

STUDENT ARTICLES

FEDERALISM AND THE SITING OF OFFSHORE WIND ENERGY FACILITIES

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INTRODUCTION

Rising fossil fuel prices, economic development opportunities, the need to address climate change, and concerns about the geopolitical consequences of current energy policies have generated increased interest in renewable energy development in recent years, and much of the attention has focused on wind energy.¹ Commercial wind energy development has expanded rapidly in the United States, with advances in wind turbine technology, the federal production tax credit, and state renewable portfolio standards helping to drive development.² The growth of the wind energy industry has raised pressing questions about how to design regulatory regimes to address the different environmental values implicated by wind energy projects. Although they have clear environmental advantages over conventional power plants because they create little air pollution,

¹ See, e.g., BARRY G. RABE, STATEHOUSE AND GREENHOUSE: THE EMERGING POLITICS OF AMERICAN CLIMATE CHANGE POLICY 38–40, 49–51, 118–19 (2004); Christine Real de Azua, *The Future of Wind Energy*, 14 TUL. ENVTL. L.J. 485, 490–97 (2001) (discussing reasons for developing wind energy); Mark Z. Jacobson & Gilbert M. Masters, *Exploiting Wind Versus Coal*, 293 SCIENCE 1438 (2001) (discussing advantages of shifting from coal to wind as a fuel source); S. Pacala and R. Socolow, *Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies*, 305 SCIENCE 968 (2004); Thomas L. Friedman, Op-Ed., *The Geo-Green Alternative*, N.Y. TIMES, Jan. 30, 2005 at 4.17; Gary Rivlin, *Green Tinge is Attracting Seed Money to Ventures*, N.Y. TIMES, June 22, 2005, at C1.

² See Am. Wind Energy Assoc., Wind Power: U.S. Installed Capacity, 1981–2004, <http://www.awea.org/faq/instcap.html> (last visited Jan. 4, 2006) (noting that at the end of 2004, the total U.S. installed capacity was 6,740 megawatts, with almost 63 percent developed since 2000); Real de Azua, *supra* note 1, at 487–90, 499–502, 515–18 (describing advances in wind turbine technology, the federal production tax credit and state renewable portfolio standards); see also James W. Moeller, *Of Credits and Quotas: Federal Tax Incentives for Renewable Resources, State Renewable Portfolio Standards, and the Evolution of Proposals for a Federal Renewable Portfolio Standard*, 15 FORDHAM ENVTL. L. REV. 69, 72 (2004).

water pollution, or solid waste,³ objections to particular wind energy projects have arisen based on various environmental concerns, including impacts to scenic or aesthetic resources, wildlife populations, and natural habitats.⁴

The dilemma facing environmental policymakers concerning wind energy is perhaps most acute in the debates surrounding the development of offshore facilities. On one hand, the opportunities for development and the potential environmental benefits are staggering. Government estimates place the national offshore potential—not including the Gulf of Mexico and the Great Lakes—at approximately 907,000 megawatts (which exceeds the current total installed electrical generation capacity of the United States), and other studies point to additional attractive development opportunities in the Great Lakes.⁵ However, offshore proposals have the potential to generate deep public divisions, which has been aptly illustrated by the Cape Wind project in Nantucket Sound off of Cape Cod, Massachusetts, the first offshore facility proposed for the United States.⁶ Despite wind energy's purported environmental advantages over conventional power plants, Massachusetts Governor Mitt Romney and other elected officials have publicly opposed the project,⁷ a local environmental group has spent millions of dollars fighting the proposal before administrative agencies and in court,⁸ and in late 2004 Congress reportedly almost stopped the project from

³ See Real de Azua, *supra* note 1, at 494–96 (describing environmental benefits of wind energy).

⁴ See *id.* at 495 n.59 (describing potential environmental impacts of wind turbines); see also discussion *infra* Parts II.B–II.G (analyzing the major environmental impacts of offshore wind facilities).

⁵ See WALT MUSIAL & SANDY BUTTERFIELD, FUTURE FOR OFFSHORE WIND ENERGY IN THE UNITED STATES 4 (2004), available at <http://www.nrel.gov/docs/fy04osti/36313.pdf> (report prepared for U.S. Department of Energy); ROBERT H. OWEN, JR., FINAL REPORT TO WISCONSIN FOCUS ON ENERGY ON LAKE MICHIGAN OFFSHORE WIND RESOURCE ASSESSMENT (2004), available at http://www.focusonenergy.com/data/common/dmsFiles/W_RW_MKTG_LMWindAssessment.pdf.

⁶ See Willett Kempton et al., *The Offshore Wind Power Debate: Views from Cape Cod*, 33 COASTAL MGMT. 119, 120–21 (2005); U.S. ARMY CORPS OF ENGRS, CAPE WIND ENERGY PROJECT FACT SHEET (2004), available at <http://www.nae.usace.army.mil/projects/ma/ccwf/farmfact.pdf>.

⁷ See, e.g., Stephanie Ebbert, *Romney Boosts Wind Farm Opposition*, BOSTON GLOBE, Nov. 11, 2004, at B2.

⁸ See Jay Fitzgerald, *Cape Wind Farm Opponents Blow Up \$600G Deficit*, BOSTON HERALD, Oct. 16, 2004, at 18.

obtaining necessary permits as part of conference committee negotiations over a defense spending bill.⁹ Most recently, language in the House version of a Coast Guard authorization bill reportedly would prohibit development of the project.¹⁰

Spurred by the questions about offshore wind energy made particularly vivid by the dispute surrounding Cape Wind, numerous recent legal articles have focused on aspects of the federal regulatory regime for offshore wind energy.¹¹ In particular, some commentators have fueled opposition to the Cape Wind project by arguing forcefully that the federal regulatory regime in place until recently failed to protect public interests threatened by the development of offshore wind energy facilities.¹² In Section 388 of the Energy Policy Act of 2005 (“EPAAct of 2005”), Congress addressed many of the concerns about the federal regulatory regime by (among other things): (1) authorizing the Secretary of the Interior to grant leases, easements, and rights-of-way on the outer continental shelf on a competitive basis for activities that produce or support production, transportation, or transmission of energy; (2) requiring the collection of payments and revenue-sharing with coastal states for the energy-related uses of the outer continental shelf; (3) requiring grantees to furnish surety bonds or other security to protect the interests of the public and United States; and (4) requiring that the Secretary of the

⁹ See Beth Daley, *Legislation Could Block Cape Wind Farm; Senator Wants Rules in Place*, BOSTON GLOBE, Oct. 7, 2004, at B1.

¹⁰ Stephanie Ebbert, *Capitol Hill Weighing Tighter Limits on Wind Farms; Shipping Buffer Could Sink Project*, BOSTON GLOBE, Dec. 9, 2005, at B3.

¹¹ See, e.g., Symposium, *Coastal Wind Energy Generation: Conflicts and Capacities*, 31 B.C. ENVTL. AFF. L. REV. 177 (2004); Jeremy Firestone et al., *Regulating Offshore Wind Power and Aquaculture: Messages from Land and Sea*, 14 CORNELL J.L. & PUB. POL’Y 71 (2004).

¹² See Kempton et al., *supra* note 6, at 134–36; Thomas Arthur Utzinger, *Federal Permitting Issues Related to Offshore Wind Energy, Using the Cape Wind Project in Massachusetts as an Illustration*, 34 ENVTL. L. REP. 10,794, 10,795–96 (2004); Donald C. Baur & Jena A. MacLean, *The “Degreening” of Wind Energy: Alternative Energy v. Ocean Governance*, NAT. RESOURCES & ENV’T, Summer 2004, at 44, 46–49; U.S. COMM’N ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY 366 (2004), available at http://www.oceancommission.gov/documents/full_color_rpt/000_ocean_full_report.pdf (noting that the Corps’ review process for proposed activities on the outer continental shelf is deficient because “[i]t cannot grant leases or exclusive rights to use or occupy space on the OCS. It is not based on a comprehensive and coordinated planning process for determining when, where, and how this activity should take place. It also lacks the ability to assess reasonable resource rent for the public space occupied or a fee or royalty for the energy generated.”).

Interior ensure that authorized energy-related activities are carried out in a manner that meets a number of substantive requirements.¹³ Section 388 also directs the Secretary of the Interior to issue regulations in consultation with other federal agencies and “the Governor of any affected State” to further define this new regulatory regime.¹⁴ The Minerals Management Service (“MMS”) within the Department of the Interior recently issued an Advance Notice of Proposed Rulemaking to begin the process.¹⁵

In addition to Congress, state governments have responded to the potential of offshore wind energy development, and these state actions set the stage for the premise of this Note: when designing the regulatory regime to weigh competing environmental values implicated by offshore wind energy projects, decisions must be made about how to divide regulatory authority between the federal government and the states. Recent state regulatory actions are particularly important for offshore wind energy because to transmit power to the electricity grid, facilities inevitably will include submarine transmission cables running to the mainland that pass through submerged lands subject to state control.¹⁶ Furthermore, existing marine foundation technologies currently restrict development to relatively shallow locations near the coastline, raising the potential for states to exert influence over federal decisions to issue permits or property interests needed to develop facilities.¹⁷ Examples of recent state regulatory actions include proposed legislation in Massachusetts that would dramatically restructure the regulatory regime for offshore areas under state control, and a New Jersey executive order that imposes a moratorium on state approval of offshore wind energy facilities and establishes an expert panel to make policy recommendations on how the State should regulate offshore wind energy.¹⁸ In addition to regulatory initiatives, New York has taken a more direct role in project development through the Long Island Power

¹³ Energy Policy Act of 2005, Pub. L. No. 109-58, § 388(a), 119 Stat. 594, 744 (2005) (to be codified at 43 U.S.C. § 1337).

¹⁴ *Id.* § 388(a)(8).

¹⁵ Alternative Energy-Related Uses on the Outer Continental Shelf, 70 Fed. Reg. 77,345 (Dec. 30, 2005) (to be codified at 30 C.F.R. pt. 285).

¹⁶ See discussion *infra* Part I.A.

¹⁷ MUSIAL & BUTTERFIELD, *supra* note 5, at 4; see discussion *infra* Part I.B.

¹⁸ See Exec. Order No. 12, 37 N.J. Reg. 377(a) (Feb. 7, 2005) (issued Dec. 23, 2004), available at <http://www.nj.gov/infobank/circular/eoc12.htm>; see also *infra* notes 48–54, 90–91 and accompanying text.

Authority's ("LIPA") support of the "Long Island Offshore Wind Park," a facility proposed for south of Jones Beach Island. LIPA did the initial technical work and public outreach to select a suitable location, solicited proposals from developers, and intends to purchase power from the facility pursuant to a long-term contract.¹⁹ LIPA and FPL Energy (a leading owner of land-based wind energy projects) recently submitted a joint permit application to the Army Corps of Engineers for permission to build the facility.²⁰

Despite the interest in offshore wind energy, federal legislative reforms, the imminent MMS rulemaking process, and recent state actions, commentators thus far have paid little attention to federalism issues raised by the regulation of offshore wind energy development.²¹ This Note attempts to start a conversation about federalism and the development of offshore wind energy by describing how states play an important role in the siting of offshore wind energy projects under current law. Furthermore, by looking at the potential for interstate environmental spillovers and the particular concerns associated with climate change, this Note attempts to provide a theoretical basis for dividing regulatory authority over different environmental impacts potentially caused by offshore wind energy projects. One conclusion is that state control generally is justified because offshore wind energy facilities (particularly those close to shore) generally are expected to affect the environment or otherwise implicate the environmental preferences of single coastal states. However, specific interstate spillovers, environmental effects that do not implicate state environmental conditions or concerns (such as certain impacts concentrated in areas far from shore), and the distinctive problems raised by climate change also ground theoretical justifications for areas of

¹⁹ Long Island Power Authority, History of the Offshore Wind Park, <http://www.lipower.org/cei/offshore.history.html> (last visited Jan. 4, 2006).

²⁰ U.S. Army Corps of Eng'rs, N.Y. Dist., Public Notice 2005-00365-L4 (June 9, 2005), available at <http://www.nan.usace.army.mil/business/buslinks/regulat/lipa/pn/fullPN.pdf>.

²¹ But see Rusty Russell, *Neither Out Far Nor In Deep: The Prospects for Utility-Scale Wind Power in the Coastal Zone*, 31 B.C. ENVTL. AFF. L. REV. 221, 253-54 (2004) (questioning whether state policy experimentation related to offshore wind energy development is appropriate when policies have extra-jurisdictional impacts, frustrate national goals, or generate significant external costs).

federal regulation. Based on these conclusions, it is recommended that the federal government adopt siting policies that focus on concerns about interstate spillovers. To implement such a policy, federal legislation with preemptive effects over state control of submerged lands ultimately may be necessary to insure adequate consideration of the environmental benefits promised by increased offshore wind energy development.

Part I highlights the importance of state environmental regulatory regimes in siting offshore wind energy projects, both through control of submerged lands out to three miles from the coastline and through the review of federal agency actions, including MMS property conveyances under Section 388 of the Energy Policy Act. Part II attempts to provide a theoretical basis for dividing regulatory authority between the state and federal governments by identifying the major environmental impacts of offshore wind energy facilities, their potential to implicate state environmental interests, and their potential to generate interstate spillovers. Part III then analyzes some of the distinct regulatory issues raised by climate change, including possible theoretical justifications for federal preemption of overly restrictive state siting regimes. Finally, Part IV provides policy recommendations to implement the suggested division of regulatory authority between the state and federal governments.

I. STATE CONTROL OF OFFSHORE WIND ENERGY SITING

This Part focuses on two ways in which states exercise regulatory authority over the development of offshore wind energy projects: (1) through control of submerged lands within three miles of the coastline; and (2) through federal consistency review under the Coastal Zone Management Act (“CZMA”),²² which provides states with a mechanism to exert influence over federal agency activities, including activities authorizing the use of the outer continental shelf (the lands further than three miles from the coastline). The state authority over submerged lands gives states particularly robust opportunities to control the siting of offshore wind energy facilities (even those facilities with turbines proposed for the outer continental shelf), because all facilities will require connection to the electricity grid through submarine cables running

²² Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451–1465 (2000).

from the turbines to shore. Although the scope of state authority under the CZMA is less expansive than state control of submerged lands, consistency review provides additional opportunities for states to stop or delay offshore projects.

A. *State Control of Submerged Lands*

States currently exercise considerable control over the use of lands beneath the navigable waters of United States, including lands underlying the ocean adjacent to state coastlines (sometimes referred to as the “marginal seas”). Before the middle of the twentieth century, federal common law recognized that states possessed regulatory authority over lands beneath navigable waters.²³ However, this changed substantially after the Supreme Court’s decision in *United States v. California*.²⁴ When the State of California began in the 1930s to issue leases for offshore development of oil, gas, and other minerals in lands under the marginal sea, the federal government brought a suit to confirm exclusive federal rights over the marginal seas and to obtain an injunction stopping continued trespass by private parties under the authority of leases obtained from California.²⁵ In *California*, the Court granted relief to the federal government when it held that the federal government, by virtue of its responsibilities concerning national defense and international affairs, has “paramount rights” over the three-mile belt of ocean adjacent to the coastline, and that these rights include “full dominion over the resources of the soil under that water area, including oil.”²⁶

In the Submerged Lands Act of 1953 (“SLA”), Congress exercised the federal authority over the marginal seas recognized in *California* to grant the states title to adjacent “lands beneath navigable waters” and control over their associated natural resources, including (but not limited to) oil, gas, other minerals,

²³ See, e.g., *Shively v. Bowlby*, 152 U.S. 1, 16 (1894) (noting that “when the Revolution took place, the people of each State became themselves sovereign; and in that character hold the absolute right to all their navigable waters, and the soils under them, for their own common use, subject only to the rights since surrendered by the Constitution to the general government”) (citing *Martin v. Waddell’s Lessee*, 41 U.S. (16 Pet.) 376, 410 (1842)).

²⁴ *United States v. California*, 332 U.S. 19 (1947).

²⁵ *Id.* at 22–23.

²⁶ *Id.* at 38–39.

and marine animal and plant life.²⁷ On the Atlantic and Pacific coasts, “lands beneath navigable waters” include all lands under tidal waters between the mean high tide line and a parallel line three geographical miles from the coastline.²⁸ Under this definition, “lands beneath navigable waters” encompasses lands described at common law as “tidelands” (lands between the high and low water marks) and “submerged lands” (lands seaward of the low water mark).²⁹ The grant of title and authority to the states came with explicit reservations of federal jurisdiction over lands beneath navigable waters to regulate navigation, flood control, and hydroelectric facilities.³⁰ Congress also reserved for federal control the natural resources of the continental shelf’s subsoil and seabed, which extend seaward from the outer boundary of lands beneath navigable waters.³¹

States have exercised the title and control granted by the federal common law and later by Congress to enact statutes that govern the use of their respective submerged lands, and offshore project sponsors will need to comply with the requirements of a host state’s regulatory regime before beginning construction. Individually these regulatory regimes reflect the idiosyncratic history and environmental priorities of particular states; in the aggregate, they define a range of state policy options for managing the use of submerged lands. In general, states can control the use of submerged lands by regulating private activity using a permit system; regulating the conveyance of property interests such as licenses, leases, or easements to private parties; or using a combination of the two.³² The options defined by existing regimes

²⁷ 43 U.S.C. §§ 1311(a), 1301(e) (2000).

²⁸ *Id.* §§ 1301(a)(2), 1312; *see also* United States v. Maine, 420 U.S. 515, 524–25 (1975).

²⁹ *See* DAVID C. SLADE ET AL., PUTTING THE PUBLIC TRUST DOCTRINE TO WORK: THE APPLICATION OF THE PUBLIC TRUST DOCTRINE TO THE MANAGEMENT OF LANDS, WATERS AND LIVING RESOURCES OF THE COASTAL STATES 25–27 (1990).

³⁰ 43 U.S.C. § 1311(d).

³¹ *Id.* § 1302; *see also* *Maine*, 420 U.S. at 525–26 (holding that the federal government has exclusive sovereign rights over the seabed and subsoil of the continental shelf underlying the Atlantic Ocean).

³² *See, e.g.*, N.Y. ENVTL. CONSERV. LAW § 15-0503(1)(b) (McKinney 2005) (requiring either a property interest or permit before placing a structure on lands underwater); MASS. GEN. LAWS ANN. ch. 91, § 14 (West 2001) (authorizing licenses for construction of structures).

also include preferences for particular categories of uses;³³ preferences for conveyances of state-owned submerged lands to particular parties, such as riparian owners;³⁴ requirements that conveyances be subject to specified conditions;³⁵ the delegation of state regulatory authority to local governments;³⁶ and the adoption of policies for specific uses like submarine cables.³⁷

The public trust doctrine, as enforced by state courts, provides an additional source of state law (in this case common or state constitutional law) potentially implicated by the use of submerged lands for offshore wind energy facilities.³⁸ The peculiarities of each state's conception of the public trust doctrine date to the Founding.³⁹ Derived from Roman and British law and recognized by the Supreme Court case *Illinois Central Railroad Co. v. Illinois*, the public trust doctrine recognizes two estates in public trust resources: the public's trust title (*jus publicum*) and a subservient private proprietary title (*jus privatum*).⁴⁰ Joseph Sax has characterized the public trust doctrine as a protection of the public's trust title through the creation of one or more court-enforced restrictions on state action, including: (1) a requirement

³³ See, e.g., MASS. GEN. LAWS ANN. ch. 91, §§ 1, 14 (West 2001) (reserving submerged lands primarily for "water dependent uses" that require direct access to marine or tidal waters and requiring structures on Commonwealth-owned submerged lands to serve a public purpose that provides a greater public benefit than detriment).

³⁴ See, e.g., N.Y. PUB. LANDS LAW § 75-7(a) (McKinney 2005) (allowing grants "in perpetuity or otherwise" of lands underwater only to adjacent upland owners).

³⁵ See, e.g., *id.* (requiring that grants have conditions "that preserve the public interest in use of state-owned lands underwater and waterways for navigation, commerce, fishing, bathing, recreation, environmental protection and access to the navigable waters of the state").

³⁶ See, e.g., N.Y. ENVTL. CONSERV. LAW § 15-0503(1)(c) (McKinney 2005) (allowing delegation to local governments).

³⁷ See, e.g., MASS. GEN. LAWS ANN. ch. 91, § 14 (West 2001) (authorizing licenses for construction of "cables" beyond established harbor lines); N.Y. PUB. LANDS LAW § 75-7(b) (McKinney 2005) ("cables" excluded from the definition of "structures" prohibited on state-owned lands underwater); N.Y. COMP. CODES R. & REGS. tit. 9, § 271 (2005) (regulations for "grants of easements in [state] lands underwater for cables, conduits, pipelines, hydroelectric power").

³⁸ See SLADE ET AL., *supra* note 29, at 5 (noting that lands beneath the oceans are public trust lands).

³⁹ See, e.g., *Shively v. Bowlby*, 152 U.S. 1, 18–26 (1894) (describing differences in the rights of riparian owners among the original colonies).

⁴⁰ *Ill. Cent. R.R. Co. v. Illinois*, 146 U.S. 387 (1892); see also SLADE ET AL., *supra* note 29, at 7–8.

that public trust resources be used for a public purpose and be available for public use; (2) a limitation that public trust resources cannot be alienated, even for a fair price; and (3) an obligation that public trust resources be maintained for particular types of uses, either certain traditional uses (like navigation and recreation) or uses particularly suited to the resource's inherent characteristics.⁴¹ Among states that would host proposed offshore wind energy projects, state courts have employed state-specific formulations of the public trust doctrine to interpret statutes that regulate the use of submerged lands and to review particular conveyances and uses of submerged lands.⁴² Some states like Rhode Island and Virginia even have constitutional provisions explicitly incorporating public trust principles implicated by proposed uses of state submerged lands.⁴³

The Cape Wind project illustrates how state regulation of submerged lands is a critical component of the current regulatory regime that controls the siting of offshore wind energy facilities. To build the submarine cable to connect the proposed turbines in federal waters in Nantucket Sound to the electricity grid on Cape Cod, the sponsor has sought a state Chapter 91 Waterways License, the state's primary tool for regulating private development on submerged lands.⁴⁴ Apparently to subject the project to the most rigorous state review possible, the Massachusetts Secretary of Environmental Affairs has taken the position that the proposed submarine cables represent "nonwater-

⁴¹ Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 477 (1970).

⁴² See, e.g., *Trio Algarvio, Inc. v. Comm'r of the Dep't Env'tl. Prot.*, 440 Mass. 94 (2003); *Riviera Ass'n v. North Hempstead*, 276 N.Y.S.2d 249 (Sup. Ct. 1967) (and citations therein).

⁴³ R.I. CONST. art. I, § 17 ("The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of the state, including but not limited to fishing from the shore, the gathering of seaweed, leaving the shore to swim in the sea and passage along the shore."); VA. CONST. art. XI, § 3 ("The natural oyster beds, rocks, and shoals in the waters of the Commonwealth shall not be leased, rented, or sold but shall be held in trust for the benefit of the people of the Commonwealth, subject to such regulations and restrictions as the General Assembly may prescribe, but the General Assembly may, from time to time, define and determine such natural beds, rocks, or shoals by surveys or otherwise.").

⁴⁴ U.S. ARMY CORPS OF ENG'RS, NEW ENGLAND DIST., CAPE WIND ENERGY PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT § 7.3.2.2 (2004), available at <http://www.nae.usace.army.mil/projects/ma/ccwf/section7.pdf>.

dependent uses.”⁴⁵ The state issues licenses for “nonwater dependent uses” only if they meet a strict “overriding public interest” standard.⁴⁶ Cape Wind has vigorously objected to the state’s position, and the state has not yet made a decision on the application.⁴⁷

Legislative proposals also illustrate the potential for aggressive state action to shape the deployment of offshore wind energy facilities through the control of submerged lands. In Massachusetts, Governor Mitt Romney has proposed major changes in the way the state would manage submerged lands, and the Governor’s proposal includes a policy on offshore wind energy.⁴⁸ Part of the so-called “Massachusetts Ocean Management Initiative,” the legislation would require the Secretary of Environmental Affairs to promulgate a binding ocean use management plan for areas between the low water mark and seaward boundary of the commonwealth, including submerged lands.⁴⁹ With the exception of certain exempted activities, the legislation would prohibit construction on submerged lands unless the activity is consistent with the ocean use management plan.⁵⁰ Notably, the legislation would allow the ocean use management plan to permit construction of offshore “renewable energy facilities” but not in the Cape Cod ocean sanctuary, which generally includes submerged lands off of the coast of outer Cape Cod but does not include the location proposed for Cape Wind.⁵¹ Legislation explicitly focused on offshore wind energy also has been proposed in New Jersey, with one proposal requiring the State Department of Environmental Protection to adopt regulations for the siting of offshore wind energy facilities that minimize environmental impacts.⁵² The proposal would prohibit the grant of any state permits before such regulations have been adopted.⁵³ A

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ See H.B. 2602, 184th Gen. Ct., Reg. Sess. (Mass. 2005).

⁴⁹ *Id.* at § 2.

⁵⁰ *Id.*

⁵¹ *Id.*; see MASS. OCEAN MGMT. TASK FORCE, WAVES OF CHANGE 22 (2004) (showing map of Cape Cod Ocean Sanctuary), available at http://www.mass.gov/czm/oceanmanagement/waves_of_change/pdf/wavesofchange.pdf.

⁵² Assemb. 3741, 211th Leg. (N.J. 2005).

⁵³ *Id.*

competing proposal would impose a seven year moratorium on the construction of wind turbines in New Jersey coastal waters.⁵⁴

The power of states to restrict facility siting through their control of submerged lands appears subject to relatively few limitations. In particular, state ownership of submerged lands and the public trust doctrine reflect separate “background principles” of property law that likely would bar most regulatory takings claims brought by project sponsors.⁵⁵ Furthermore, in contrast to other types of public lands, governments have not managed submerged lands to favor private development and exploitation; instead, they have been viewed as public trust resources with private development opportunities constrained by the need protect the public’s rights.⁵⁶ If anything, legislative initiatives that favor development, not those that restrict it, may be subject to challenge under state-specific conceptions of the public trust doctrine.⁵⁷

B. *Federal Consistency Review*

In addition to the control of submerged lands, states also have the ability to influence federal permitting activities, including those authorizing the construction of wind turbines and other facility components on near-shore portions of the outer continental shelf. This authority derives principally from the consistency review process under the CZMA.⁵⁸ Although the scope of state control under the CZMA is less expansive than that pertaining to submerged lands, consistency review appears to give states significant opportunities to stop or delay the issuance of federal approvals needed for offshore wind energy projects, including Section 388 property interests.

⁵⁴ S. 2174, 211th Leg., 2d Reg. Sess. (N.J. 2005) available at http://www.njleg.state.nj.us/2004/Bills/S2500/2174_I1.PDF.

⁵⁵ See Michael C. Blumm & Lucas Ritchie, *Lucas’s Unlikely Legacy: The Rise of Background Principles as Categorical Takings Defenses*, 29 HARV. ENVTL. L. REV. 321, 327, 341–44 (2005) (noting that for regulatory takings claims, claimants must possess a protected property interest, and describing cases in which the public trust doctrine has barred regulatory takings claims on this ground).

⁵⁶ See *supra* notes 40–41 and accompanying text.

⁵⁷ See *supra* notes 34–35 and accompanying text.

⁵⁸ But see Milner S. Ball, *Good Old American Permits: Madisonian Federalism on the Territorial Sea and Continental Shelf*, 12 ENVTL. L. 623, 631–64 (1981) (describing other ways in which states exercise control over the outer continental shelf).

1. *Federal Regulatory Authority*

Despite the delegation of authority to the states under the SLA, Congress retained considerable regulatory authority over submerged lands—primarily with regard to navigation, flood control, and hydroelectric power—and essentially all regulatory authority over the seabed of the outer continental shelf past the seaward boundary of submerged lands.⁵⁹ This retained regulatory authority has been exercised through various federal statutory provisions, including Section 10 of the Rivers and Harbors Act of 1898 (“RHA”)⁶⁰ and (more recently) Section 388 of the EPLA of 2005.⁶¹

Before passage of Section 388, the RHA was the primary federal statute regulating offshore wind development on the outer continental shelf.⁶² Pursuant to the RHA, the Corps regulates the construction of any structure in or over any navigable water of the United States, which includes all ocean and coastal waters in the territorial seas.⁶³ As extended by the Outer Continental Shelf Lands Act of 1953 (“OCSLA”),⁶⁴ the Corps also regulates the construction of “artificial islands, installations, and other devices located on . . . the outer continental shelf” under the RHA.⁶⁵ The construction of any such structure, artificial island, installation, or other device is unlawful unless the Corps has issued a permit authorizing the activity.⁶⁶ The Corps has interpreted its statutory authority as granting exceptionally broad discretion to issue permits and craft permit conditions; under current regulations the Corps evaluates applications under a general “public interest review” in which “[t]he benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments.”⁶⁷

⁵⁹ See *supra* notes 30–31 and accompanying text.

⁶⁰ Rivers and Harbors Act of 1899 § 10, 33 U.S.C. § 403 (2000).

⁶¹ Energy Policy Act of 2005, Pub. L. No. 109-58, § 388(a), 119 Stat. 594, 744 (2005) (to be codified at 43 U.S.C. § 1337); see also text accompanying note 13 (describing Section 388).

⁶² See Firestone, *supra* note 11, at 78–82.

⁶³ 33 C.F.R. § 320.2(b) (2005).

⁶⁴ 43 U.S.C. § 1814 (2000).

⁶⁵ 33 C.F.R. § 320.2; see also *Alliance to Protect Nantucket Sound, Inc. v. U.S. Dept. of the Army*, 288 F.Supp.2d 64, 72–76 (D. Mass. 2003), *aff’d*, 398 F.3d 105, 108–11 (1st Cir. 2005).

⁶⁶ 33 C.F.R. §§ 320.2(b), 322.3(b) (2005).

⁶⁷ 33 C.F.R. § 320.4(a)(1) (2005); see also Firestone, *supra* note 11, at 82

Section 388 grants to the Secretary of the Interior the explicit authority to issue leases, easements, and rights-of-way on the outer continental shelf for activities that “produce or support production, transportation, or transmission of energy from sources other than oil and gas,” including the development and operation of offshore wind energy facilities. Although explicit in requiring competitiveness, payment, revenue-sharing, and surety bonds,⁶⁸ Section 388 provides little explicit guidance for how the Secretary must make decisions to issue leases, easements, and rights-of-way, apart from not authorizing issuances for areas within National Monuments or units of the National Park System, National Wildlife Refuge System, or National Marine Sanctuary System.⁶⁹ However, Section 388 does require that the Secretary of the Interior ensure that activities authorized by leases, easements, and rights-of-way are “carried out in the manner that provides for” a number of broad goals, including (among others) safety, protection of the environment, prevention of waste, conservation of the natural resources of the outer continental shelf, protection of national security interests, protection of correlative rights, and other uses.⁷⁰ As mentioned previously, Section 388 requires the Department of the Interior to issue regulations to help implement its obligations, and MMS is just beginning the rulemaking process.⁷¹

2. *State Coastal Management Programs*

Despite the federal government’s retained authority over submerged lands and the outer continental shelf, Congress empowered states to influence federal agency actions like the issuance of RHA permits or Section 388 leases, easements, and rights-of-way through the federal consistency review process set forth in the CZMA.⁷² Described by the National Oceanic and

(noting that the Corps’ public interest standard “is so infused with competing considerations and value judgments as to give the Corps almost unbridled discretion”).

⁶⁸ See *infra* note 13 and accompanying text.

⁶⁹ See Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 388(a), § 1337(p)(10), 119 Stat. 594, 744–46 (2005) (to be codified at 43 U.S.C. § 1337(p)(10)).

⁷⁰ Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 388(a), § 1337(p)(4), 119 Stat. 594, 744–46 (2005) (to be codified at 43 U.S.C. § 1337(p)(4)).

⁷¹ See *infra* notes 14–15 and accompanying text.

⁷² Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451–1465 (2000);

Atmospheric Administration (“NOAA”) as a “limited waiver of federal supremacy and authority,”⁷³ federal consistency review requires federal agencies to act in manner consistent with “enforceable policies” contained in “coastal management programs” prepared by states and approved by the Secretary of Commerce.⁷⁴ “Enforceable policies” include “[s]tate policies 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.”⁷⁵ In other words, once a state’s coastal management program has been approved, federal agencies must comply—at least to a point—with the enforceable policies included in that coastal management program.

A state’s coastal zone is defined as “coastal waters . . . and the adjacent shorelands (including the water therein and thereunder), strongly influenced by each other,” extending seaward to the outer limit of state title and control.⁷⁶ Proposed activities subject to federal consistency review may be “within or outside of the coastal zone,” provided they affect any land or water use or natural resource of the coastal zone, indicating that the review may apply to facility components proposed for the outer continental shelf (or submerged lands within an adjacent state).⁷⁷ Congress explicitly granted extraterritorial reviews to the states in 1990 amendments to the CZMA,⁷⁸ which Congress passed to overrule the Supreme Court’s holding in *Secretary of the Interior v. California*.⁷⁹ However, to use federal consistency review to exert influence over federal license or permit decisions authorizing activities outside of a state’s coastal zone, a state must explicitly note an intention to do so in its approved coastal management program by (1) listing the

see also Edward M. Cheston, Comment, *An Overview and Analysis of the Consistency Requirement Under the Coastal Zone Management Act*, 10 U. BALT. J. ENVTL. L. 135, 137–40 (2003).

⁷³ Coastal Zone Management Act Federal Consistency Regulations, 71 Fed Reg. 788, 789 (Jan. 5, 2006).

⁷⁴ 16 U.S.C. §§ 1456(c)(1)(A), 1456(c)(3)(A).

⁷⁵ *Id.* § 1453(6a).

⁷⁶ *Id.* § 1453(1).

⁷⁷ *See id.* § 1456(c)(1)(A).

⁷⁸ *See id.* § 1456(c)(3)(A).

⁷⁹ 464 U.S. 312 (1984) (prohibiting consistency review of activity on the outer continental shelf); *see* Russell, *supra* note 16, at 247.

license or permit activity in its list of activities subject to consistency review, and (2) describing the geographic locations where the activity's effects on the state's coastal zone are reasonably foreseeable.⁸⁰ If a state's coastal management program lacks either of these elements, then federal consistency review may proceed only after a determination by NOAA that the proposed activities will have reasonably foreseeable effects on the state's coastal zone.⁸¹

States can use consistency review to constrain federal action only after NOAA has approved that state's coastal management program.⁸² Among the requirements of program approval particularly relevant to offshore wind energy development is the need for programs to provide "[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 impacts resulting from the facilities."⁸³ "Energy facilities" explicitly includes "electric generating plants" and "any equipment or facility used primarily in the . . . transportation of any energy resource,"⁸⁴ indicating that wind energy facility components meet this definition. Management programs also must provide for "adequate consideration of the national interest involved in planning for, and managing the coastal zone, including the siting of facilities such as energy facilities which are of greater than local significance."⁸⁵ NOAA regulations further require that the planning process for energy facilities must contain the following: "(a) Identification of energy facilities which are likely to locate in, or which may significantly affect, a State's coastal zone; (b) Procedures for assessing the suitability of sites for such facilities designed to evaluate, to the extent practicable, the costs and benefits of proposed and alternative sites in terms of State and national interests as well as local concerns; (c) Articulation and identification of enforceable State policies, authorities and

⁸⁰ 15 C.F.R. § 930.53(a) (2005); *see also* N.J. Dep't of Env'tl. Prot. & Energy v. Long Island Power Auth., 30 F.3d 403, 419–20 (3d Cir. 1994) (discussing listing requirement).

⁸¹ 15 C.F.R. § 930.53(a)(2), .54(b)–(c).

⁸² 16 U.S.C. §§ 1456(c)(1)(A), 1456(c)(3)(A).

⁸³ *Id.* § 1455(d)(2)(H).

⁸⁴ *Id.* § 1453(6).

⁸⁵ *Id.* § 1455(d)(8).

techniques for managing energy facilities and their impacts; and (d) Identification of how interested and affected public and private parties will be involved in the planning process.”⁸⁶ Notwithstanding this energy facility planning requirement, a relatively recent survey found that no coastal states have fully incorporated planning regimes for offshore wind energy facilities into their management programs.⁸⁷

Gaps or deficiencies in state coastal management programs can be addressed in the management program amendment process.⁸⁸ In this process, NOAA must approve amendments proposed by states if the changed management program meets the requirements of the CZMA.⁸⁹ As an example of an amendment related to offshore wind energy that already has been proposed, the Massachusetts Ocean Management Initiative would authorize the development of a binding ocean management plan regulating activities outside of the boundaries of the Commonwealth “in adjacent marine waters and, to the maximum extent consistent with federal law, . . . in adjacent federal waters that are functionally connected to or can reasonably be expected to affect the management of resources within the ocean planning area.”⁹⁰ As another example, legislation recently introduced in the New Jersey Senate would impose a seven-year moratorium on wind turbine construction in state coastal waters and would require submission of the moratorium to NOAA for approval as part of the state’s coastal management program.⁹¹

⁸⁶ 15 C.F.R. § 923.13 (2005).

⁸⁷ See Russell, *supra* note 21, at 260–61.

⁸⁸ 16 U.S.C. § 1455(e).

⁸⁹ See *id.*; 15 C.F.R. § 923.82.

⁹⁰ H.B. 2602, 184th Gen. Ct., Reg. Sess. § 2 (Mass. 2005). The state task force that helped to develop the Massachusetts Ocean Management Initiative reportedly declined to recommend that the Commonwealth exercise its authority to impose a moratorium on offshore wind energy development in adjacent federal waters. John Leaning, *Task Force Resisted Block to Wind Farm*, CAPE COD TIMES, Mar. 25, 2004, available at <http://www.capecodonline.com/special/windfarm/taskforce325.htm>.

⁹¹ S. 2174, 211th Leg., 2d Reg. Sess. §§ 2, 3(c) (N.J. 2005), available at http://www.njleg.state.nj.us/2004/Bills/S2500/2174_I1.PDF.

3. *Consistency Review of Federal License or Permit Activities*

Once a state has an approved coastal management program, federal consistency review plays out in the context of specific federal agency actions, including decisions on individual applications for federal licenses or permits. As part of federal license or permit applications, project sponsors need to certify that the project is consistent with the state's enforceable policies and furnish data, information, and a set of findings demonstrating that the certification is accurate.⁹² The CZMA requires that before the federal agency issues the license or permit, the state must affirm the applicant's certification that the proposed actions are consistent with the state's enforceable policies.⁹³ The substance of the state's review depends on the particular enforceable policies included in its management program.⁹⁴ In the event that a state objects to a sponsor's consistency certification, the state must describe why the proposed activity is inconsistent with its specific enforceable policies or, alternatively, why the information provided by the applicant is insufficient.⁹⁵ Commentators have noted that private sponsors face a nearly impossible task in demonstrating consistency with the enforceable policies of coastal management programs, because state enforceable policies, reflecting the conflicting policies of the CZMA to both preserve and develop coastal zones, often clash with one another.⁹⁶

The Department of Commerce adjudicates any dispute resulting from a state objection to a consistency certification. The Secretary of Commerce, either on his or her own initiative or following an appeal by the project sponsor, may overrule state findings of inconsistency if the Secretary finds that the proposed activity "is consistent with the objectives" of the CZMA, or "is

⁹² 16 U.S.C. § 1456 (c)(3)(A); 15 C.F.R. § 930.57-58; *see also* Coastal Zone Management Act Federal Consistency Regulations, 71 Fed Reg. 788, 827 (Jan. 5, 2006) (to be codified at 15 C.F.R. § 930.58) (showing regulatory changes that became effective on Feb. 6, 2006).

⁹³ 16 U.S.C. § 1456(c)(3)(A).

⁹⁴ *See* 15 C.F.R. § 930.63(b)-(c) (noting that state objections to consistency certifications are based on findings that the proposed activity is inconsistent with specific enforceable policies or, alternatively, that the applicant failed to provide sufficient information to determine consistency).

⁹⁵ *Id.* § 930.63(b)-(c).

⁹⁶ *See* Russell, *supra* note 21, at 243-45; *see also* 16 U.S.C. § 1452(1) (declaring a national policy of preserving, protecting, and developing the resources of the nation's coastal zone).

otherwise necessary in the interest of national security.”⁹⁷ NOAA regulations further clarify that an activity is consistent with the objectives or purposes of the CZMA when it satisfies each of the following requirements: (a) it “furthers the national interest as articulated in [16 U.S.C. § 1451 or § 1452], in a significant or substantial manner”; (b) “[t]he national interest furthered by the activity outweighs the activity’s adverse coastal effects, when those effects are considered separately or cumulatively”; and (c) “[t]here is no reasonable alternative available which would permit the activity to be conducted in a manner consistent with the enforceable policies of the management program.”⁹⁸ The Secretary’s review of state findings follows an adjudicatory process in which the sponsor and state agencies submit briefs and supporting materials.⁹⁹ Recent changes to the NOAA regulations appear to eliminate the opportunity for public comment and public hearings for reviews of “energy projects.”¹⁰⁰ However, the Secretary’s final decisions remain subject to judicial review under the Administrative Procedure Act.¹⁰¹

Under authority of the CZMA, Massachusetts plans to review all federal RHA permit actions for the Cape Wind project, including any permits for project components on the outer continental shelf.¹⁰² In addition to reviews of RHA permits, the leases, easements, and rights-of-way granted by the MMS pursuant to Section 388 of the EAct of 2005 appear subject to federal consistency reviews as “federal license or permit activities.” First, Section 388(a) of that act explicitly provides that it does nothing to displace, supersede, limit, or modify the jurisdiction, responsibility, or authority of any federal or state agency under any other federal law, presumably including the CZMA.¹⁰³

⁹⁷ 16 U.S.C. § 1456(c)(3)(A); 15 C.F.R. § 930.120-.122; *see also* Coastal Zone Management Act Federal Consistency Regulations, 71 Fed Reg. at 829 (showing regulatory changes that became effective on Feb. 6, 2006).

⁹⁸ 15 C.F.R. § 930.121; *see also* Coastal Zone Management Act Federal Consistency Regulations, 71 Fed Reg. at 829.

⁹⁹ Coastal Zone Management Act Federal Consistency Regulations, 71 Fed Reg. at 830–31.

¹⁰⁰ *Id.* at 831.

¹⁰¹ 15 C.F.R. § 930.130(c).

¹⁰² *See* Bob Durand, Sec’y of the Mass. Executive Office of Env’tl. Affairs, EOE 12643, Certificate of the Secretary of Environmental Affairs on the Environmental Notification Form 3–4, 10 (2002), *available at* <http://www.capewind.org/downloads/MEPA12643cert.pdf>.

¹⁰³ *See* Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 388,

Furthermore, NOAA regulations that became effective on Feb. 6, 2006 define “federal licenses or permits” as “any authorization that an applicant is required by law to obtain in order to conduct activities affecting any land or water use or natural resource of the coastal zone and that any Federal agency is empowered to issue to an applicant.”¹⁰⁴ Although this new definition does not explicitly mention “leases or other forms of permission” (as they were in the previous regulations),¹⁰⁵ NOAA’s explanation of the new regulations make clear that “any authorization” includes a lease issued by a Federal agency to a non-federal entity, “if the applicant is required to obtain a lease from the Federal agency for use of the federal property, the proposed activity will have coastal effects, and the State did not previously review the required federal authorization for the same activity.”¹⁰⁶

It is not clear how NOAA would rule in a consistency dispute concerning federal license or permit activities for an offshore wind energy facility. The Department of Commerce issued only one decision under the regulations promulgated in 2000, and NOAA just issued changes to the federal consistency regulations.¹⁰⁷ In the single decision made under the 2000 regulations, the Secretary found that the development of any “coastal dependent energy facility” would (pursuant to its regulations) further the national interest in a significant or substantial manner, with “coastal dependence” depending on whether locating the facility “in or near the coastal zone is required to achieve the primary goal of the project in question.”¹⁰⁸ This goals-based assessment of coastal dependence infuses discretion and therefore regulatory uncertainty

§ 1337(p)(9), 119 Stat. 594, 744–46 (2005) (to be codified at 43 U.S.C. § 1337(p)(9)).

¹⁰⁴ Coastal Zone Management Act Federal Consistency Regulations, 71 Fed. Reg. at 827.

¹⁰⁵ 15 C.F.R. § 930.51(a) (2005).

¹⁰⁶ Coastal Zone Management Act Federal Consistency Regulations, 71 Fed. Reg. at 795.

¹⁰⁷ See CZMA Consistency Appeals Website, <http://www.ogc.doc.gov/czma.htm> (last visited Jan. 6, 2006) (showing appeal decisions issued by the Secretary of Commerce); Coastal Zone Management Act Federal Consistency Regulations, 65 Fed. Reg. 77,124 (Dec. 8, 2000) (codified at 15 C.F.R. pt. 930) Coastal Zone Management Act Federal Consistency Regulations, 71 Fed. Reg. 788 (to be codified at 15 C.F.R. pt. 930).

¹⁰⁸ See *Islander East Pipeline Co., L.L.C. v. Connecticut* 5–6, 8–9 (Dep’t of Commerce May 5, 2004) (Dec. & Findings in Consistency Appeal), <http://www.publicaffairs.noaa.gov/pdf/islander-decision.pdf>.

into these administrative reviews. If the Secretary views the primary goal of a project broadly (e.g., power generation for wholesale), then that project may not qualify as a coastal dependent energy facility. On the other hand, if the Secretary takes a narrower view on the goal of a project (e.g., to harness offshore wind resources to generate power), then that project may qualify as a coastal dependent energy facility.

What is clear, however, is that federal consistency review provides states with opportunities to stop or at least delay the issuance of federal authorizations for offshore wind energy facilities like those required under the RHA and Section 388 of the EAct of 2005. By objecting to sponsor certifications that a project is consistent with a state's enforceable policies, states can force sponsors into a largely untested adjudicatory process within the Department of Commerce where the regulations appear to give the agency considerable discretion in decision-making. Furthermore, these agency decisions are subject to judicial review, which provides states with an additional chance to prevent or delay federal authorizations.

II. THEORETICAL JUSTIFICATIONS FOR THE DIVISION OF REGULATORY AUTHORITY

The considerable regulatory authority states currently have over proposed offshore wind energy facilities raises questions about the theoretical legitimacy of state authority and the appropriate limits for state regulatory regimes. To address these questions, this Part provides an analysis of major environmental impacts that may result from the development of offshore wind energy facilities. As described below, the environmental impacts of a particular facility generally would depend on a number of factors, including its location, physical components, and the consequences of its operation. On balance, there is a sound theoretical foundation for state environmental regulation of components proposed for submerged lands and near-shore portions of the outer continental shelf, because facility components have the potential to implicate state environmental conditions and interests, and the potential for interstate spillovers is relatively limited. However, the potential for specific interstate spillovers also provides a foundation for federal regulation that would preempt (1) overly permissive state regulation that ignores the effects on migratory wildlife species and geographically extensive

fisheries, and (2) overly restrictive state regulation that ignores the health and welfare effects that would result from displaced or avoided electricity generation at conventional facilities.

A. *Theoretical Premises*

To help identify a legitimate scope for state regulation, this Part provides a summary of some of the major environmental impacts that may result from offshore wind energy projects. This analysis proceeds from the premise that decentralized regulatory regimes defined and implemented by the states generally should be favored over federal regimes, because state regimes better account for variations in local preferences for collective goods like environmental quality.¹⁰⁹ However, for specific environmental impacts, the prominence of interstate (or “horizontal”) spillovers would justify a centralized regulatory regime defined and implemented by the federal government.¹¹⁰ The prominence of negative horizontal spillovers theoretically leads to more affirmative siting decisions by states than justified by efficiency criteria, because the residents of adjacent states, who would bear the brunt of negative effects of the facilities, have relatively

¹⁰⁹ See, e.g., Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L. J. 1196, 1210 (1977); Richard L. Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535, 536–37 (1997).

¹¹⁰ Stewart, *supra* note 109, at 1215–16; Revesz, *supra* note 109, at 537–38. Other potential approaches (not considered in this Note) include examining the potential for stopping “races to the bottom” among states competing for industry, or using public choice theory to identify reasons for systematic underrepresentation of environmental interests at the state level. E.g., *id.* at 538–40, 542–43. In general, the prevalence of interstate spillovers or “externalities” arguably provides the strongest theoretical justification for federal regulatory regimes, and this Note accordingly focuses on evaluating the potential for offshore wind energy facilities to generate interstate spillovers. See generally *id.* (finding that the interstate externality justification provides “compelling” support for at least some federal environmental regulation and questioning the legitimacy of other justifications). However, this Note does not consider in detail impacts to “existence values” (individual preferences for the continued existence of a resource independent of any loss of use of the resource), which could be considered within a more comprehensive examination of the justifications for federal regulation based on interstate externalities. See *id.* at 543 (noting that “existence, or non-use, values provide a powerful justification for federal control over exceptional natural resources such as national parks”); David A. Dana, *Existence Value and Federal Preservation Regulation*, 28 HARV. ENVTL. L. REV. 343, 348 (2004) (defining existence values).

limited influence on state-level decision-making processes. Alternatively, the prominence of positive horizontal spillovers theoretically leads to too few affirmative state siting decisions, because the positive effects of such decisions would accrue to adjacent states and not the in-state areas of primary concern to state regulators. As a general matter, state regulation of a particular impact is justified when that impact primarily affects the physical environment within a single state or (stated differently) when horizontal spillovers do not predominate. Alternatively, the prominence of horizontal spillovers provides a theoretical justification for federal regulation of a particular environmental impact. Negative spillovers would call for federal preemption of overly permissive state siting decisions, whereas positive spillovers would call for federal preemption of overly restrictive state siting decisions.

Offshore wind energy facilities may include components proposed for the outer continental shelf, an area in which the federal government has “paramount rights” over natural resources.¹¹¹ For instance, the tall, highly-visible turbines of the Cape Wind project and the Long Island Offshore Wind Park are proposed for near-shore portions of the outer continental shelf in Nantucket Sound and off of Jones Beach Island, respectively.¹¹² A state role in the environmental regulation of such components located on the outer continental shelf is justified only if facilities bring “vertical spillovers,” defined as significant effects on environmental conditions within a state’s borders or other significant effects on the use or existence values of coastal residents.¹¹³ This premise is used in an attempt to guard against

¹¹¹ See *supra* note 26 and accompanying text.

¹¹² U.S. Army Corps of Eng’rs, New England Dist., Public Notice NAE-2004-338-1, 6–7 (Nov. 9, 2004), available at <http://www.nae.usace.army.mil/reg/capewind.pdf>; U.S. Army Corps of Eng’rs, *supra* note 20, at 5–8.

¹¹³ See generally Sally K. Fairfax et al., *The Federal Forests Are Not What They Seem: Formal and Informal Claims to Federal Lands*, 25 *ECOLOGY L.O.* 630, 639–40 (1999) (noting that “activities on federal lands frequently have significant negative impacts on surrounding private lands and communities”). This premise is intended to identify a necessary condition for granting states a formal role in the environmental regulation of outer continental shelf activities through CZMA consistency reviews, not to identify sufficient conditions for state oversight or to otherwise address arguments questioning the legitimacy of consistency reviews in other contexts. See, e.g., Patrick J. Gibbons, *Too Much of a Good Thing? Federal Supremacy & the Devolution of Regulatory Power: The Case of the Coastal Zone Management Act*, 48 *NAVAL L. REV.* 84, 86 (2001)

providing states that would host portions of proposed facilities with disproportionate authority in cases in which the facility would not substantially implicate state environmental interests.

B. *Scenery, Aesthetics, and the Pristine Ocean*

Negative scenic and aesthetic impacts have been identified as a principal concern of wind farm opponents across Europe and North America, and an offshore project may compromise use or existence values associated with the undeveloped ocean in its immediate vicinity.¹¹⁴ Because turbines might be visible from shore, projects also may compromise use values associated with an unobstructed horizon and in turn may influence the value of real property with ocean views. With respect to the Cape Wind proposal, many opponents believe that the project would intrude upon a pristine ocean environment to which they have a strong emotional attachment, and concerns about scenic and aesthetic impacts comprise one component of this position.¹¹⁵ Furthermore, local property owners on average believe that development of the Cape Wind project would result in a 10.9 percent reduction in the value of coastal parcels from which the facility would be visible.¹¹⁶

Scenic or aesthetic objections generally present little potential for horizontal spillovers but great potential for vertical spillovers, at least when turbines are located on near-shore areas of the outer continental shelf. Effects on the use values of the undeveloped ocean are limited in their geographic reach to areas in the immediate vicinity of the turbines and have little potential to affect multiple states. Horizontal spillovers associated with scenic impacts would occur only in situations where turbines would be visible from the shore of multiple states. Neither the Cape Wind nor Long Island Offshore Wind Park proposals would be visible from multiple states, and in general one would expect such impacts only for facilities proposed near state borders or in relatively

(arguing that that the CZMA gives states excessive power to frustrate national security interests).

¹¹⁴ See Martin J. Pasqualetti et al., *A Landscape of Power*, in WIND POWER IN VIEW: ENERGY LANDSCAPES IN A CROWDED WORLD 3, 3–4 (Martin J. Pasqualetti et al. eds., 2002); Paul Gipe, *Design As If People Matter: Aesthetic Guidelines for a Wind Energy Future*, in WIND POWER IN VIEW, *supra*, at 173, 176–80; see also Avi Brisman, *The Aesthetics of Wind Energy Systems*, 13 N.Y.U. ENVTL. L.J. 1, 76–77 (2005).

¹¹⁵ Kempton et al., *supra* note 6, at 130–32, 136–38.

¹¹⁶ *Id.* at 127.

narrow water bodies under the control of multiple states like Delaware Bay or Long Island Sound. With respect to vertical spillovers, coastal residents may use or otherwise value undeveloped ocean environments immediately past the seaward boundary of state submerged lands, and turbines may be visible from shore. Vertical spillovers may be particularly acute in locations surrounded on multiple sides by shoreline, such as Nantucket Sound, the location of the Cape Wind proposal.

C. *Wildlife and Habitat*

Wildlife and habitat impacts are another concern associated with wind farm proposals. Several onshore projects have been hampered by major wildlife or habitat controversies, including the Altamont Pass Wind Resource Area in California,¹¹⁷ the Mountaineer Wind Energy Center in West Virginia,¹¹⁸ and the Elk River wind farm proposal in Kansas.¹¹⁹ National, state, and local environmental organizations have brought litigation against project sponsors and owners in response to concerns about wildlife and habitat impacts.¹²⁰ Wildlife and habitat impacts also have led to seasonal shutdowns of wind energy facilities during bird migration periods.¹²¹ In the offshore setting, potential wildlife and habitat impacts include bird and bat collisions; underwater habitat disruptions associated with physical disturbance, noise and electromagnetic fields; and possible establishment of reef communities on the submerged vertical surfaces of marine foundations. Such impacts are poorly understood, given the novel nature of offshore wind technology and gaps in relevant

¹¹⁷ See Brisman, *supra* note 114, at 70 (discussing avian mortality at Altamont Pass).

¹¹⁸ See Justin Blum, *Researchers Alarmed by Bat Deaths from Wind Turbines*, WASH. POST, Jan. 1, 2005, at A1 (discussing bat mortality at the Mountaineer Wind Energy Center).

¹¹⁹ See Karen Dillon, *Turbines Placed in Flint Hills: Wind Farm Fuels Debate*, KAN. CITY STAR, July 25, 2005, at B1 (discussing concerns about Elk River wind farm impacts on tallgrass prairie habitat).

¹²⁰ See, e.g., *Ctr. for Biological Diversity v. FPL Group*, No. RG04183113 (Cal. Super. Ct. filed Nov. 1, 2004), available at <http://www.biologicaldiversity.org/swcbd/Programs/bdes/altamont/complaint9.pdf>; *Flint Hills Tallgrass Prairie Heritage Found. v. Scottish Power*, No. 05-1025-JTM, 2005 WL 427503 (D. Kan. Feb. 22, 2005), *aff'd*, 2005 WL 2146124 (10th Cir. Sept. 7, 2005) (granting defendant's motion to dismiss).

¹²¹ Jim Herron Zamora, *Alameda County Wind Farms to Spare the Birds*, S.F. CHRON., Sept. 23, 2005, at B1.

scientific knowledge about ocean environments.¹²² A coalition of environmental organizations has aggressively raised concerns about impacts to birds, sea turtles, marine mammals, and indigenous fish species that may result from the Cape Wind project.¹²³

Offshore wind farms would influence wildlife populations or habitats primarily in the immediate vicinity of the facility, with the potential for horizontal spillovers limited (1) to proposals located near state borders or in certain interstate water bodies and (2) to effects on highly migratory wildlife populations that inhabit areas within different states during different times of the year. Vertical spillovers would occur when facilities on the outer continental shelf impact wildlife populations that inhabit near-shore areas under state control or when coastal residents attach use or existence values to wildlife populations or habitats affected by the facility.

D. Commercial Fisheries

Commercial fisheries are common-pool resources with government regulation justified to avoid overexploitation, and increasingly regulation has been extended to influence impacts on fisheries that result from activities other than direct capture.¹²⁴ In addition to general wildlife, habitat, and use value impacts described above, the development of an offshore wind farm could impact commercial fishing by limiting the waters open for fishing or by influencing commercial fish stocks. Depending on the spacing between turbines, it may or may not be possible for commercial boats employing particular types of fishing tackle to operate within the boundaries of the facility. Submarine cables also may prevent continued trawling operations in both the vicinity of the turbines and in areas around cables connecting the project to

¹²² See generally U.S. COMM'N ON OCEAN POLICY, *supra* note 12, at 375 (noting that ocean environments are poorly understood relative to other environments and highlighting the need for scientific information relevant to making management or regulatory decisions).

¹²³ See Elizabeth A. Ransom, *Wind Power Development on the United States Outer Continental Shelf: Balancing Efficient Development and Environmental Risks in the Shadow of the OCSLA*, 31 B.C. ENVTL. AFF. L. REV. 465, 470–72 (2004).

¹²⁴ See, e.g., Eldon V.C. Greenberg, *Essential Fish Habitat: A New Regulatory Hurdle for Development*, 29 ENVTL. L. REP. 10463 (1999).

the grid.¹²⁵ Fish stocks may be affected by disruptions of bottom habitat during construction and habitat creation on the marine foundations of the turbines.¹²⁶ The invertebrate reef communities that develop on marine foundations may serve as habitat for particular fish species, which may benefit fishing industries if these species are exploited for commercial purposes but could hurt commercial fisheries if the artificial reefs support non-commercial competitors.¹²⁷

Commercial fishery impacts have the potential for horizontal spillovers primarily when facilities are located near state borders or in interstate water bodies or when effects influence wide-ranging or highly migratory species. Impacts resulting from facility components on the outer continental shelf may represent vertical spillovers of significance to coastal states, because commercial fisheries can represent an important part of local economies. The extent to which fisheries impacts represent vertical spillovers would depend on whether facility components have the potential to influence commercial fishing activity or particular fisheries exploited by coastal residents.

E. Recreation

An offshore wind farm may have effects on recreational resources that result from the closure of areas to water-based recreational activities, such as boating, recreational fishing, or scuba diving. Wind farms also may cause effects on recreational fish stocks and therefore impact recreational fishing opportunities, and they may compromise unobstructed views of the horizon. These effects would result in horizontal spillovers primarily when facilities are located in certain interstate water bodies or affect wide-ranging or highly migratory species of recreational significance. Many impacts resulting from facility components on the outer continental shelf may represent vertical spillovers of significance to coastal states, particularly because recreation can represent an important component of local economies, including

¹²⁵ See Kirk Moore, *N.J. Harvesters Oppose Wind Farm Development*, NAT'L FISHERMAN, July 2005, at 17.

¹²⁶ See Ransom, *supra* note 123, at 472 (noting that opponents of the Cape Wind project argue that the artificial reefs created by the project would be "inhospitable to indigenous species, including commercially valuable squid, flounder, scup, mackerel, black sea bass, and bluefish").

¹²⁷ Cf. *id.*

the tourism industry. The extent to which recreational impacts represent vertical spillovers would depend on the extent to which components on the outer continental shelf have the potential actually to affect recreational resources valued by coastal residents and visitors.

F. *Displaced Competitors, Pollution, and Mortality*

Any conventional method of generating electricity results in a range of health and welfare effects associated with the operation of the facility and the fuel cycle (the extraction, processing, and transport of fuels).¹²⁸ Because wind energy has only limited fuel-related impacts (including no direct air emissions), some of the principal environmental benefits associated with the development of a wind energy facility would result from reduced generation at competing conventional facilities. The identity of the displaced competitors would depend on the geographic scope of a facility's wholesale electricity market, the terms of the power purchase agreement for the facility and competing generators, and overall electricity demand. Reduced generation by competitors would occur only if the facility undercuts competing facilities and if purchasers can meet demand without buying power from competing facilities. The actual health and welfare benefits resulting from reduced generation would depend on the technology and practices of displaced competitors and the movement of pollution following its release. Proponents of the Cape Wind project have contended that the development of the project would avoid approximately 15 premature deaths, 5,000 asthma attacks, and 45,000 restricted activity and respiratory symptom-days annually.¹²⁹ For facilities with components located on the outer continental shelf, reduced generation at onshore conventional facilities could influence air quality and thus the health and welfare of state residents. Therefore, such facilities could generate positive vertical spillovers that would justify state regulation of

¹²⁸ See generally, RICHARD L. OTTINGER ET AL., PACE UNIV. CTR. FOR ENVTL. LEGAL STUDIES, ENVIRONMENTAL COSTS OF ELECTRICITY (1990); OIL: A LIFE CYCLE ANALYSIS OF ITS HEALTH AND ENVIRONMENTAL IMPACTS (Paul R. Epstein & Jesse Selber eds., 2002), available at <http://www.med.harvard.edu/chge/fullreport.pdf>.

¹²⁹ Charles W. Kleekamp, Clean Power Now, Benefits to Health, <http://www.cleanpowernow.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=7> (last visited Jan. 7, 2006).

facility siting.

To consider the potential for horizontal spillovers, it must be recognized that wholesale electricity markets in the United States are regional markets, with some regions relying on “organized” markets with centralized independent power exchanges and other regions dependent on bilateral markets where generators and wholesale consumers independently negotiate power transactions.¹³⁰ The northeastern United States (where most offshore wind energy projects have been proposed to date) has organized markets managed by three independent entities responsible for different geographic areas: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut encompass a common wholesale market managed by ISO New England; New York State has its own wholesale market operated by ISO New York; and all of New Jersey, Delaware, Maryland, the District of Columbia, most of Pennsylvania and West Virginia, and portions of Virginia, Ohio, Indiana, Michigan, Illinois, Kentucky, and Tennessee encompass a common wholesale market managed by PJM Interconnection.¹³¹ Electricity trading occurs principally between generators and consumers within individual organized markets, although some trading occurs across markets, including with markets in Canada.¹³² Even within organized markets, transmission constraints can limit trading and thus require local generation of electricity supplies. The Boston area, southwestern Connecticut, and the New York City Metropolitan Area (including Long Island and northern New Jersey) represent major load pockets in the northeastern U.S. with restricted power import opportunities.¹³³

The geographic scope of an offshore wind energy facility’s actual wholesale electricity market would depend on the location of its grid connection, the scope of organized electricity markets and transmission constraints, and particular factual circumstances present differing potentials for horizontal spillovers. In general,

¹³⁰ See OFFICE OF MKT. OVERSIGHT & INVESTIGATIONS, FED. ENERGY REGULATORY COMM’N, 2004 STATE OF THE MARKETS REPORT 51 (2005), available at <http://www.ferc.gov/EventCalendar/Files/20050615093455-06-15-05-som2004.pdf>.

¹³¹ *Id.* at 50.

¹³² See *id.* at 87, 95, 111 (describing power imports and exports in different markets).

¹³³ See *id.* at 83, 91 (describing load pockets and areas of concentrated demand in different markets).

however, displaced competitors may be located in another state far from an offshore wind farm's grid connection even if transmission constraints exist, suggesting the potential for many projects to result in positive horizontal spillovers. For example, the Cape Wind proposal would connect to the grid in a transmission-constrained area within the ISO New England market currently serviced by two coal plants and an oil-fired plant in southeastern Massachusetts and Rhode Island.¹³⁴ The Long Island Offshore Wind Park appears to have less potential for horizontal spillovers, because the facility primarily would compete with other generators on transmission-constrained Long Island that operate in an organized market completely contained within New York State. However, the occurrence of power sales from adjacent organized markets onto Long Island confirms the potential for positive horizontal spillovers even in this instance.¹³⁵

Air and water pollution movement patterns also may lead to positive horizontal spillovers, even if all displaced generators are located entirely within a single state. For example, offshore wind energy development in the Great Lakes could result in considerable positive horizontal spillovers, given the negative interstate air quality effects of conventional coal-fired power plants located in midwestern states that border the Great Lakes.¹³⁶ Alternatively, pollution movement patterns may partially offset horizontal spillovers that would result from reduced generation at out-of-state facilities.

G. *Alternative Facilities*

In addition to impacts stemming from actual reduced generation by competitors at existing facilities, an offshore wind energy facility also may result in health and welfare benefits associated with the cancellation or alteration of competing proposals to meet projected electricity demand. Estimates of these

¹³⁴ See Dorothy W. Bisbee, *NEPA Review of Offshore Wind Farms: Ensuring Emission Reduction Benefits Outweigh Visual Impacts*, 31 B.C. ENVTL. AFF. L. REV. 349, 363 (2004).

¹³⁵ See OFFICE OF MKT. OVERSIGHT & INVESTIGATIONS, FED. ENERGY REGULATORY COMM'N, *supra* note 130, at 87, 97 (mentioning power imports from Connecticut to Long Island via the Cross Sound Cable).

¹³⁶ See Jason S. Grumet, *Old West Justice: Federalism and Clean Air Regulation 1970–1998*, 11 TUL. ENVTL. L.J. 375, 377–79 (1998) (describing role of NOx emissions from coal power plants in Illinois, Indiana, Pennsylvania, and Ohio in formation of ozone in northeastern states).

impacts would rely on counterfactual assumptions about the construction, operation, and environmental impacts of competing facilities, but substantial health and welfare benefits are possible given the 30 to 40-year projected life of fossil fuel-fired power plants and the comparable federal licensing periods for nuclear or hydroelectric facilities.¹³⁷ Like actual displaced generators, health and welfare benefits represent potential positive vertical spillovers, and the prominence of horizontal spillovers would depend on the location of potential alternative generators and the projected movement of pollution following its release.

III. CLIMATE CHANGE—A JUSTIFICATION FOR FEDERAL REGULATION?

As an environmental concern, the international scope of climate change presents distinctive questions about the appropriate division of authority between the state and federal government over the siting of offshore wind energy facilities. In particular, several theoretical justifications exist for federal greenhouse gas emissions reduction strategies, and these strategies could include federal regulation of offshore wind energy siting that would preempt more restrictive state regulation. However, state and federal governments have not taken actions on climate change consistent with predictions that provide the basis for the theoretical justifications for federal regulation. In contrast, many states (including those that likely would host offshore wind energy facilities) have taken the lead on climate change mitigation measures, while the federal government has taken a more cautious approach. In particular, some states poised to host offshore wind energy facilities have shown an ability to consider the emissions reductions that potentially would result from offshore wind energy development.

¹³⁷ See Shi-Ling Hsu, *Reducing Emissions from the Electricity Generation Industry: Can We Finally Do It?*, 14 TUL. ENVTL. L.J. 427, 435 (2001) (noting that “[p]ower plants have typically been built to last thirty to forty years”); 16 U.S.C. § 808(e) (2000) (authorizing licenses with terms from thirty to fifty years for hydroelectric facilities); 42 U.S.C. § 2133(c) (2000) (authorizing licenses with terms of up to forty years for nuclear facilities).

A. *Theoretical Arguments for Federal Regulation*

Since the signing of the United Nations Framework Convention on Climate Change (“UNFCCC”) in 1992, the international community has committed itself to “prevent dangerous anthropogenic interference with the climate system” resulting from emissions of greenhouse gases into the atmosphere.¹³⁸ The Kyoto Protocol entered into force on February 16, 2005, starting the latest chapter in international climate change mitigation efforts, with most industrialized countries (with the notable exception of the United States) committing to binding net emissions reduction targets during the first commitment period of 2008–2012.¹³⁹ Major challenges loom ahead, including—given the sheer scale of the efforts required to stabilize atmospheric concentrations at safe levels—the need to adopt comprehensive, large-scale mitigation strategies quickly.¹⁴⁰ The decarbonization of electricity generation, including the large-scale adoption of renewable technologies like offshore wind energy, represents one central climate change mitigation strategy.¹⁴¹

Greenhouse gas emissions reductions thus represent one of the principle environmental benefits associated with the development of an offshore wind energy facility. As with conventional air pollutants, actual greenhouse gas emissions reductions that would result from the development of a facility would depend on the identity of the displaced existing or alternative competitors, which in turn would depend on the geographic scope of a facility’s wholesale electricity market, the terms of the power purchase agreement for the facility and competing generators, and overall electricity demand.¹⁴² As an example, a study conducted as part of the environmental review

¹³⁸ United Nations Framework Convention on Climate Change art. 2, May 9, 1992, S. TREATY DOC. NO. 102-38, 1771 U.N.T.S. 107 (entered into force Mar. 21, 1994), available at <http://unfccc.int/resource/docs/convkp/conveng.pdf>.

¹³⁹ Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3, par. 1, Dec. 11, 1997, U.N. Doc. FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (entered into force Feb. 16, 2005), available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>; Mark Landler, *Mixed Feelings as Treaty on Greenhouse Gases Takes Effect*, N.Y. TIMES, Feb. 16, 2005, at C1.

¹⁴⁰ See Pacala & Socolow, *supra* note 1, at 968 (describing the scale of mitigation measures that must be implemented over the next fifty years to stabilize atmospheric CO₂ concentrations at 550 ± 50 ppm).

¹⁴¹ *Id.* at 969–71.

¹⁴² See discussion *supra* Part II.F–G.

process for Cape Wind notes that, had the facility been in operation during 2000, regional carbon dioxide emissions would have been reduced by 949,000 tons.¹⁴³ Beyond actual emissions reductions, the development of individual facilities would build expertise in the energy industry, which potentially would reduce the costs associated with the development of additional facilities that in turn could generate future emissions reductions.¹⁴⁴

The potential environmental benefits associated with climate change mitigation raise somewhat distinct questions about the theoretical justifications for state environmental regulation of offshore wind energy facilities. First, because greenhouse gases disperse evenly in the atmosphere and climate change stands to affect local environments in locations across the country, climate change clearly is an environmental concern of national dimensions. Emissions reductions resulting from the development of a facility have the potential to generate positive horizontal spillovers, and thus a state-based siting regime could lead to the construction of fewer facilities than justified by efficiency criteria.¹⁴⁵ This could justify national regulations with a preemptive effect over restrictive state siting standards.

Second, the sheer scale of the mitigation effort required to stabilize ambient greenhouse gas concentrations requires the implementation of multiple mitigation measures at a large scale. This sets up a classic prisoner's dilemma among the states, and the resulting coordination problem provides a theoretical justification for national regulation. One offshore wind energy facility (even if it completely displaced electricity generated by an inefficient conventional coal-fired power plant) would result in emissions reductions dwarfed by total regional emissions and the scale of reductions required to stabilize ambient concentrations.¹⁴⁶ As a result, an effective climate change strategy likely would require the

¹⁴³ U.S. ARMY CORPS OF ENG'RS, NEW ENGLAND DIST., *supra* note 44, § 5.15.2.

¹⁴⁴ See OFFSHORE WIND COLLABORATIVE ORGANIZING GROUP, A FRAMEWORK FOR OFFSHORE WIND ENERGY DEVELOPMENT IN THE UNITED STATES 11 (2005), available at http://www.mtpc.org/offshore/final_09_20.pdf.

¹⁴⁵ See RABE, *supra* note 1, at 16 (noting one historic strand of the conventional wisdom, suggesting that states will not act on climate change mitigation in the absence of federal mandates).

¹⁴⁶ See Kempton et al., *supra* note 6, at 144–45 (noting that the replacement of half of the northeastern coastal states' generation capacity would require just under 300 projects the size of the Cape Wind project).

development of multiple facilities under the regulation of multiple states and, without assurances that other states will follow suit, a state may rationally conclude that climate change mitigation benefits do not justify the acceptance of scenic or aesthetic impacts or other environmental costs. Furthermore, coordination problems are intensified by the fact that offshore wind energy is only one of many potential climate change mitigation measures, and an effective climate change strategy undoubtedly will require other measures in other sectors and in other states lacking offshore wind resources.¹⁴⁷ General inattention or hostility by other states to climate change mitigation could offset any reductions resulting even from the large-scale development of offshore wind energy facilities, further intensifying coordination problems.¹⁴⁸ The need to coordinate activities among states, and to prevent states from making collectively irrational regulatory decisions, provides a theoretical justification for federal regulation addressing climate change mitigation measures that would have a preemptive effect over more restrictive state siting criteria.¹⁴⁹

Third, climate change is a problem of international dimensions; emissions from all sources contribute to climate change, and climate change stands to affect local environmental conditions across the globe. In the U.S. federal system, the national government, through the Senate's power to ratify treaties and the President's inherent powers over foreign affairs, has the power to negotiate and enter into agreements with co-equal sovereign governments to address issues of international dimensions.¹⁵⁰ Given the national government's role in international affairs, federal regulation of climate change mitigation measures may be theoretically justified by the potential for state actions to affect the ability of the national government

¹⁴⁷ See Pacala & Socolow, *supra* note 1, at 970 tbl.1 (listing fifteen strategies available to reduce carbon emissions).

¹⁴⁸ See RABE, *supra* note 1, at 40–49 (describing states hostile or inattentive to climate change mitigation).

¹⁴⁹ See generally Revesz, *supra* note 109, at 539 (noting that “game-theoretic interactions among the states would lead to overregulation absent federal intervention”).

¹⁵⁰ See generally U.S. CONST. art. II, § 2 (granting the President the “Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur”); *United States v. Curtiss-Wright Exp. Corp.*, 299 U.S. 304 (1936) (noting that the President possesses inherent power in the area of foreign policy).

to meet treaty obligations or secure commitments from other countries favorable to the nation as a whole.¹⁵¹ Depending on the relative positions on climate change taken by the state and national governments, preemptive effects prohibiting more restrictive or more permissive state regulation may be justified.

B. *Conflicting Facts*

The theoretical justifications for federal preemption of state siting criteria based on the need to reduce greenhouse gas emissions do not conform to the current posture of state and federal climate change policies. If anything, coastal states that would host offshore wind energy facilities have been more aggressive than the federal government in adopting a range of climate change mitigation measures, including (in the case of New York) the aggressive support of the development of an Long Island Offshore Wind Farm. Furthermore, state actions to date also have not impeded the federal government's ability to pursue its preferred climate change policies in international settings. On the contrary, administration officials have expressed public support for aggressive state climate change initiatives.¹⁵²

Although a federal permitting regime establishing maximum environmental standards for offshore wind energy facilities could comprise one element of a federal strategy to reduce greenhouse gas emissions, the current policy consensus at the federal level does not appear to support such an aggressive approach to climate change mitigation. Both the Bush Administration and the congressional leadership thus far have declined to pursue climate change mitigation aggressively, at least in part because of the perceived economic costs.¹⁵³ Instead, the federal government has provided economic incentives to encourage energy efficiency and

¹⁵¹ See generally *Am. Ins. Ass'n v. Garamendi*, 539 U.S. 396, 413 (2003) (invalidating a state law as impermissibly interfering with Executive's conduct of foreign affairs under a theory of implicit foreign affairs preemption).

¹⁵² See, e.g., Anthony DePalma, *9 States in Plan to Cut Emissions by Power Plants*, N.Y. TIMES, Aug. 24, 2005, at A1 (quoting a statement from James L. Connaughton, chairman of the White House Council of Environmental Quality, supporting the Regional Greenhouse Gas Initiative in development by northeastern states).

¹⁵³ See Jennifer 8. Lee & Andrew C. Revkin, *Senate Defeats Climate Bill, but Proponents See Silver Lining*, N.Y. TIMES, Oct. 31, 2003, at A14; RABE, *supra* note 1, at 14 (discussing the Bush Administration's decision to disengage from international negotiations on the Kyoto Protocol).

renewable energy, and has introduced the goal of reducing the national economy's "carbon intensity."¹⁵⁴

In contrast to the federal policy consensus, states such as New York and New Jersey have been aggressive in adopting climate change mitigation strategies despite theoretical disincentives resulting from positive interstate spillovers and coordination problems.¹⁵⁵ Similar to federal incentives, some state policies like renewable portfolio standards broadly favor the development of renewable energy facilities without specific mandated emissions reductions.¹⁵⁶ However, other initiatives like the Regional Greenhouse Gas Initiative ("RGGI") mandate greenhouse gas emissions reductions in seven northeastern states through a binding emissions trading regime.¹⁵⁷ Some commentators have attributed these state efforts in part to broader motivations to encourage more aggressive federal climate change policies while promoting local economic development opportunities provided by climate change mitigation.¹⁵⁸

In developing particular policies on offshore wind energy, states have not acted in ways that indicate that they are failing to consider the national and international environmental benefits of greenhouse gas emissions reductions. For instance, the Massachusetts Ocean Management Initiative would permit the development of renewable energy facilities in state and adjacent waters, and New York (through LIPA) is a central player in the Long Island Offshore Wind Farm.¹⁵⁹ LIPA did initial technical and public outreach work to identify a suitable location for the facility, it solicited proposals from developers, and it plans to provide FPL Energy with a long-term power purchase agreement.¹⁶⁰ New Jersey's approach, which has included a temporary moratorium on development, raises concerns about the

¹⁵⁴ See RABE, *supra* note 1, at 14 (discussing the Bush Administration's proposals to reduce carbon intensity); Energy Policy Act of 2005, Pub. L. No. 109-58, §§ 1301, 1331-1337, 119 Stat. 594, 986-90, 1020-51 (2005) (recently-passed tax incentives to encourage energy efficiency and renewable energy).

¹⁵⁵ RABE, *supra* note 1, at 74-75 (describing so-called "prime-time states" in climate change policy).

¹⁵⁶ *Id.* at 52-53 (discussing state renewable portfolio standards).

¹⁵⁷ See DePalma, *supra* note 152.

¹⁵⁸ See RABE, *supra* note 1, at 38-40.

¹⁵⁹ See *supra* notes 19-20, 75 and accompanying text.

¹⁶⁰ Long Island Power Auth., *supra* note 19.

state's commitment to climate change mitigation.¹⁶¹ However, the Interim Report recently issued by the state's "Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters" clearly recognized the potential climate-related benefits of offshore wind energy development.¹⁶² The Panel has not yet issued its final recommendations, and the state's political branches have not yet had an opportunity to act in response to those recommendations.

IV. RECOMMENDATIONS FOR REGULATION OF OFFSHORE WIND ENERGY PROJECTS

Careful attention to the division of siting authority between the state and federal governments would help to insure that offshore wind energy development proceeds in a manner that delivers the technology's promised environmental benefits while avoiding its potential environmental costs as much as possible. Because offshore wind energy facilities primarily would affect the environment or implicate the environmental preferences of single coastal states, a substantial state role is justified. However, specific interstate spillovers, possible environmental effects that do not implicate state environmental conditions or concerns, and the distinctive problems raised by climate change identify areas of regulatory authority with theoretical justifications for federal oversight. To both encourage state-specific regulation while protecting out-of-state interests, the federal government should focus its environmental siting policies on potential interstate spillovers. Important elements of the federal regulatory regime—including Section 388 of the EPA Act of 2005, the RHA, and the CZMA—appear to permit the adoption of such a policy under current law. Although state action to date on offshore wind energy has been equivocal, federal legislation with preemptive effects over state regulation ultimately may be necessary to insure adequate consideration of the positive environmental benefits that potentially result from offshore wind energy facilities.

¹⁶¹ See *supra* note 18 and accompanying text.

¹⁶² See STATE OF NEW JERSEY, BLUE RIBBON PANEL ON DEVELOPMENT WIND TURBINE FACILITIES IN COASTAL WATERS, INTERIM REPORT 2 (Nov. 2005), available at <http://www.njwindpanel.org/docs/interimreport.pdf> (noting that global climate change is among the most critical energy-related challenges facing New Jersey); *id.* at 7 (noting that wind power generation would help to reduce the energy sector's future contribution to climate change).

A. *The Importance and Legitimacy of State Policy Initiatives*

Through the control over submerged lands and federal consistency review, states will play a central role in deciding how offshore wind energy ultimately fits into the domestic power sector.¹⁶³ Formal state influence derives principally from federal law, and with sufficient political support, the federal government theoretically could eliminate or substantially curtail state authority under both the SLA and the CZMA. Even assuming a general preference for state as opposed to federal regulation, however, such federal action could be justified by the prominence of potential interstate spillovers or (for activities proposed on the outer continental shelf) by the limited potential for vertical spillovers implicating state environmental conditions or interests.¹⁶⁴ Based on a general examination of impacts expected to result from the construction and operation of offshore wind energy facilities, neither justification for increased federal involvement appears to predominate over in-state environmental impacts. Although offshore wind energy facilities have the potential to generate some interstate spillovers, near-shore facilities almost certainly will implicate in-state environmental conditions or interests, including those related to coastal scenery and aesthetics, wildlife, marine habitat, commercial fisheries, recreational resources, and air quality.¹⁶⁵ Therefore, the prominent role in facility siting available to states under current law is justified and in general should be retained.

The central consequence of this policy recommendation is that siting policies would vary geographically to reflect particular environmental priorities and preferences of individual states. States would have the space to fashion policies on offshore wind energy similar to those under development in states like Massachusetts and New Jersey. These policies would develop under state-specific legislative and administrative processes, with participation by various actors including elected officials, state agencies, industry interests, and environmental organizations with a range of missions and constituencies. States would implement the policies developed in these processes in their existing regulatory regimes for submerged lands and their NOAA-approved

¹⁶³ See discussion *supra* Part I.

¹⁶⁴ See discussion *supra* Part II.A.

¹⁶⁵ See discussion *supra* Parts II.B–G.

coastal zone management programs.

B. *Federal Policy Recommendations Under Existing Law*

Despite theoretical justification for a prominent state role in facility siting, offshore wind energy facilities also have the potential to generate interstate spillovers that provide a theoretical foundation for federal regulation. Areas in which federal regulation is justified include impacts on migratory wildlife species, wide-ranging fisheries, air pollution, and greenhouse gas emissions.¹⁶⁶ Furthermore, the federal regulation is justified for environmental impacts of facility components that do not implicate state environmental conditions or interests, including turbines proposed for locations far from shore.¹⁶⁷ Federal agencies should seek to implement coordinated policies that guard against horizontal spillovers while respecting state prerogatives. This policy would have federal agencies focus attention on environmental impacts with the potential for horizontal spillovers during federal decision-making processes. In addition to placing federal regulation on a sound theoretical foundation, adoption of this policy would encourage states to take a more active role in developing policies on offshore wind energy by providing them with increased authority over many environmental impacts. The imminent rulemaking process under Section 388 of the EAct of 2005 presents an opportunity to further develop these federal policies. However, a coordinated federal policy with practical consequences on siting decisions also will require changes to preexisting federal regimes implemented by the Corps and NOAA.

In promulgating regulations governing the issuance of leases, easements, and rights-of-way on the outer continental shelf, an as yet unanswered question is how (or even whether) MMS will use siting standards to ensure that the development and operation of offshore wind energy facilities is “carried out in a manner that provides for” Section 388’s stated goals of environmental protection and natural resource conservation.¹⁶⁸ In its initial notice, MMS indicated that it will employ “environmental

¹⁶⁶ See discussion *supra* Parts II.B–G.

¹⁶⁷ See *supra* notes 111–13 and accompanying text.

¹⁶⁸ See *supra* note 70 and accompanying text.

management systems” in its new regulatory regime,¹⁶⁹ which suggests that siting standards might comprise one of several strategies for meeting the requirements of Section 388. In particular, the environmental management system approach being contemplated by MMS appears to emphasize using adaptive management strategies to identify, implement, monitor, and revise mitigation measures during all phases of a project.¹⁷⁰

To the extent that MMS decides to include environmental siting standards in its regulations governing near-shore proposals, the agency should focus its attention on impacts with a strong potential for interstate spillovers, including negative impacts on migratory wildlife species or wide-ranging fisheries, and positive impacts on air quality and greenhouse gas emissions resulting from displaced or avoided conventional electricity generation. In contrast, MMS should focus less attention on environmental impacts with a limited potential for horizontal spillovers and a strong potential for vertical spillovers. Such a policy would provide states with space to influence siting decisions in a manner consistent with their individual environmental priorities and authority under the SLA and the CZMA. For projects proposed sufficiently far from shore, environmental siting standards instead could address all environmental impacts that do not implicate state environmental conditions or interests.

For any such MMS policy to have its full intended effect, the Corps will need to follow suit in its regulation of offshore wind energy proposals pursuant to the RHA.¹⁷¹ Section 388 explicitly does nothing to limit or modify the Corps’ jurisdiction over proposed uses for which Section 388 applies, and the Corps’ exceptionally broad public interest review standard provides it with the ability to deny RHA permits for projects granted leases, easements, and rights-of-way for the use of the outer continental shelf.¹⁷² Furthermore, under current regulations, even if a project has been granted or is likely to be granted necessary state approvals for the use of submerged lands pursuant to a legitimate

¹⁶⁹ A Alternative Energy-Related Uses on the Outer Continental Shelf, 70 Fed. Reg. 77,345, 77,347 (Dec. 30, 2005) (to be codified at 30 C.F.R. pt. 285).

¹⁷⁰ *Id.*

¹⁷¹ See *supra* notes 60–67 and accompanying text.

¹⁷² See Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 388(a), § 1337(p)(9), 119 Stat. 594, 744–46 (2005) (to be codified at 43 U.S.C. § 1337(p)(9)); see *supra* note 67 and accompanying text.

state regulatory regime, the Corps has the ability to deny RHA permits.¹⁷³ Both possibilities potentially frustrate the goal of dividing authority between the state and federal government in a principled manner that protects federal interests while respecting state prerogatives.

In developing regulations pursuant to Section 388, the Department of the Interior must engage in consultations with the Department of the Army (which includes the Corps).¹⁷⁴ As part of this consultation process, the Corps should amend its RHA regulations to limit the scope of its review of projects that require a lease, easement, or right-of-way issued by MMS. Such a position has precedent within the Corps' current regulations; in cases in which sponsors propose activities on the outer continental shelf in areas leased from MMS for mineral extraction, the Corps already has limited its review to an evaluation of impacts on navigation and national security.¹⁷⁵ The substantive reviews to guard against impacts to navigation and national security implicate the Corps' core competencies and provide a good model for regulation of offshore wind energy development. Furthermore, the MMS could use the Corps' RHA review process to help meet its obligations to ensure that the activities authorized by a lease, easement or right-of-way are carried out "in a manner that provides for" consideration of the navigational uses and the protection of national security interests.¹⁷⁶

In addition to focusing federal siting standards on impacts with the potential for horizontal spillovers, a coordinated federal regime for offshore wind energy that appropriately balances state and federal interests will require complementary actions within NOAA's coastal zone management program. As the gatekeeper of state oversight over federal permitting activities under the CZMA, NOAA will be important in two key contexts as states become more active in formulating policies on offshore wind energy: (1) NOAA will review amendments to state management programs

¹⁷³ See *supra* note 67 and accompanying text.

¹⁷⁴ See Energy Policy Act of 2005 sec. 388(a), § 1337 (p)(8), 119 Stat. 594, 744-46 (2005) (to be codified at 43 U.S.C. § 1337(p)(8)).

¹⁷⁵ 33 C.F.R. § 322.5(f) (2005).

¹⁷⁶ Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 388(a), § 1337 (p)(4)(F), 119 Stat. 594, 744-46 (2005) (to be codified at 43 U.S.C. § 1337(p)(4)(F)).

submitted for federal approval;¹⁷⁷ and (2) NOAA will review negative consistency determinations made by states as part of federal license or permit applications.¹⁷⁸ In both contexts, under existing law NOAA has the ability to ensure adequate consideration of horizontal spillovers while providing states with opportunities to guide local siting decisions.

In its evaluation of proposed management program amendments, NOAA must review proposed program changes in their entirety for compliance with requirements of the CZMA.¹⁷⁹ These requirements include the implementation of planning processes for energy facilities that weigh the costs and benefits of proposed and alternative sites in terms of national interests, in addition to state and local interests.¹⁸⁰ In evaluating proposed amendments addressing offshore wind energy facilities, NOAA should interpret the phrase “national interest” in its regulations to include the need for state regulatory regimes to consider horizontal spillovers, including negative effects on migratory wildlife species and fisheries and positive effects on air quality and greenhouse gas emissions. In contrast, NOAA can respect state prerogatives by providing increased latitude to states proposing program amendments addressing offshore wind energy that primarily implicate in-state environmental conditions or concerns.¹⁸¹

In its review of negative consistency determinations for federal license or permit activities, NOAA also has the authority under current law to insure consideration of positive horizontal spillovers while deferring to states when they make legitimate objections to consistency certifications. As described above, the Secretary of Commerce may overrule state findings of

¹⁷⁷ See *supra* notes 88–89 and accompanying text.

¹⁷⁸ See *supra* notes 97–106 and accompanying text.

¹⁷⁹ See *supra* note 89 and accompanying text.

¹⁸⁰ See *supra* notes 83–86 and accompanying text.

¹⁸¹ It is important to recognize that the CZMA is more than an environmental review statute, and the suggestion that NOAA should give states latitude does not imply that NOAA should approve *any* state amendment proposal that addresses environmental effects lacking the potential for horizontal spillovers. In particular, the planning process for energy facilities mandated by the CZMA appears to require that states implement procedures to evaluate *all* of the costs and benefits of proposed sites in terms of national interests, in addition to state and local interests. See notes 85–86 and accompanying text. Potential benefits of offshore wind energy facilities that NOAA could weigh against costs associated with negative state environmental impacts include the economic and national security benefits of offshore wind energy development.

inconsistency if the Secretary finds that “the proposed activity is consistent with the objectives and purposes” of the CZMA, and regulations interpret this standard to require activities to further the national interest in a significant and substantial manner.¹⁸² To ensure adequate consideration of positive horizontal spillovers, NOAA should interpret the “national interest” furthered by proposed activities to include positive horizontal spillovers such as air quality improvements or greenhouse gas emissions reductions.¹⁸³ As part of reviewing a negative consistency determination, NOAA then would weigh the overall national interest of the proposal against its “adverse coastal effects.”¹⁸⁴

C. *Future Federal Legislative Options*

Changes to regulatory regimes that govern the use of submerged lands likely will play a central role in state policy development on offshore wind energy. Apart from withholding approval of proposed amendments to a state’s coastal management program, the federal government has limited recourse under current law to prevent states from adopting overly-restrictive siting policies that provide for inadequate consideration of positive interstate spillovers such as air quality improvements or greenhouse gas emissions reductions. The coordination problems and international dimensions of climate change present particularly acute theoretical concerns about the ability of states to implement welfare-maximizing policies.¹⁸⁵ Accordingly, federal legislation may be required to insure full consideration of the environmental benefits promised by would-be developers of offshore wind energy facilities.

States generally have demonstrated an ability to consider horizontal spillovers in their policies towards offshore wind energy that cuts against calls for federal legislative action at this time. New York has taken the particularly aggressive step of actively participating in the development process of the Long Island Offshore Wind Farm, and notwithstanding the controversy surrounding Cape Wind, legislative proposals in Massachusetts leave open the possibility of development of offshore wind energy

¹⁸² See *supra* notes 97–98 and accompanying text.

¹⁸³ See *supra* note 98 and accompanying text.

¹⁸⁴ See *supra* note 98 and accompanying text.

¹⁸⁵ See discussion *supra* Part III.A.

facilities in state waters.¹⁸⁶ New Jersey's approach, which has included a temporary moratorium on development, raises concerns, but final judgment must be reserved until the state's Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters has issued its final recommendations and the political branches have responded.¹⁸⁷ Furthermore, the general posture of state and federal climate change policies does not indicate that coordination problems dissuade state action on climate change generally.¹⁸⁸ On the contrary, if anything the states poised to host offshore wind energy facilities in the near future have been more aggressive than the federal government in attempts to reduce greenhouse gas emissions.¹⁸⁹

In the future, if states definitively show inattention to positive horizontal spillovers, then Congress should consider legislation on offshore wind energy facilities that preempts state regulation of submerged lands. Section 311 of the EAct of 2005, which addresses siting of liquefied natural gas ("LNG") terminals, represents one model for future legislation that has garnered recent congressional support. Section 311 provides that the Federal Energy Regulatory Commission ("FERC") "shall have the exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal."¹⁹⁰ This language likely preempts more restrictive state health, safety, or welfare laws that regulate siting or construction of LNG facilities, although Section 311 explicitly reserves the rights afforded to states under several federal environmental laws (including the CZMA) and provides states with opportunities to consult with FERC on safety concerns related to pending applications.¹⁹¹

Section 311 clearly illustrates the ability for federal legislation to strip states of regulatory authority given sufficient political support at the national level. The uniform regulatory regimes that result from such federal action provide for less geographic

¹⁸⁶ See *supra* notes 159–60 and accompanying text.

¹⁸⁷ See *supra* note 161 and accompanying text.

¹⁸⁸ See *supra* notes 153–58 and accompanying text.

¹⁸⁹ See *supra* notes 155–58 and accompanying text.

¹⁹⁰ Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 311(c)(2), § 717b(e)(1), 119 Stat. 594, 685–87 (2005) (to be codified at 15 U.S.C. § 717b(e)(1)).

¹⁹¹ *Id.* § 311(c)(2), (d).

variation in environmental preferences, but they have a theoretical basis if they address failures by states to consider positive horizontal spillovers. If states fail to adequately consider positive spillovers that potentially result from offshore wind energy facilities, federal legislation akin to Section 311 would be justified.

CONCLUSION

The growing general interest in wind energy development and the dispute surrounding Cape Wind has spurred considerable commentary and legislative activity that stands to shape the extent and direction of offshore wind energy development in the United States. There will be additional opportunities to evaluate theoretical assumptions underlying the environmental regulation of this promising clean energy technology as policies continue to mature through future legislative and administrative activity and as sponsors seek approval to develop additional projects. In this dynamic context, this Note attempts to begin a discussion about how issues of federalism will influence and should inform the environmental regulation of offshore wind energy development. As a descriptive matter, states in the short term will continue to play a central role in determining which projects ultimately obtain the necessary regulatory approvals. As a normative matter, a prominent state role is theoretically justified (at least for near-shore projects), on the basis of a generalized analysis of the environmental impacts expected to result from offshore wind energy projects. However, important environmental impacts—reductions in air pollution and greenhouse gas emissions, in particular—that may result from offshore wind energy projects provide strong justifications for federal oversight, particularly in the event that states fail to consider out-of-state environmental benefits as they design regulatory regimes and make siting decisions. In light of these claims, the federal government should adopt policies that encourage siting decisions that consider interstate spillovers while at the same time reflect individual coastal states' particular environmental priorities. Federal agencies can implement such policies in the context of the Department of the Interior's imminent rulemaking pursuant to Section 388 of the EPO Act of 2005, although future federal legislation with preemptive effects ultimately may be necessary in the event that the state regulatory regimes develop that fail to consider positive interstate spillovers.

Exploration of justifications for federal regulation other than interstate spillovers may call for further refinement of the principal argument of this Note. In particular, Cape Wind, the Long Island Offshore Wind Park, and New Jersey's Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters ultimately may provide complete early case studies useful in determining whether federal regulation is necessary to correct systematic public choice pathologies at the state level related to offshore wind energy. Furthermore, contingent valuation studies or successful federal marine resource preservation initiatives may identify existence values sufficient to warrant increased federal regulation. In the interim, however, a consideration of interstate spillovers provides environmental policymakers with a principled way of approaching questions of federalism associated with the siting of offshore wind energy facilities.