required to collaborate in their management of ocean resources. Some scholars have suggested that the public trust doctrine could provide a foundation for a marine spatial planning framework.[117] Traditionally, the public trust doctrine has required states to manage natural resources in the best interest of its citizens. At a federal level, the doctrine has never been formally articulated by the courts or established in statutory law.[118] Scholars suggest that the doctrine could be established in federal waters in several ways, including through executive order, judicial interpretation, or Congressional mandate.[119] A federal public trust doctrine would require agencies to collaborate in order to protect the nation's oceans for American citizens.

On June 12, 2009, President Barack Obama established the Interagency Ocean Policy Task Force (Task Force).[120] The Executive Memorandum directs the Task Force to develop, by September 12, 2009, a national ocean policy, a framework for policy coordination of efforts "to improve stewardship of the oceans, our coasts, and the Great Lakes" by federal, state, tribal, and local authorities, and an implementation strategy. In addition, the Task Force is charged with recommending by the end of 2009 a framework for effective coastal and marine spatial planning. According to the memo, the framework "should be a comprehensive, integrated, ecosystem-based approach that addresses conservation, economic activity, user conflict, and sustainable use of ocean, coastal, and Great Lakes resources consistent with international law, including customary international law as reflected in the 1982 United Nations Convention on the Law of the Sea."

112. Mary Turnipseed, et al., *Legal Bedrock for Rebuilding America's Ocean Ecosystems*, 324 Science 183 (Apr. 2009).
113. L.B. Crowder, et al, *Resolving Mismatches in U.S. Ocean Governance*, 313 Science 617 (Aug. 2006).
114. *Id.*
115. *Id*. at 618.
116. *Id*.
117. Turnipseed, *supra* note 112.
118. *Id*. at 184.
119. *Id*.
120. White House, Office of the Press Secretary, Memorandum for the Heads of Executive Departments and Agencies, *National Policy for the Oceans, our Coasts, and the Great Lakes* (June 12, 2009) *available at* http://www.whitehouse.gov/the_press_office/Presidential-Proclamation-National-Oceans-Month-and-Memorandum-regarding-national-policy-for-the-oceans/ (last visited July 13, 2009).

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