

Turning Offshore Wind On

Erica Schroeder†

INTRODUCTION

The drastic growth in electricity produced by wind in the United States indicates that wind power is poised to become a significant component of the United States' energy portfolio.¹ Installed wind capacity has grown from about 1,000 megawatts (MW) in 1985 to nearly 35,000 MW by the end of 2009, enough to power roughly 9.7 million homes.² As of September 2008, the United States led the world in energy produced by wind turbines.³ According to the U.S. Department of Energy (DOE), currently installed wind power capacity in the United States will avoid an estimated sixty-two million tons of carbon dioxide annually, or the equivalent to taking 10.5 million cars off the road.⁴

The federal government appears to recognize the opportunities and benefits that wind power offers. In February 2009, Congress positioned wind power generation to continue its rapid growth⁵ by renewing production tax

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† J.D., University of California, Berkeley, School of Law, 2010. M.E.M., Yale School of Forestry & Environmental Studies, 2004; B.A., Yale University, 2003. I would like to thank Professor Steve Weissman for his mentorship and support. I am also grateful for the insightful suggestions and edits provided by the *California Law Review* editors and staff, in particular Jennifer Kim and Taiga Takahashi.

1. See Press Release, Am. Wind Energy Ass'n, U.S. Wind Energy Installations Surpass 20,000 Megawatts (Sept. 3, 2008), available at http://www.awea.org/newsroom/releases/Wind_Installations_Surpass_20K_MW_03Sept08.html.

2. U.S. DEP'T OF ENERGY, WIND POWERING AMERICA, <http://www.windpoweringamerica.gov> (last updated June 1, 2010).

3. Press Release, Am. Wind Energy Ass'n, *supra* note 1. As of 2008, wind power still remained equivalent to less than two percent of electricity demand in the United States, however. *Id.*

4. U.S. DEP'T OF ENERGY, *supra* note 2.

5. See AM. WIND ENERGY ASS'N, WIND POWER OUTLOOK 2008, available at http://www.awea.org/pubs/documents/Outlook_2008.pdf [hereinafter WIND POWER OUTLOOK 2008] (reporting positive growth trends, but noting the need for a coherent regulatory scheme for

credits for wind power projects through 2012.⁶ Congress also gave the wind industry options for investment tax credits or U.S. Treasury Department grants for certain wind power projects placed in service by 2012.⁷ In addition, in July 2009, DOE announced up to \$30 billion in loan guarantees for renewable energy projects, including wind power.⁸ President Obama continues to promote renewable energy, including wind energy, as well. For example, in his 2010 State of the Union, the President spoke repeatedly about the need for renewable energy investment.⁹ DOE predicts that by 2030 the United States could get as much as 20 percent of its electricity from wind, if the nation is able to overcome certain challenges to wind power progress today.¹⁰

In spite of the impressive growth in the U.S. wind industry, the United States has not kept pace with other countries in developing offshore wind facilities. Though offshore wind has been used in other countries for nearly twenty years,¹¹ none of the United States' current wind capacity comes from offshore wind.¹² An estimated 900,000 MW of potential wind energy capacity exists off the coasts of the United States¹³—an estimated 98,000 MW of it in

wind to reach its full potential).

6. American Recovery & Reinvestment Act of 2009, Pub. L. No. 111-5, § 1101, 123 Stat. 319 (to be codified at 26 U.S.C. § 45).

7. *Id.* § 1102, 1603. To be eligible for investment tax credits, the project must be in service by 2012. *Id.* § 1102. To be eligible for U.S. Treasury Department grants, the project must be in service by 2010, or under construction by 2010 and in service by 2012. *Id.* § 1603.

8. Press Release, U.S. Dep't of Energy, Obama Administration Announces Billions in Lending Authority for Renewable Energy Projects and to Modernize the Grid (July 29, 2009), available at <http://www.energy.gov/news2009/7722.htm>.

9. Address Before a Joint Session of the Congress on the State of the Union, 2010 DAILY COMP. PRES. DOC. 55 (Jan. 27, 2010).

10. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030: INCREASING WIND ENERGY'S CONTRIBUTION TO U.S. ELECTRICITY SUPPLY 1 (2008), available at <http://www1.eere.energy.gov/windandhydro/pdfs/41869.pdf>. The challenges that wind power faces include: the adaption to varying wind resources across the United States and offshore; the distance of wind power generation from demand centers; the integration of wind power generation into the electricity grid with other generation sources; the variable nature of wind energy; the need for new transmission lines and overall upgrades to the transmission grid; the significant geographic footprint of wind turbines, particularly on land; and the insufficient domestic production capacity for turbines and other necessary equipment. *Id.* at 143 app. A.

11. The first offshore wind installation was in Sweden: a single 300-kilowatt (kW) turbine in 1990. As of 2006, there were eighteen operating projects with an installed capacity of 804 MW. Walt Musial, Sandy Butterfield & Bonnie Ram, *Energy from Offshore Wind 3* (Nat'l Renewable Energy Lab., Conference Paper No. NREL/CP-500-39450, 2006) available at <http://www.nrel.gov/wind/pdfs/39450.pdf>.

12. Thomas C. Jensen, Offshore Renewable Energy Development after the Energy Policy Act of 2005 1 (unpublished paper presented at the American Bar Association Section of Environment, Energy, and Resources 36th Annual Conference on Environmental Law, March 2007), available at <http://www.oceanrenewable.com/wp-content/uploads/2007/03/aba-ocs-paper-final.pdf>. There are a handful of offshore wind projects in various stages of development. See RYAN WISER ET AL., U.S. DEP'T OF ENERGY, 2008 WIND TECHNOLOGIES MARKET REPORT 11 (2009), available at http://www.windpoweringamerica.gov/pdfs/2008_annual_wind_market_report.pdf.

13. Walt Musial & Sandy Butterfield, *Future for Offshore Wind Energy in the United*

shallow waters.¹⁴ This shallow-water capacity could power between 22 and 29 million homes,¹⁵ or between 20 and 26 percent of all U.S. homes.¹⁶ The nation has failed to take advantage of this promising resource.

This failure can be ascribed in part to the unevenly balanced distribution of the costs and benefits of offshore wind technology, as well as to the incoherent regulatory framework in the United States for managing coastal resources.¹⁷ While the most compelling benefits of offshore wind are frequently regional, national, or even global, the costs are almost exclusively local. The U.S. regulatory framework is not set up to handle this cost-benefit gap. As a result, local opposition has stalled offshore wind power development, and inadequate attention has been paid to its wide-ranging benefits.

The Cape Wind project in Massachusetts is a stark example of how local forces have hindered offshore wind power development. The project is expected to have a maximum production of 450 MW and an average daily production of 170 MW, or 75 percent of the 230-MW average demand of Cape Cod and neighboring islands.¹⁸ In addition to this electricity boon to energy-constrained Massachusetts,¹⁹ Cape Wind will reduce regional air pollution and global carbon dioxide emissions.²⁰ Nonetheless, local opponents to Cape Wind protest its effect on the surrounding environment, including its aesthetic impacts.²¹ Without an effective way to champion the regional, national, and

States 4 (Nat'l Renewable Energy Lab., Conference Paper No. NREL/CP-500-36313, 2004), available at <http://www.nrel.gov/docs/fy04osti/36313.pdf>. Musial and Butterfield base their analysis on offshore potential five nautical miles or more from shore to avoid elevated viewshed and environmental concerns.

14. "Shallow waters" is defined here as five to fifty nautical miles offshore. *Id.* at 5.

15. According to the American Wind Energy Association, one MW of wind generates about as much electricity as 225 to 300 households use on average. *Wind Energy Basics*, AM. WIND ENERGY ASS'N, http://www.awea.org/faq/wwwt_basics.html (last visited Mar. 14, 2010).

16. As of the end of 2009, there were 111,711 occupied homes in the United States. Press Release, U.S. Census Bureau, Census Bureau Reports on Residential Vacancies and Homeownership (Feb. 2, 2010), available at <http://www.census.gov/hhes/www/housing/hvs/qtr409/files/q409press.pdf>.

17. A number of legal articles have sought to offer solutions to this dilemma. See, e.g., Jeremy Firestone et al., *Regulating Offshore Wind Power and Aquaculture: Messages from Land and Sea*, 14 CORNELL J.L. & PUB. POL'Y 71 (2004); Symposium, *Coastal Wind Energy Generation: Conflicts and Capacities*, 31 B.C. ENVTL. AFF. L. REV. 177 (2004); Robert W. Eberhardt, Note, *Federalism and the Siting of Offshore Wind Energy Facilities*, 14 N.Y.U. ENVTL. L.J. 374 (2006).

18. Frequently Asked Questions, Cape Wind: America's First Offshore Wind Farm on Nantucket Sound, <http://www.capewind.org/FAQ-Category4-Cape+Wind+Basics-Parent0-myfaq-yes.htm> (last visited Mar. 15, 2010) [hereinafter Cape Wind FAQ].

19. *Id.*

20. Iva Žiža, Note, *Siting of Renewable Energy Facilities and Adversarial Legalism: Lessons from Cape Cod*, 42 NEW ENG. L. REV. 591, 600 (2008) (citing CAPE WIND ENERGY PROJECT, FINAL ENVIRONMENTAL IMPACT REPORT/DEVELOPMENT OF REGIONAL IMPACT: EXECUTIVE SUMMARY (2007), available at <http://www.capewind.org/downloads/feir/Executive%20Summary.pdf>).

21. See, e.g., WENDY WILLIAMS & ROBERT WHITCOMB, CAPE WIND: MONEY, CELEBRITY, CLASS, POLITICS, AND THE BATTLE FOR OUR ENERGY FUTURE ON NANTUCKET SOUND 117–22

global benefits of offshore wind, policymakers have been unable to keep local interests from controlling the process through protest and litigation. After about ten years of waiting and fighting, Cape Wind developers have still not begun construction. Although the failure of offshore wind power in the United States is discouraging, the Coastal Zone Management Act (CZMA) offers a potential solution. With specific revisions, the CZMA could serve as the impetus that offshore wind power needs for success in the United States.

Part I gives background information on wind energy. Part II provides more detail on offshore wind power, including its benefits, costs, and potential. Part III, describes the current regulatory framework for offshore wind power, covering both federal and state jurisdictions, followed by an explanation of the CZMA, which provides the primary mechanisms for balancing federal and state interests in U.S. coastal resources. Part IV tells the story of the Cape Wind project, providing background information, detail on federal and state involvement in the project, related litigation, and the current status of the project as of this writing. In Part V, I move from the frustrations of Cape Wind to my proposal for a modified CZMA, which would offer hope for offshore wind power development in the United States. I first describe the current failure of the CZMA to promote offshore wind power. I then draw lessons from Denmark, which has been the paragon of offshore wind power success, and about how the United States could improve its regulatory framework for offshore wind power. Based on Denmark's success, I suggest three specific revisions to the CZMA: (1) an explicit mandate for offshore wind power development where appropriate and feasible on all U.S. coasts; (2) required revisions to states' Coastal Zone Management Plans (CZMPs) in accordance with this new mandate; and (3) increased funding and other incentives for offshore wind power development. I briefly discuss whether and how these revisions might affect other types of offshore energy projects, such as offshore oil and gas extraction. I conclude by emphasizing that revisions to the CZMA are necessarily but one piece of an effective offshore renewable energy program in the United States.

I

WIND ENERGY: THE BASICS

Wind energy has been propelling boats and spinning windmills to pump water and grind grain since early recorded history.²² Between 1870 and 1930, “the original heyday of wind” in the United States, thousands of U.S. farmers

(2007); Žiža, *supra* note 20, at 606; Robert F. Kennedy, Jr., Op-Ed., *An Ill Wind Off Cape Cod*, N.Y. TIMES, Dec. 16, 2005, at A1.

22. *History of Wind Energy, Wind and Water Power Program*, U.S. DEP'T OF ENERGY, ENERGY EFFICIENCY & RENEWABLE ENERGY, http://www1.eere.energy.gov/windandhydro/wind_history.html (last updated Sept. 12, 2005) [hereinafter DOE, *History of Wind Energy*].

used wind power to pump water.²³ The first U.S. wind turbine used to produce electricity was installed in Ohio in 1887—the twelve-kilowatt (kW) turbine had a rotor diameter of about 164 feet, comparable in size to today’s turbines, but generating much less electricity.²⁴ Though small electric wind turbines were used in rural areas through the 1920s, and prototypes of larger machines were built in the 1940s, the relatively cheap, grid-connected electricity that the New Deal provided to rural areas stymied wind power development.²⁵ When conventional fuel prices skyrocketed in the early 1970s, however, the United States began research into large, commercial turbines.²⁶

The modern wind era truly began in California in the 1980s, driven by continuing high fuel costs, environmental concerns, and supportive state and federal policies.²⁷ By 1986, California had installed more than 1200 MW of wind power capacity, representing nearly 90 percent of global installations at that time.²⁸ Changing fuel prices and government policies, in particular policies regarding tax incentives for wind power, negatively affected the rate of growth for wind power, but it continued to grow.²⁹

Technological improvements in the 1990s that resulted in increased turbine reliability and lower production costs helped to spur wind power development.³⁰ Since 2006, the federal government has been providing significant support to wind power, importantly in the form of tax incentives, which has allowed for record growth for wind power in the United States.³¹ None of this growth has occurred offshore, however.

Technically speaking, wind is a type of solar energy. It is formed by the sun’s uneven heating of the atmosphere, irregularities on the Earth’s surface, and the Earth’s rotation.³² A typical wind turbine has a horizontal axis with two or three blades attached, which sits atop a tower, usually over 300 feet high to capture wind at faster speeds.³³ When wind blows through the blades, they turn

23. *How Wind Energy Works*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/clean_energy/technology_and_impacts/energy_technologies/how-wind-energy-works.html (last visited Mar. 15, 2010) [hereinafter UCS, *How Wind Energy Works*].

24. Niki Nixon, *Timeline: The History of Wind Power*, GUARDIAN.CO.UK (Oct. 17, 2008, 15:39 BST), <http://www.guardian.co.uk/environment/2008/oct/17/wind-power-renewable-energy>.

25. *Id.*

26. DOE, *History of Wind Energy*, *supra* note 22; Nixon, *supra* note 24.

27. UCS, *How Wind Energy Works*, *supra* note 23.

28. U.S. DEP’T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 6.

29. UCS, *How Wind Energy Works*, *supra* note 23.

30. *Id.*

31. *Id.*

32. *How Wind Turbines Work, Wind and Water Power Program*, U.S. DEP’T OF ENERGY, ENERGY EFFICIENCY & RENEWABLE ENERGY, http://www1.eere.energy.gov/windandhydro/wind_how.html (last updated Nov. 30, 2006) [hereinafter DOE, *How Wind Turbines Work*].

33. Adam M. Dinnell & Adam J. Russ, *The Legal Hurdles to Developing Wind Power as an Alternative Energy Source in the United States: Creative and Comparative Solutions*, 27 NW. J. INT’L L. & BUS. 535, 539–40 (2007). There are also vertical axis turbines. DOE, *How Wind Turbines Work*, *supra* note 32.

and convert the wind's kinetic energy into rotational shaft energy, a form of mechanical power.³⁴ This rotational energy is used to spin magnets in a generator and is thus converted into electrical current.³⁵ The electricity produced by a wind turbine, or the electricity consumed by individuals or entities, is typically measured in kilowatt-hours (kWh)—a kWh is the number of kilowatts produced or consumed for one hour. By contrast, the electricity produced (or demanded) at a particular point in time is measured in kilowatts (kW), which are thus used to measure wind turbine capacity or consumer peak demand. A kilowatt is 1,000 watts, and a megawatt (MW) is 1,000 kilowatts (kW). For example, a 1.8-MW (or 1800-kW) turbine, which would be fairly large for an onshore turbine,³⁶ could produce 43.2 MWh (or 43,200 kWh) of electricity, if it spins constantly for twenty-four hours:

$$1.8 \text{ MW} \times 24 \text{ hours} = 1800 \text{ kW} \times 24 \text{ hours} = 43,200 \text{ kWh} = 43.2 \text{ MWh.}$$

Over the course of a year, the same turbine could produce 15,768 MWh (or about fifteen gigawatt-hours):

$$43.2 \text{ MWh per day} \times 365 \text{ days per year} = 15,768 \text{ MWh.}$$

To put this in perspective, a typical U.S. household consumes just 10 MWh annually.³⁷ Keep in mind, however, that the wind is typically not blowing at a constant speed for 24 hours per day, and certainly not for 365 days per year. Therefore, the actual electricity that a 1.8-MW turbine could provide over the course of a year would be considerably lower. Indeed, such consistency problems have continued to plague wind power, though offshore wind offers some improvement in this area, as discussed later. The actual electricity output of a wind turbine is reflected in its capacity factor, or the percentage of its maximum output or capacity that a turbine actually produces in a year. Wind turbines typically have capacity factors of 20 to 40 percent.³⁸ Thus, the turbine that could theoretically generate an annual maximum of 15,768 MWh would actually generate somewhere between 3,153 and 6,307 MWh annually.

Although the United States only has wind turbines on land, offshore wind turbines have the potential to be larger and to produce more energy than onshore turbines. The Zond Z-750, a typical onshore wind turbine used in projects during the late 1990s, has a 208-foot tower, blades that span 79 feet, and a rotor diameter of 164 feet.³⁹ True to its name, the Z-750 can generate 750

34. AM. WIND ENERGY ASS'N, WIND ENERGY TEACHER'S GUIDE 4 (2003), available at <http://www.awea.org/pubs/documents/TeachersGuide.pdf>; DOE, *How Wind Turbines Work*, *supra* note 32.

35. AM. WIND ENERGY ASS'N, *supra* note 34, at 4.

36. *Id.*

37. *Id.*

38. Renewable Energy Research Lab., Univ. Mass. Amherst, WIND POWER: CAPACITY FACTOR, INTERMITTENCY, AND WHAT HAPPENS WHEN THE WIND DOESN'T BLOW? 1 (2009), available at http://www.ceere.org/rerl/about_wind/RERL_Fact_Sheet_2a_Capacity_Factor.pdf.

39. Dinnell & Russ, *supra* note 33, at 540.

kW at its peak output.⁴⁰ This falls in the middle of the range in capacity for onshore, utility-scale turbines, which range from 100 kW to several MW.⁴¹ As of 2007, the average size for an onshore wind turbine was 1.65 MW.⁴² Offshore wind turbines can get significantly larger and more powerful, typically ranging from 2.0 to 3.6 MW, with a 260-foot tower and a rotor diameter of approximately 295 to 350 feet.⁴³ Turbines with capacities as large as 5 MW have been installed offshore,⁴⁴ and in 2008, a wind developer purchased an offshore turbine with an impressive 7.5 MW capacity.⁴⁵

Turbines are typically grouped together to form larger wind farms.⁴⁶ As of 2007, the average capacity of an onshore wind farm was 120 MW.⁴⁷ U.S. wind farm capacity has been growing rapidly, and there are proposals for much larger wind farms—some as large as 3,000 to 4,000 MW.⁴⁸ Proposed U.S. offshore wind projects have ranged from 10 to over 750 MW.⁴⁹ As noted previously, the Cape Wind project falls in the middle of this range, with an expected capacity of 450 MW and a projected average daily production of 170 MW.⁵⁰

Although technologically similar to onshore turbines, offshore turbines have some unique features, in addition to generally being larger and capable of producing more energy.⁵¹ Offshore-turbine structure is driven by the conditions they will face, including water depth, wind and wave conditions, and seabed geology.⁵² In shallow water, the offshore turbine is rooted into the seabed, though engineers are developing floating turbines for deeper water.⁵³ An offshore turbine has undersea electrical collection and transmission cables, along with an offshore substation, though the substation may also be sited onshore. In addition, offshore wind turbines include undersea corrosion

40. *Id.*

41. DOE, *How Wind Turbines Work*, *supra* note 32.

42. RYAN WISER ET AL., U.S. DEP'T OF ENERGY, ANNUAL REPORT ON U.S. WIND POWER INSTALLATION, COST, AND PERFORMANCE TRENDS: 2007 12 (2008), *available at* <http://www1.eere.energy.gov/windandhydro/pdfs/43025.pdf>.

43. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 49.

44. *Id.*

45. Press Release, The Crown Estate, The Crown Estate to Purchase the World's Largest Offshore Wind Turbine from Clipper Windpower for Deployment in UK Waters (Apr. 17, 2008), *available at* <http://www.thecrownestate.co.uk/newscontent/92-clipper-wind-turbine.htm>.

46. DOE, *How Wind Turbines Work*, *supra* note 32.

47. WISER ET AL., *supra* note 42, at 12.

48. *Id.*

49. *Id.* at 9.

50. Cape Wind FAQ, *supra* note 18.

51. MASS. TECH. COLLABORATIVE ET AL., A FRAMEWORK FOR OFFSHORE WIND ENERGY DEVELOPMENT IN THE UNITED STATES 8–9 (2005), *available at* http://www.masstech.org/offshore/final_09_20.pdf; U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 49–50; *see also* GILLIAN WATSON, STRUCTURE AND FOUNDATIONS DESIGN OF OFFSHORE WIND INSTALLATIONS (2000), *available at* http://www.owen.eri.rl.ac.uk/workshop_3/ws3_final.pdf (describing offshore wind turbine structural elements in more detail).

52. MASS. TECH. COLLABORATIVE ET AL., *supra* note 51, at 9.

53. *Id.*

protection, and lights and signals to facilitate the safety of aircraft and ships at sea.⁵⁴ The current offshore turbine technology is only commercially feasible in shallow waters that range from about fifteen to sixty feet deep.⁵⁵ However, researchers and companies are exploring new offshore wind technology that will allow developers to move the turbines into deeper water—up to 2,000 feet deep—making them more likely to be barely visible, or even imperceptible, from shore.⁵⁶

II

OFFSHORE WIND: BALANCING BENEFITS AND COSTS

The benefits of offshore wind power are significant, frequently outweighing its costs, which tend to be site specific. With careful planning and siting, wind power developers can substantially reduce and nearly eliminate the costs associated with wind power generation. In the United States, however, localities and local interests exert substantial control over offshore wind siting and permitting, and regional and national interests have ineffective recourse for dealing with strong local power, as described in more detail in Part III. Because of this dominant local control and the localized costs of offshore wind power development, the cost-benefit balance tends to tip against the global benefits of offshore projects. As a result, there are currently no offshore wind projects under construction in the United States, despite several proposals.⁵⁷

A. Benefits of Offshore Wind

Many of the most compelling benefits of offshore wind are similar to those of onshore wind, though offshore wind has its own unique set of benefits. To start, wind power generation can help meet the growing energy demand in the United States. The U.S. Energy Information Administration predicts that the demand for electricity in the United States will grow to 5.8 billion MWh in 2030, a 39 percent increase from 2005.⁵⁸ The more that wind power can help to meet this demand, the more diversified the United States' energy portfolio will be, and the less susceptible the nation will be to dependency on foreign fuel sources and to price fluctuations in traditional fuels.⁵⁹ In addition, wind power

54. *Id.* at 8.

55. Musial, Butterfield & Ram, *supra* note 11, at 6.

56. See Brit T. Brown & Benjamin A. Escobar, *Wind Power: Generating Electricity and Lawsuits*, 28 ENERGY L.J. 489, 5011–12 (2007); Musial, Butterfield & Ram, *supra* note 11, at 5–6; Clarke Canfield, *UM Eyes Offshore Wind Farms: Race Is On to Build Deep-Water Platform*, BANGOR DAILY NEWS, Dec. 9, 2008, <http://www.bangordailynews.com/detail/94866.html>. For turbines to be “barely visible” from shore, they must be at least about fourteen miles out to sea. Emily Waltz, *Offshore Wind May Power the Future*, SCI. AM. ONLINE (Oct. 20, 2008), <http://www.sciam.com/article.cfm?id=offshore-wind-may-power-the-future>.

57. As of the end of 2008, there were eleven projects in an “advanced stages” of planning and permitting, and eleven more projects in early stages. WISER ET AL., *supra* note 12, at 11.

58. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 12.

59. See *id.* at 17–18.

benefits the United States by creating a substantial number of jobs for building and operating the domestic wind energy facilities.⁶⁰ In an April 2009 speech at the Trinity Structural Towers Manufacturing Plant in Iowa, President Obama predicted that if the United States “fully pursue[s] our potential for wind energy on land and offshore,” wind power could create 250,000 jobs by 2030.⁶¹

Once a wind project is built, it involves only minimal environmental impacts compared to traditional electricity generation. Wind power emits negligible amounts of traditional air pollutants, such as sulfur dioxide and particulate matter, as well as carbon dioxide and other greenhouse gases.⁶² Lower emissions of traditional air pollutants means fewer air quality-related illnesses locally and regionally.⁶³ Lower greenhouse gas emissions will help to combat climate change, effects of which will be felt locally and around the world.⁶⁴ According to the International Panel on Climate Change (IPCC), the effects of climate change will include melting snow, ice, and permafrost; significant effects on terrestrial, marine, and freshwater plant and animal species; forced changes to agricultural and forestry management; and adverse human health impacts, including increased heat-related mortality and infectious diseases.⁶⁵ The U.S. Energy Information Administration estimates that the United States emits 6 billion metric tons of greenhouse gases annually, and it expects emissions to increase to 7.9 billion metric tons by 2030, with 40 percent of emissions coming from the electric power sector.⁶⁶ Thus, if the United States can get more of its electricity from wind power, it will contribute less to climate change, and help to mitigate its negative impacts. Furthermore, wind power does not involve any of the additional environmental costs associated with nuclear power or fuel extraction for traditional electricity generation, such as coal mining and natural gas extraction.⁶⁷ Wind power generation also does not require the water necessary to cool traditional coal, gas, and nuclear generation units.⁶⁸

Moreover, offshore wind power has certain attributes that give it added benefits compared to onshore wind. Wind tends to be stronger and more

60. See Musial, Butterfield & Ram, *supra* note 11, at 119; Greg Watson & Fara Courtney, *Nantucket Sound Offshore Wind Stakeholder Process*, 31 B.C. ENVTL. AFF. L. REV. 263, 269–70 (2004).

61. Remarks at Trinity Structural Towers Manufacturing Plant in Newton, Iowa, 2009 DAILY COMP. PRES. DOC. 282 (Apr. 22, 2009).

62. See U.S. DEP’T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 13–16; Dorothy W. Bisbee, *NEPA Review of Offshore Wind Farms: Ensuring Emission Reduction Benefits Outweigh Visual Impacts*, 31 B.C. ENVTL. AFF. L. REV. 349, 360–62 (2004).

63. See Bisbee, *supra* note 62, at 350, 362–64.

64. See generally INT’L PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT, available at http://www.preventionweb.net/files/2335_ar4syr.pdf (describing the negative effects of climate change both locally and globally).

65. *Id.* at 31–33.

66. U.S. DEP’T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 14.

67. *Id.* at 16–17.

68. *Id.*

consistent offshore—both benefits when it comes to wind power generation.⁶⁹ This is largely due to reduced wind shear and roughness on the open ocean.⁷⁰ Wind shear and roughness refer to effects of the landscape surrounding turbines on the quality of wind and thus the amount of electricity produced.⁷¹ While long grass, trees, and buildings will slow wind down significantly, water is generally very smooth and has much less of an effect on wind speeds.⁷² In addition, because offshore wind projects face fewer barriers—both natural and manmade—to their expansion, offshore developers can take advantage of economies of scale and build larger wind farms that generate more electricity.⁷³

Importantly, offshore wind also could overcome the problems that onshore wind faces regarding the distance between wind power generation and electricity demand. That is, although the United States has considerable onshore wind resources in certain areas, mostly in the middle of the country, they are frequently distant from areas with high electricity demand, mostly on the coasts, resulting in transmission problems.⁷⁴ By contrast, offshore resources are near coastal electricity demand centers.⁷⁵ In fact, twenty-eight of the contiguous forty-eight states have coastal boundaries, and these same states use 78 percent of the United States' electricity.⁷⁶ Thus, offshore wind power generation can effectively serve major U.S. demand centers and avoid many of the transmission costs faced by remote onshore generation.⁷⁷ If shallow water offshore potential (less than about 100 feet in depth) is met on the nation's coasts, twenty-six of the twenty-eight coastal states would have sufficient wind resources to meet at least 20 percent of their electricity needs, and many states would have enough to meet their total electricity demand.⁷⁸

B. Costs of Offshore Wind

Whereas many of the benefits of offshore wind power are national or even global, the costs are almost entirely local. The downsides to offshore wind that drive most of the opposition to offshore wind power are visual and

69. Carolyn S. Kaplan, *Congress, the Courts, and the Army Corps: Siting the First Offshore Wind Farm in the United States*, 31 B.C. ENVTL. AFF. L. REV. 177, 191 (2004).

70. *Id.*

71. *See Roughness and Wind Shear*, DANISH WIND INDUSTRY ASSOCIATION, <http://guidedtour.windpower.org/en/tour/wres/shear.htm> (last updated June 1, 2003).

72. *See id.*

73. *See Bisbee, supra* note 62, at 350. The optimal offshore wind project will tend to be larger than one onshore given the higher costs associated with it. 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, 231 (2004). The increased size of these projects can have negative impacts on local opposition based on aesthetic reasons as well as local environmental impacts. *See infra* Part II.B.

74. *See Kaplan, supra* note 69, at 190.

75. *See Dinnell & Russ, supra* note 33, at 543–44.

76. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 48.

77. *See Kaplan, supra* note 69, at 190; Russell, *supra* note 73, at 227–28.

78. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 48.

environmental. Opponents to offshore wind projects complain about their negative aesthetic impacts on the landscape and on local property values.⁷⁹ They also make related complaints about negative impacts on coastal recreational activities and tourism.⁸⁰ However, studies have failed to show statistically significant negative aesthetic or property-value impacts, despite showing continued expectations of such impacts.⁸¹

In addition, opponents frequently cite offshore wind power's environmental costs. These costs are site specific and can involve harm to plants and animals, and their habitats.⁸² This harm includes impacts on birds, which can involve disruption of migratory patterns, destruction of habitat, and bird deaths from collision with the turbine blades.⁸³ However, these adverse impacts are generally less dramatic than those associated with fossil fuel extraction and generation, and in a well-chosen site they can be negligible.⁸⁴ A recent, exhaustive study of the environmental impact of major offshore wind farms in Denmark concluded that "offshore wind farms, if placed right, can be engineered and operated without significant damage to the marine environment and vulnerable species."⁸⁵

A final concern is that offshore wind farms are more expensive to build, and more difficult to install and maintain, than onshore wind farms.⁸⁶ The cost of an offshore wind project is estimated to be at least 50 percent greater than the onshore equivalent.⁸⁷ Short- and long-term technical improvements could help to lower offshore wind costs, however, and government assistance may help them occur more quickly.⁸⁸

79. BEN HOEN ET AL., THE IMPACT OF WIND POWER PROJECTS ON RESIDENTIAL PROPERTY VALUES IN THE UNITED STATES: A MULTI-SITE HEDONIC ANALYSIS 1 (2009), available at <http://eetd.lbl.gov/ea/emp/reports/lbnl-2829e.pdf>; see also Bisbee, *supra* note 62, at 350, 367–73; Eberhardt, *supra* note 17, at 398–99, 401–02 (describing the absence of negative effects on property values and home sales created by nearby wind power development).

80. See, e.g., WILLIAMS & WHITCOMB, *supra* note 21, at 128; Nathanael D. Hartland, Comment, *The Wind and the Waves: Regulatory Uncertainty and Offshore Wind Power in the United States and United Kingdom*, 24 U. PA. J. INT'L ECON. L. 691, 706 (2003).

81. BEN HOEN ET AL., *supra* note 79, at 8, 69.

82. See Brown & Escobar, *supra* note 56, at 512; Eberhardt, *supra* note 17, at 399–401; Elizabeth A. Ransom, Note, *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, 490 (2004). Eberhardt points out that this harm could extend to commercial fisheries. Eberhardt, *supra* note 17, at 400–01.

83. See Brown & Escobar, *supra* note 56, at 495–96, 506.

84. Musial, Butterfield & Ram, *supra* note 11, at 8, 10.

85. DONG ENERGY ET AL., DANISH OFFSHORE WIND: KEY ENVIRONMENTAL ISSUES 8 (2006), available at <http://www.windaction.org/documents/6690>.

86. Dinnell & Russ, *supra* note 33, at 544.

87. Russell, *supra* note 73, at 229 n.42 (citing AWS SCIENTIFIC, INC., LONG ISLAND'S OFFSHORE WIND ENERGY DEVELOPMENT POTENTIAL: A PRELIMINARY ASSESSMENT 4 (2002)).

88. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 50–54.

C. Balancing Costs and Benefits: The Future of Offshore Wind

Despite the aforementioned challenges, offshore wind remains important to the United States' energy future. Its many benefits make it an ideal choice to meet some of the country's growing electricity demand, especially as the United States begins to realize the severity of the threats from both climate change and its dependence on foreign fuels.⁸⁹ In addition to the environmental and economic benefits that offshore and onshore wind power provides, the proximity of offshore wind to U.S. electricity demand and the resulting lower transmission costs are crucial.⁹⁰ The many benefits of offshore wind outweigh its primarily local environmental and aesthetic costs, most of which can be minimized with careful planning and community relations.

In spite of these compelling drivers, a primary obstacle to offshore wind power development is the lack of a regulatory framework with which to reconcile the local costs with the regional and national benefits.⁹¹ The current regulatory framework is described in the next Part. Until the federal government puts a revised framework in place, such as the revised CZMA proposed in Part V, states and local groups fixated on immediate, local costs will retain the ability to stall and even block offshore wind power development. Without federal regulatory revision, offshore wind will not realize its full promise.

III

CURRENT REGULATORY FRAMEWORK FOR OFFSHORE WIND

Both state and federal governments share control over offshore wind project siting approval and permitting. Geography determines the jurisdiction of each: state governments control their respective Coastal Zones, from the baseline of their shores out three nautical miles,⁹² and the federal government controls the Outer Continental Shelf beyond that.⁹³ Offshore wind turbines are typically located on the Outer Continental Shelf;⁹⁴ thus, the federal government sites and permits this component of an offshore wind project.⁹⁵ To get the electricity to consumers on land, however, offshore wind projects must necessarily include transmission lines from the turbines, through state waters and onto land. State governments control the siting and permitting of these

89. See, e.g., Waltz, *supra* note 56; Musial, Butterfield & Ram, *supra* note 11.

90. See U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030, *supra* note 10, at 48.

91. See Jensen, *supra* note 12, at 12–13.

92. 43 U.S.C. §§ 1311–1312 (2006).

93. Jensen, *supra* note 12, at 7 n.22.

94. See European Wind Energy Ass'n, The European Wind Industry: Key Trends and Statistics 2009 3, 5 (2010) <http://www.ewea.org/fileadmin/emag/statistics/2009offshore/pdf/offshore%20stats%2020092.pdf> (noting that in 2009 the average distance from shore of an offshore wind turbine was 14.4 km, or almost 9 miles).

95. Energy Policy Act of 2005, 43 U.S.C. § 1337 (2006); MASS. TECH. COLLABORATIVE ET AL., *supra* note 51, at 10–11; Musial, Butterfield & Ram, *supra* note 11, at 4.

transmission lines.⁹⁶ Both federal and state jurisdiction are described in more detail later, along with the CZMA. The CZMA provides the primary mechanisms for balancing state and federal interests in coastal waters.⁹⁷ It leaves states with substantial discretionary power and no federal mandate regarding offshore wind power development, despite its undertones of environmental protection.

A. Federal Jurisdiction

Federal jurisdiction begins more than three nautical miles from the shore, along the Outer Continental Shelf, and ends two hundred nautical miles out to sea.⁹⁸ Analyses of offshore wind capacity typically assume that wind farms will be built in federal waters, more than five miles from the coast.⁹⁹ Thus, federal jurisdiction covers the generation component of an offshore wind project, mainly the turbines.¹⁰⁰ This includes site approval and permitting for project construction.¹⁰¹

Section 388 of the Energy Policy Act of 2005 grants the Department of the Interior (DOI) primary authority over offshore wind farm approval and permitting.¹⁰² Section 388 specifies that the Minerals Management Service (MMS), a branch of DOI, controls the offshore wind facility permitting process; the Secretary of the Interior makes the final permitting decision.¹⁰³ This grant of authority extends MMS's existing authority under the Outer Continental Shelf Lands Act (OCSLA), which gives it management rights over the Outer Continental Shelf primarily for offshore fossil fuel extraction.¹⁰⁴ Because of MMS's experience with managing offshore oil and gas extraction, Congress deemed it the proper body for offshore wind permitting as well.¹⁰⁵ Opponents of the decision have been concerned with MMS's lack of experience with marine habitat regulation and protection.¹⁰⁶ Fortunately, MMS appears receptive to coordinating with other agencies with relevant experience, like the Army Corps of Engineers, National Marine Fisheries Service, Coast Guard, Department of Energy, and Environmental Protection Agency, as well

96. 43 U.S.C. §§ 1311–1312; 16 U.S.C. §§ 1452(2), 1455(d) (2006).

97. 16 U.S.C. §§ 1451–1456.

98. Jensen, *supra* note 12, at 7 n.22.

99. *See, e.g.*, European Wind Energy Association, *supra* note 94 (noting that the average distance to shore for a turbine was 14.4 km, or almost 9 miles, in 2009, and that the average distance is expected to increase to 30.1 km, or almost 19 miles, in the coming years); Musial, Butterfield & Ram, *supra* note 11, at 4.

100. *See* Jensen, *supra* note 12, at 8.

101. *Id.*

102. 43 U.S.C. § 1337 (2006).

103. *Id.*

104. *Id.* § 1337(p)(1).

105. *See* Kaplan, *supra* note 69, at 213.

106. *See id.*

as appropriate state actors.¹⁰⁷

Section 388 came in response to controversy over which federal agency had permitting authority during the early stages of the Cape Wind project, which is described in more detail in Part IV. While Section 388 does not resolve all of the issues relating to federal jurisdiction over offshore wind,¹⁰⁸ its designation of MMS as the primary permitting agency marks Congress's first step toward a unified review process for offshore alternative energy.¹⁰⁹ Nonetheless, the current federal regulatory environment for offshore wind remains confusing. In April 2009, President Obama took a first step toward remedying some of that confusion by announcing a coordinated program, headed by DOI, for federal offshore renewable energy permitting. The program will cover not only offshore wind power generation, but also other offshore renewable energy, such as electricity generated from ocean currents.¹¹⁰ Despite this progress toward an improved federal regulatory program, barriers to offshore wind power still exist, largely due to the absence of a strong and effective federal mandate promoting offshore wind power development and the powers that states retain over project siting.¹¹¹

B. State Jurisdiction

Under the Submerged Lands Act, state jurisdiction generally covers ocean territory three miles or less from the coast,¹¹² an area known as the Coastal Zone.¹¹³ As noted previously, any electricity generated in an offshore facility must be transmitted to land through the state controlled Coastal Zone. Therefore, state—and sometimes local—authorities ultimately have a role to play in any offshore wind project through the siting and permitting of transmission cables that are necessary to bring electricity from the turbines to land. Although state and localities may only exert direct control over the permitting of transmission cables, they will almost certainly consider the impact of the generation turbines on their aesthetic view environment. They know that denying transmission permits effectively stalls or destroys the construction of generation facilities. States will also likely consider such

107. See MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, CAPE WIND COOPERATING AGENCY CONTACTS & RESPONSIBILITIES, available at <http://www.mms.gov/offshore/RenewableEnergy/PDF/CapeWindCooperatingAgencyContacts.pdf> (MMS's list of federal, state, and local agencies with which it is cooperating regarding the Cape Wind project).

108. See Jensen, *supra* note 12, at 8.

109. See Dinnell & Russ, *supra* note 33, at 578.

110. Remarks at Trinity Structural Towers Manufacturing Plant in Newton, Iowa, *supra* note 61.

111. Jensen, *supra* note 12, at 2. A discussion of the remaining issues related to federal jurisdiction over offshore wind is beyond the scope of this Comment.

112. 43 U.S.C. §§ 1311–1312 (2006).

113. Suzanne C. Breselor, Note, *Renewable Energy Permitting on the Outer Continental Shelf: You Call This a Process? Present Considerations and Recommendations for More Precise Ocean Management*, 38 SUFFOLK U. L. REV. 193, 195 (2004).

aesthetic and environmental considerations in the federal consistency review process, with which they may also block federal activities and permits.¹¹⁴ Federal consistency review is a component of the CZMA, and will be described in more detail below.

Because most of the costs of offshore wind power development are local, there is a strong argument for state and local control over offshore wind project siting: because localities must deal with the downsides of offshore wind projects, they should control where those projects are placed.¹¹⁵ On the other hand, there are broader, positive effects of offshore wind power development—such as energy security improvement and environmental benefits like climate change mitigation—that imply a need for stronger federal intervention to balance appropriately the costs and benefits of offshore wind.¹¹⁶ The CZMA attempts to provide a formal structure for such balancing, but it ultimately leaves the states with too much power, and the federal government and offshore wind farm proponents with no formal federal encouragement or support.

C. The Coastal Zone Management Act: Attempting to Reconcile Local Interests with National Priorities

The overarching goal of the CZMA is “to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation’s coastal zone for this and succeeding generations.”¹¹⁷ The CZMA mentions the development of energy facilities in the Coastal Zone, but its language is vague, and generally requires only that states undertake “adequate consideration of the national interest” in siting energy facilities, and “give consideration” to any applicable national or interstate energy plan or program.¹¹⁸ The CZMA also mentions energy with regard to funding for development: “The national objective of attaining a greater degree of energy self-sufficiency would be advanced by providing Federal financial assistance to meet state and local needs resulting from new or expanded energy activity in or affecting the coastal zone.”¹¹⁹ However, the CZMA does not mention offshore wind energy or renewable energy at all.

Although the CZMA acknowledges the “national interest in the effective management, beneficial use, protection, and development of the coastal zone,”¹²⁰ it allows states substantial discretion over their coastal zone management through CZMPs, which the Secretary of Commerce oversees.¹²¹ As noted previously, the Submerged Lands Act defines state coastal zones as

114. 16 U.S.C. § 1456(c)(1)(A), (1)(C), (3)(A) (2006).

115. See Eberhardt, *supra* note 17, at 411–17.

116. See *id.*

117. 16 U.S.C. § 1452(1) (2006).

118. *Id.* § 1455(d)(8).

119. *Id.* § 1451(j).

120. *Id.* § 1451(a).

121. *Id.* §§ 1452(2), 1455(d).

three miles from the shoreline.¹²² The CZMA mechanism of federal consistency review extends state power further, past their coastal zones, by allowing states to review and sometimes overrule federal actions and permits in federal waters.¹²³

Before the CZMA was promulgated, the coastal zone had long been subject to decentralized management.¹²⁴ The CZMA continues this tradition with its own approach to federalism, explicitly encouraging cooperation between local, state, and federal levels of government in their management of coastal resources.¹²⁵ Specifically, under the CZMA, each state makes its own CZMP.¹²⁶ The CZMA provides a variety of policy considerations for states to incorporate into their management programs. Prioritizing construction of certain facilities, specifically energy facilities, in states' coastal zones is one of several listed considerations.¹²⁷ Others include protecting natural resources; minimizing the loss of life and property to flooding and sea level rise; improving coastal water quality; allowing public recreational access to the coast; restoring urban waterfronts and preserving coastal features; coordinating and simplifying governmental management procedures for coastal resources; consulting and coordinating with federal agencies; giving timely and effective notice for public and local participation in governmental decision making; comprehensive planning for marine resource preservation; and studying sea level rise and land subsidence.¹²⁸ The Secretary of Commerce examines states' CZMPs, making sure they are in accordance with the CZMA's policy considerations and other mandates, and any other federal regulations.¹²⁹ In particular, the CZMA requires that states adequately consider the national interest in "siting of facilities such as energy facilities which are of greater than local significance. In the case of energy facilities, the Secretary shall find that the State has given consideration to any applicable national or interstate energy plan or program."¹³⁰ Once approved by the Secretary of Commerce, however, state CZMPs are subject to very little federal constraint under the CZMA, leaving states with nearly complete discretion within their coastal zones.

State control is expanded by federal consistency review,¹³¹ a mechanism unique to the CZMA. Consistency review allows a state to review a federal agency activity or permit within or outside of the coastal zone for compatibility

122. 43 U.S.C. §§ 1311–1312 (2006).

123. 16 U.S.C. § 1456(c)(1)(A), (1)(C), (3)(A).

124. Russell, *supra* note 73, at 232–33.

125. *See* 16 U.S.C. § 1452(4)–(5); *see also* Russell, *supra* note 73, at 233 (describing cooperative intent of the CZMA).

126. *Id.* §§ 1452(2), 1455(d).

127. *Id.* § 1452(2)(A)–(K).

128. *Id.*

129. *Id.* §§ 1454, 1455(d).

130. *Id.* § 1455(d)(8).

131. *Id.* § 1456(c)(1)(A), (1)(C), (3)(A).

with the state's CZMP when the activity or permit affects the state's coastal zone.¹³² Under this mechanism, the federal agency must submit a "consistency determination" (for an activity) or "consistency certification" (for a permit) to the state before moving forward with the project.¹³³ For federal permits, which would be more relevant to offshore renewable development than federal actions, the state then has the opportunity to concur with or object to the agency's certification.¹³⁴ "No license or permit shall be granted by the Federal agency until the state . . . has concurred with the applicant's certification."¹³⁵ Thus, a coastal state's control extends beyond its own coastal zone into federal waters, as it has the ability to review—and potentially block—any project that affects their coastal zone. In the end, however, the Secretary of Commerce—by her own initiative or in response to an appeal—can overrule the state's protest by finding that a permit is consistent with the objectives of the CZMA or otherwise in the interest of national security.¹³⁶

Since the passage of the CZMA in 1972 until March 2010, states had filed 141 appeals with the Secretary protesting federal permits affecting their coastal zones.¹³⁷ States settled their issues with the federal government in 64 instances, or 45 percent of these cases.¹³⁸ The Secretary dismissed or overrode state appeals in 32 instances, or 23 percent of these cases.¹³⁹ Of the remaining 45 appeals that the Secretary considered for their substance, the Secretary overrode the state's objection in 14 cases, or 31 percent of the time, and accepted the state's objection in 30 cases, or 67 percent of the time.¹⁴⁰ Only 19 of the 45 appeals related to energy facilities, but all of these related to oil or natural gas projects; the Secretary overrode these appeals about half of the time.¹⁴¹ Although states do not choose to use their federal consistency review power over federal permits frequently, as these numbers show, it is nonetheless a powerful tool that extends their power beyond their coastal zones.

Ultimately, the CZMA, with its focus on decentralized, state control over coastal-zone management, leaves the federal government and offshore wind proponents with minimal recourse in their struggle to develop offshore wind

132. *Id.*

133. *Id.* § 1456(c)(1)(C), (3)(A).

134. *Id.* § 1456(c)(3)(A). If a state does not respond to the federal agency within six months, then the state is understood to have consented to the federal consistency determination. *Id.*

135. *Id.*

136. *Id.*

137. OFFICE OF OCEAN & COASTAL RESOURCE MGMT., NAT'L OCEANIC & ATMOSPHERIC ADMIN., APPEALS TO THE SECRETARY OF COMMERCE UNDER THE COASTAL ZONE MANAGEMENT ACT (CZMA) 1 (2010), *available at* <http://coastalmanagement.noaa.gov/consistency/media/appealslist.pdf>.

138. *Id.*

139. *Id.*

140. *Id.* The remaining case is pending.

141. *Id.*

projects. The CZMA allows states near-complete control over their coastal zones through their CZMPs, with almost no role for the federal government in promoting offshore wind energy (or any kind of renewable energy). Because electricity transmission lines must necessarily run through states' coastal zones to reach consumers, states therefore have significant control over offshore wind projects. Through federal consistency review, their direct control can even extend into federal waters; though states have not often employed this process, the Secretary of Commerce has seemed willing to give them some deference when they do. Given a policy of such strong local control, and the absence of a firm federal mandate for offshore wind power development, local interests have been able to stall both federal and state permitting processes, often through litigation. Proponents of offshore wind have little federal support, and no guaranteed source of state support, on which to rely. Cape Wind presents a compelling and frustrating illustration of this problem.

IV

CAPE WIND: AN ILLUSTRATION OF THE PROBLEM

"We're not against renewable energy . . . but we're not for it in this location."¹⁴²

—Douglas Yearley, Alliance to Protect Nantucket Sound

*A. Background*¹⁴³

Massachusetts is no stranger to growing energy demands and their related environmental problems. Predicted energy demands in Massachusetts will outstrip capacity by 2013 and it expects to need another eight power plants by 2015.¹⁴⁴ Currently, energy prices in Massachusetts are among the highest in the United States, and its air quality is among the worst in the country.¹⁴⁵ The Cape Wind project, a proposed 130-turbine wind farm off the coast of Cape Cod, could significantly help Massachusetts meet its rising energy demand in an environmentally sensitive way.¹⁴⁶

The project's developer, Cape Wind Associates, expects its wind farm to generate up to 420 MW of energy.¹⁴⁷ If built, Cape Wind would have sufficient capacity to meet almost 75 percent of the current average electricity demand for

142. WILLIAMS & WHITCOMB, *supra* note 21, at 87 (quoting Douglas Yearley, former head of the Alliance to Protect Nantucket Sound, the primary anti-Cape Wind group).

143. The Cape Wind project's web site is at <http://www.capewind.org>. Wendy Williams and Robert Whitcomb offer an engaging and thorough account of the Cape Wind story through February 2007. WILLIAMS & WHITCOMB, *supra* note 21.

144. Žiža, *supra* note 20, at 594.

145. *Id.*

146. *Project at a Glance*, CAPE WIND: AMERICA'S FIRST OFFSHORE WIND FARM ON NANTUCKET SOUND, <http://www.capewind.org/article24.htm> (last visited Mar. 16, 2010).

147. *Id.*

the Cape and nearby islands,¹⁴⁸ 10 percent of projected 2013 demand in southeastern Massachusetts, or just over 1 percent of total projected 2013 demand in all of New England.¹⁴⁹ The Cape Wind project could also have a significant, positive impact on the region's environment. For example, it would prevent approximately 802 tons of sulfur dioxide, 497 tons of nitrous oxide, and 733,876 tons of carbon dioxide from being emitted into the atmosphere.¹⁵⁰ This would significantly improve the air quality of southeastern Massachusetts and areas upwind from the farm, as well as mitigate climate change.¹⁵¹ Finally, a recent study predicted that the Cape Wind project could have a positive effect on electricity prices, reducing the wholesale cost of power an average of \$185 million annually and the wholesale price of power an average of \$1.22 per MWh, between 2013 and 2037.¹⁵²

The Cape Wind project could achieve these goals without causing significant environmental harm. MMS has prepared Draft and Final Environmental Impact Statements (EIS), and a Biological Assessment, and has predicted that the project—both in construction and in operation—would have almost entirely minor or negligible impacts on wildlife.¹⁵³ According to the Biological Assessment, it would have no significant impact on any species listed under the Endangered Species Act.¹⁵⁴ At worst, Cape Wind could have a moderately negative cumulative impact on the endangered roseate tern and the threatened piping plover.¹⁵⁵

Despite its minimal impact on the environment, many Massachusetts residents, most of them living on Cape Cod, adamantly oppose the Cape Wind project. The entire project would consist of 130 turbines, each rising 260 feet above the water, over 24 square miles in Nantucket Sound.¹⁵⁶ Herein lies a

148. Bina Venkataraman, *U.S. Backing of Wind Farm Could Come This Week*, BOSTON GLOBE, Dec. 2, 2008, at A1.

149. CHARLES RIVER ASSOC., ANALYSIS OF THE IMPACT OF CAPE WIND ON NEW ENGLAND ENERGY PRICES 1 (2010), available at <http://www.capewind.org/downloads/Final%20Cape%20Wind%20Report%20%202-8-2010.pdf>.

150. Žiža, *supra* note 20, at 600 (citing CAPE WIND ENERGY PROJECT, FINAL ENVTL. IMPACT REPORT/DEVELOPMENT OF REGIONAL IMPACT: EXECUTIVE SUMMARY § 1.8 (2007)).

151. *Id.*

152. CHARLES RIVER ASSOCIATES, *supra* note 149, at 1.

153. MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, OCS PUB. NO. 2008-040, CAPE WIND PROJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT A-250-51 (2009), available at <http://www.boemre.gov/offshore/RenewableEnergy/CapeWindFEIS.htm> [hereinafter MMS FEIS]; MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, CAPE WIND ENERGY PROJECT, NANTUCKET SOUND: BIOLOGICAL ASSESSMENT 6-4 (2008), available at <http://www.mms.gov/offshore/PDFs/May2008CapeWindFinalBA.pdf> [hereinafter MMS BIOLOGICAL ASSESSMENT]; MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, OCS PUB. NO. 2007-024, CAPE WIND PROJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT E-12 to -13 (2008), available at <http://www.mms.gov/offshore/RenewableEnergy/DEIS/Volume I - Cape Wind DEIS/Cape Wind DEIS.pdf> [hereinafter MMS DEIS].

154. MMS BIOLOGICAL ASSESSMENT, *supra* note 153, at 6-4.

155. *Id.*; MMS DEIS, *supra* note 153, at E-12.

156. Žiža, *supra* note 20, at 606.

major problem—the land around Nantucket Sound is home, or summer home, to some of the wealthiest and most powerful families in the United States, including the Kennedys.¹⁵⁷ In fact, Robert F. Kennedy, Jr., a noted environmentalist, has publicly denounced the project in various forums.¹⁵⁸ Kennedy has raised aesthetic as well as environmental concerns, but these seem disingenuous given the distance of the wind farm from the coast and the findings of the DEIS and the Biological Assessment.¹⁵⁹

The Alliance to Protect Nantucket Sound (Alliance), the primary opposition group to Cape Wind, has galvanized around environmental, aesthetic, and recreational concerns.¹⁶⁰ The Alliance has also adopted an aggressive litigation strategy in combating Cape Wind, described in more detail below, calling into question every step of the local, state, and federal permitting and environmental review processes. The Alliance and its supporters have effectively stalled the project for nearly ten years.

B. Federal Involvement in the Cape Wind Project

The federal government has been substantially involved in the Cape Wind project because all of Cape Wind's turbines are over five miles from the Massachusetts coast¹⁶¹ and thus fall under the purview of federal rather than state jurisdiction.¹⁶² As noted previously, before the Cape Wind project, it was not clear which federal agency was in charge of siting and permitting offshore wind farms. When Cape Wind began its permitting process in 2001, the Army Corps of Engineers (Army Corps) took on the task of regulating offshore wind under the Rivers and Harbors Act and the Outer Continental Shelf Lands Act.¹⁶³

Even after the Army Corps overcame a legal challenge to its authority in *Ten Taxpayers Citizen Group v. Cape Wind Associates*,¹⁶⁴ it remained unclear who should have the ultimate authority in regulating offshore wind.¹⁶⁵ In *Ten Taxpayers*, a group of citizens challenged an Army Corps permit granted to Cape Wind for a temporary tower in Nantucket Sound, a preliminary data-gathering step for the project to determine its feasibility.¹⁶⁶ The case centered

157. See WILLIAMS & WHITCOMB, *supra* note 21, at chs. 2, 7.

158. See, e.g., *id.* at 117–22 (discussing Kennedy's public denunciations of Cape Wind on NPR, CNN, and elsewhere); Kennedy, *supra* note 21.

159. See, e.g., WILLIAMS & WHITCOMB, *supra* note 21, at 117–22; Kennedy, *supra* note 21.

160. ALLIANCE TO PROTECT NANTUCKET SOUND, <http://www.saveoursound.org> (last visited June 8, 2010).

161. Cape Wind FAQ, *supra* note 18.

162. 43 U.S.C. §§ 1331–1356 (2006).

163. Rivers and Harbors Act, 33 U.S.C. § 403 (2006); Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1331–1356 (2006); see Jensen, *supra* note 12, at 10 n.26.

164. *Ten Taxpayers Citizen Group v. Cape Wind Assocs.* (*Ten Taxpayers I*), 278 F. Supp. 2d 98 (D. Mass. 2003), *aff'd*, 373 F.3d 183 (1st Cir. 2004).

165. See Jensen, *supra* note 12, at 12.

166. *Ten Taxpayers I*, 278 F. Supp. 2d at 99.

on a debate over state versus federal jurisdiction in federal waters.¹⁶⁷ Ten Taxpayers claimed that Cape Wind needed a state fisheries permit, despite the project's location in federal waters.¹⁶⁸ The district court dismissed the complaint and held that the state did not have jurisdiction over nonfishing activities, even if those activities might affect fish.¹⁶⁹ The First Circuit upheld the district court's ruling, but on somewhat different grounds.¹⁷⁰ Among other things, the First Circuit held that the federal government has jurisdiction over the Outer Continental Shelf under Outer Continental Shelf Lands Act, leaving Massachusetts without the ability to require permits there.¹⁷¹ The Supreme Court denied certiorari.¹⁷²

As *Ten Taxpayers* progressed through the courts, both Congress and the Army Corps continued to move forward in response to, or in spite of, the federal permitting controversy. To facilitate offshore development, Congress began drafting legislation that would officially dictate where the offshore siting and permitting power should lie.¹⁷³ Meanwhile, the Army Corps continued its environmental review process under the National Environmental Policy Act (NEPA).¹⁷⁴ The Army Corps issued a Draft EIS in November 2004 and accepted comments through the following January.¹⁷⁵

Opponents to the project continued to take advantage of confusion over which federal agency was responsible for offshore wind regulation. In *Alliance to Protect Nantucket Sound v. U.S. Department of the Army*,¹⁷⁶ the Alliance sued the Army Corps when it tried to assert jurisdiction over the environmental review process in the case. As in *Ten Taxpayers*,¹⁷⁷ the *Alliance* complaint focused on the data tower.¹⁷⁸ After several public meetings regarding the tower, the Army Corps made a Finding of No Significant Impact based on its Environmental Assessment for the tower under NEPA.¹⁷⁹ The Alliance brought suit contesting the Army Corps's jurisdiction over permitting for the tower.¹⁸⁰ The Alliance also alleged that the Army Corps failed to comply adequately

167. *Id.* at 100.

168. *Id.*

169. *Id.* at 101.

170. *Ten Taxpayers Citizens Group v. Cape Wind Assocs. (Ten Taxpayers II)*, 373 F.3d 183, 186, 193–94 (1st Cir. 2004).

171. *Id.* at 196–97.

172. *Ten Taxpayer Citizens Group v. Cape Wind Assocs.*, 543 U.S. 1121 (2005).

173. *See WILLIAMS & WHITCOMB, supra* note 21, at ch. 14.

174. *See* Notice of Intent to Prepare a Draft Environmental Impact Statement (DEIS) for Proposed Cape Wind Energy Project, 67 Fed. Reg. 4414 (Jan. 30, 2002).

175. *See* Notice of Availability of the Draft Environmental Impact Statement (DEIS) for the Cape Wind Energy Project, 69 Fed. Reg. 64919 (Nov. 9, 2004).

176. *Alliance to Protect Nantucket Sound, Inc. v. U.S. Dep't of the Army (Alliance I)*, 288 F. Supp. 2d 64 (D. Mass. 2003), *aff'd*, 398 F.3d 105 (1st Cir. 2005).

177. *Ten Taxpayers I*, 278 F. Supp. 2d 98, 99 (D. Mass. 2003).

178. *Alliance I*, 288 F. Supp. 2d at 66–67.

179. *Id.* at 69.

180. *Id.* at 70, 72.

with NEPA.¹⁸¹ The District Court deferred to the Army Corps, and held, among other things, that the Army Corps reasonably understood the Rivers and Harbors Act and Outer Continental Shelf Lands Act to provide it jurisdiction over the Outer Continental Shelf, including construction of the tower.¹⁸² The court granted Cape Wind's motion for summary judgment,¹⁸³ and the First Circuit affirmed.¹⁸⁴

In 2005, after the *Alliance* case but before the Army Corps could issue a Final EIS, Congress shifted authority over offshore wind from the Army Corps to MMS by passing Section 388 of the Energy Policy Act.¹⁸⁵ MMS has since taken over the NEPA environmental review process from the Army Corps.¹⁸⁶ Now that Congress has designated MMS as the primary agency overseeing Cape Wind and other offshore development, it appears to have resolved the question of who has primary jurisdiction over offshore wind regulation at the federal level.

After releasing a favorable Final EIS in January 2009,¹⁸⁷ MMS has taken a supportive stance toward Cape Wind and offshore wind power in general. In early 2010, Secretary of the Interior Ken Salazar, who oversees MMS as a sub-agency within DOI, repeatedly indicated his interest in wrapping up the Cape Wind permitting process and moving forward with the project.¹⁸⁸ At the same time, a new set of players entered the picture: the Aquinnah and Mashpee Wampanoag Indian tribes.¹⁸⁹ The tribes claimed that Nantucket Sound is sacred tribal ground and want it declared as such, which could significantly curtail potential development.¹⁹⁰ In an effort to come to consensus, Secretary Salazar convened a series of stakeholder meetings with the key actors in the Cape Wind saga, including the tribes, but had little success.¹⁹¹ Despite continued

181. *Id.* at 78.

182. *Id.* at 72–77, 78–82.

183. *Id.* at 82.

184. *Alliance to Protect Nantucket Sound, Inc. v. U.S. Dep't of the Army (Alliance II)*, 398 F.3d 105, 116 (1st Cir. 2005).

185. Energy Policy Act of 2005, Pub. L. No. 109-58, § 388, 119 Stat. 594, 745 (codified at 43 U.S.C. § 1337 (2006)).

186. See Notice of Availability of Draft Environmental Impact Statement and Public Hearings for the Cape Wind Project Energy Project, 73 Fed. Reg. 3482 (Jan. 18, 2008); Notice of Intent to Prepare an Environmental Impact Statement, 71 Fed. Reg. 30693 (May 30, 2006).

187. MMS FEIS, *supra* note 153.

188. See, e.g., Press Release, U.S. Dep't of the Interior, Secretary Salazar Puts Timeline on Cape Wind Decision (Jan. 13, 2010), available at http://interior.gov/news/10_News_Releases/011310.html.

189. Graham Jesmer, *Federal Decision Could Make or Break Cape Wind's Future*, RENEWABLEENERGYWORLD.COM (Jan. 20, 2010), <http://www.renewableenergyworld.com/realnews/article/2010/01/federal-decision-could-make-or-break-cape-winds-future>.

190. *Id.*

191. Gail Courey Toensing, *Salazar Sets Countdown to Cape Wind Decision*, INDIAN COUNTRY TODAY (Mar. 9, 2010), <http://www.indiancountrytoday.com/national/northeast/86598797.html>; Katie Zezima, *Interior Secretary Sees Little Hope for Consensus on Wind Farm*, N.Y. TIMES, Feb 3., 2010, at A18.

disagreement and protest, Secretary Salazar released a final Record of Decision and Lease to Cape Wind in April 2010, completing the final step in the federal siting process for the wind farm.¹⁹² The Record of Decision required some changes to the project, including changes to its design, configuration, and number of turbines, and allowed for automatic cessation of development should there be an unanticipated archaeological find, such as tribal artifacts.¹⁹³ While federal permitting appears finally to be coming to a close for Cape Wind after nine years, the project still must ensure that it has overcome all the hurdles it faces at the state level, as well. Opponents of Cape Wind have promised to continue to fight the project in court.¹⁹⁴

C. State Involvement in the Cape Wind Project

State jurisdiction over the transmission cables has allowed Massachusetts to exert significant influence over the Cape Wind project. A number of state agencies, including the Energy Facilities Siting Board (Siting Board), the Department of Environmental Protection (DEP), and the Office of Coastal Zone Management are involved in the state permitting and siting of offshore projects.¹⁹⁵ The Siting Board is responsible for permitting any energy-related development, including the cables that Cape Wind would need to install to bring its electricity to shore.¹⁹⁶ The DEP is responsible for environmental review of projects under the Massachusetts Environmental Policy Act (MEPA),¹⁹⁷ Massachusetts's analogue to NEPA.¹⁹⁸ Finally, the Office of Coastal Zone Management is responsible for executing Massachusetts's CZMP

192. MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, RECORD OF DECISION: CAPE WIND ENERGY PROJECT (Apr. 28, 2010), *available at* <http://www.mms.gov/offshore/RenewableEnergy/PDFs/CapeWindROD.pdf>. Shortly after MMS released its Record of Decision, the Federal Aviation Administration also gave its necessary approval of the project, in its May 2010 Determination of No Hazard to Air Navigation. FEDERAL AVIATION ADMINISTRATION, AERONAUTICAL STUDY NO. 2009-WTE-332-OE, DETERMINATION OF NO HAZARD TO AIR NAVIGATION (May 17, 2010).

193. *See id.*; *see also* Press Release, U.S. Dep't of Interior, Secretary Salazar Announces Approval of Cape Wind Energy Project on Outer Continental Shelf off Massachusetts (Apr. 28, 2010), *available at* <http://www.doi.gov/news/doinews/Secretary-Salazar-Announces-Approval-of-Cape-Wind-Energy-Project-on-Outer-Continental-Shelf-off-Massachusetts.cfm> (summarizing approval and requirements).

194. Katharine Q. Seelye, *Regulators Approve First Offshore Wind Farm in U.S.*, N.Y. TIMES, Apr. 28, 2010, <http://www.nytimes.com/2010/04/29/us/29wind.html>.

195. Žiža, *supra* note 20, at 608.

196. *Siting Board Responsibilities*, ENERGY & ENVTL. AFF., <http://www.mass.gov/?pageID=eoeeahomepage&L=1&L0=Home&sid=Eoeea> (follow "Energy, Utilities & Clean Technologies" hyperlink; then follow "Energy Facilities Siting Board" hyperlink; then follow "Siting Board Responsibilities" hyperlink) (last visited Mar. 18, 2010).

197. MASS. GEN. LAWS ch. 30, § 61–62H (2009); *Mission, Priorities & Results*, MASS. DEP'T OF ENVTL. PROTECTION, <http://www.mass.gov/dep/about/missionp.htm> (last visited Mar. 18, 2010).

198. National Environmental Policy Act, 42 U.S.C. §§ 4321–4347 (2006).

under the CZMA.¹⁹⁹ Several local regulatory bodies are also involved, including the Cape Cod Commission and the Barnstable and Yarmouth conservation commissions.²⁰⁰

Prior to the change in state administration in 2007, the Alliance to Protect Nantucket Sound and other Cape Wind opponents had the State of Massachusetts on their side, or at least its then-Governor, Mitt Romney.²⁰¹ Backed by the Governor's apparent commitment to stopping Cape Wind, opponents to the project worked to stall it using various state permitting channels, primarily through litigation. In 2006, the Alliance appealed the Siting Board's conditional approval of Cape Wind's underground and undersea transmission lines to connect it to the New England grid in *Alliance to Protect Nantucket Sound v. Energy Facilities Siting Board*.²⁰² In the face of opposition by state officials and others,²⁰³ the Siting Board had tentatively approved the lines after determining that there was a need for them, per its regulatory mandate.²⁰⁴ The Siting Board's formal approval hinged on Cape Wind's submission of certain federal state, and local permits, which was consistent with the Siting Board's regulatory scheme.²⁰⁵ The Alliance focused its complaint on the timing and the contingent nature of the Siting Board's approval rather than its accuracy.²⁰⁶ The Massachusetts Supreme Court deferred to the Siting Board and upheld its conditional approval of the lines.²⁰⁷

Despite the Siting Board's court-approved contingent permitting approval, the Cape Cod Commission denied local permits in 2007, and the Siting Board decided to adjudicate that issue together with its final approval of Cape Wind.²⁰⁸ In May 2009, the Siting Board released its approval for Cape Wind as a "super permit."²⁰⁹ That is, it gave the project all of the relevant state and local

199. Coastal Zone Management Act, 16 U.S.C. §§ 1451–1456 (2006).

200. Žiža, *supra* note 20, at 608. I do not address the potential for local conflict and control, and instead assume the state to be a sovereign actor able to direct local activity when appropriate. Until now, Massachusetts state agencies have overcome legal challenges to their decisions by local commissions, regarding both the substance of the outcome and the ability of the state to assert its sovereignty over localities. See Petition of Cape Wind Assocs., LLC for Certificate of Env't'l Impact and Public Interest, EFSB 07-8 (Energy Facilities Siting Bd. May 27, 2009), available at <http://www.env.state.ma.us/dpu/docs/siting/efsb07-8/52709cwford.pdf> [hereinafter Petition of Cape Wind Assocs.]; Patrick Cassidy, *Wind Farm: Lawyers Expect Precedent-Setting Ruling*, CAPE COD TIMES, Oct. 12, 2008, <http://www.capecodonline.com/apps/pbcs.dll/article?AID=/20081012/NEWS/81012002>.

201. See WILLIAMS & WHITCOMB, *supra* note 21, at 210–16.

202. Alliance to Protect Nantucket Sound, Inc. v. Energy Facilities Siting Bd., 858 N.E.2d 294 (Mass. 2006).

203. See WILLIAMS & WHITCOMB, *supra* note 21, at 210–16.

204. *Id.* at 297–98.

205. *Id.*

206. *Id.* at 298.

207. *Id.* at 299–302.

208. See *Town of Barnstable v. Mass. Energy Facilities Siting Bd.*, 24 Mass. L. Rep. 550 (Super. Ct. 2008).

209. Petition of Cape Wind Assocs., *supra* note 200, at 37; see also Patrick Cassidy, *Key*

permits that it requires, which meant overruling the denial by the Cape Cod Commission, as well as requiring various other local permits.²¹⁰ Opponents to the decision have challenged it in state court, and arguments were ongoing as of this writing.²¹¹

Throughout most of this litigation and administrative decision making, however, proponents of the Cape Wind project did not have a robust state mandate for offshore wind power development on which to rely. Importantly, the project did not receive support from Massachusetts's CZMP. Massachusetts's CZMP is a "networked" plan—it is based on "at least seven memoranda of understanding between the Massachusetts Office of Coastal Zone Management and the other state agencies that exercise supervisory authority over use and development of the coastline."²¹² The Plan is decentralized, its goals are unclear, and its processes are inefficient, all of which make it an ineffective vehicle for promoting offshore wind power development. The Massachusetts networked CZMP stands in contrast to centralized plans in states like California, which offer stronger overarching state mandates regarding coastal regions.²¹³ Under the CZMA, however, states have complete control over which type of plan they use—networked or centralized.

However, the Massachusetts CZMP may be changing, and possibly for the better, from the perspective of Cape Wind. In May 2008, Massachusetts passed the Oceans Act—an attempt to lay out the state's process for ocean development, including offshore wind projects.²¹⁴ According to a local news source, "[t]he Oceans Act is an attempt to avoid the sorts of ugly and time-consuming regulatory and legal conflicts that have accompanied the Cape Wind proposal, for example, by establishing in advance those areas in which certain activities can take place, and under what restrictions."²¹⁵ Initially, the Oceans Act was perceived as a "hollow piece of legislation."²¹⁶ The State fleshed out the Act through its Ocean Management Plan,²¹⁷ which it released in January 2010. This Management Plan will be incorporated into the Massachusetts CZMP and will be enforced through MEPA and other regulatory and

Wind Farm Permits Approved, CAPE COD TIMES, May 22, 2009, <http://www.capecodonline.com/apps/pbcs.dll/article?AID=/20090522/NEWS/90522009> (describing the term "super permit").

210. Petition of Cape Wind Assocs., *supra* note 200, at 37.

211. Patrick Cassidy, *SJC Hears Cape Wind Appeal*, CAPE COD TIMES, Feb. 12, 2010, <http://www.capecodonline.com/apps/pbcs.dll/article?AID=/20100212/NEWS/2120316/-1/NEWS>.

212. Russell, *supra* note 73, at 242.

213. *See id.* at 240–41.

214. Massachusetts Oceans Act, 2008 Mass. Acts, ch. 114.

215. Mike Seccombe, *Oceans Act Seeks to Regulate Development in State Water*, VINEYARD GAZETTE, Oct. 10, 2008, <http://www.mvgazette.com/article.php?18784>.

216. *Id.*

217. MASS. EXECUTIVE OFFICE OF ENERGY & ENVTL. AFFAIRS, MASSACHUSETTS OCEAN MANAGEMENT PLAN (2010), <http://www.mass.gov/?pageID=eoeatopic&L=3&L0=Home&L1=Ocean+%26+Coastal+Management&L2=Massachusetts+Ocean+Plan&sid=Eoeaa>.

permitting processes.²¹⁸

The Ocean Management Plan appears supportive of renewable energy development in both federal and state waters. One of the Management Plan's four goals is to "support wise use of marine resources, including renewable energy, sustainable uses, and infrastructure."²¹⁹ It also establishes three specific "management areas" for ocean development: prohibited areas, renewable energy areas, and multi-use areas.²²⁰ In this section, it designates a "Martha's Vineyard Wind Energy Area," which is on the opposite side of Martha's Vineyard from Cape Wind, closer to land;²²¹ Cape Wind, as noted previously, is located in federal waters, outside of Massachusetts's Coastal Zone. The Plan indicates that MMS plans to cooperate with Massachusetts through a federal-state task force, which will assist MMS in the planning and regulatory review associated with leasing areas of federal waters for large-scale wind energy development.²²² As for transmission through state water, the area between the Cape Wind turbines and Cape Cod is designated as a multi-use area.²²³ The Ocean Management Plan specifically describes multi-use areas as "open" to cables, which would include transmission lines.²²⁴ The Plan notes that such cables might be sited and meet the environmental review required by MEPA.²²⁵ Although it is too soon to know the combined effects of the Oceans Act and the Ocean Management Plan on Cape Wind, and on offshore wind energy and offshore renewable energy in Massachusetts generally, the Act and the Plan certainly appear encouraging. Indeed, project developers Cape Wind Associates have been optimistic.²²⁶

However, the Oceans Act and Ocean Management Plan, though promising, have come late in the game for Cape Wind, nine long years after the project sought its initial federal permits. For most of this time, Cape Wind proponents had to fight state and local interests at every turn, at both the state and federal levels, with no explicit state or federal mandate to back them up in administrative processes or litigation. Although Massachusetts finally appears to be explicitly acknowledging the broad benefits of offshore wind power, other states may not have such foresight, and other projects may face the same uphill battle as Cape Wind against powerful opposition focused on local costs. Without a stronger federal policy in the process promoting the broad benefits of

218. See Secombe, *supra* note 215.

219. MASS. EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS, *supra* note 217, at 1-4.

220. *Id.* at 2-1.

221. *Id.* at 2-2, app. 4, fig. 2-1.

222. *Id.* at 2-2.

223. *Id.*

224. *Id.* at 2-3.

225. *Id.* at 2-3 to -4.

226. See *Cape Wind Hopeful After Salazar Meeting*, OFFSHORE WIND WIRE, Jan. 13, 2010, <http://offshorewindwire.com/2010/01/13/cape-wind-hopeful-after-meeting>.

offshore wind, and one with a congressional mandate and requirements to back it up, offshore wind power development is sure to be slow. The CZMA offers a potential way for the federal government to assert itself and the benefits of offshore wind in state and local decision making.

V

THE COASTAL ZONE MANAGEMENT ACT: A POTENTIAL SOLUTION

The Cape Wind example poignantly illustrates the disconnect between local costs and national benefits with regard to offshore wind power development, and the potential for local interests to hijack state and federal processes and stall a project. The federal government needs a stronger role in the process to counteract narrow-minded state and local opposition. With a well-integrated federal perspective, agencies and developers could properly weigh regional, national, and global benefits of offshore wind against its limited local costs.

The CZMA presents an obvious starting point for a revised regulatory framework. It already covers the states' coastal zones—that is, the area three miles or less from the shore—and leaves states with substantial power.²²⁷ However, it currently does not give sufficient weight to the national interest in the benefits of offshore wind power. Some academics have come to a similar conclusion, but their revisions are tentative and minor.²²⁸ Now is a time for more decisive and bold action. With the change in the United States' administration, the deteriorating climate situation, and the nation's ongoing energy and economic crises, the country has both the opportunity and the need to make effective changes. However, setting up an entirely new regulatory scheme, as some have suggested,²²⁹ goes too far: it fails to acknowledge what Congress can realistically accomplish and ignores the tools we already have in our hands in the CZMA. With some strengthening revisions, the CZMA might become the simple solution that helps the United States turn offshore wind on.

A. An Ineffective Tool to Promote Offshore Wind

The CZMA has had some measure of success—almost every coastal state participates and it has led states to view their Coastal Zones as “unified ecological area[s].”²³⁰ Still, despite clear undertones of environmental protection, the Act has failed to serve as an effective tool to promote offshore wind power development, even at well-suited sites such as the location of the Cape Wind project. The CZMA's failure with respect to offshore wind can be attributed to lack of specificity in the terms of the Act. That is, without more

227. Coastal Zone Management Act, 16 U.S.C. §§ 1451–1456 (2006).

228. See, e.g., Russell, *supra* note 73, at 254–59 (described *infra* note 270).

229. See, e.g., Dinnell & Russ, *supra* note 33, at 579–82 (recommending the passage of a new National Wind Power Act).

230. Russell, *supra* note 73, at 240.

explicit guiding principles and requirements, states can fulfill the process required by the CZMA—the development of CZMPs—while not meeting any particular standards.²³¹ This leaves states with substantial discretion, but without a coherent, overarching goal driven by a federal plan. In particular, with its decentralized structure and only brief explicit mention of the national benefits of offshore energy development, the CZMA gives insufficient encouragement to states to recognize the benefits of offshore wind power in their CZMPs.²³² For example, the CZMA explicitly mandates that coastal states “anticipate and plan” for climate change and resulting sea level rise and other adverse effects.²³³ However, it fails to specify the role for offshore wind energy or offshore renewable energy, even in a general manner, in such climate-change planning and in state CZMPs.

Once the Secretary of Commerce has determined that a state has given “adequate consideration” to the “national interest” in its CZMP, the federal government no longer has control over energy facility development in state waters.²³⁴ Thus coastal states can block proposed turbines in state waters and proposed transmission lines from offshore turbines proposed for federal waters. Or, as in the Cape Wind saga, most of which occurred before the Oceans Act was passed, states can simply not encourage, or even address, renewable energy production, giving proponents no mandate to rely on in litigation and administrative processes. In a more extreme situation, through federal consistency review, a coastal state retains a “reverse-preemption power” for federal projects and permits in state and federal waters, as long as these projects affect the state’s coastal zone.²³⁵ Therefore, as projects outside of a state’s CZMP will frequently impact a state’s coastal zone, states can also potentially block permitting and/or construction of turbines not only in their coastal zones, but also in federal waters outside of their CZMP’s jurisdiction. Through these two mechanisms—state CZMPs and federal consistency review—local interests focused on local costs in coastal states can stall or block offshore wind power development, despite compelling national and global reasons to promote it. The CZMA offers no support to counteract this local opposition, such as a pro-offshore wind federal mandate.

In addition, the federal government has offered only low levels of funding for renewable energy activity offshore.²³⁶ When this factor is combined with the regulatory uncertainty resulting from so much discretion given to each individual state, it is not surprising that the CZMA has been an ineffective tool for promoting offshore wind power development.

231. *Id.* at 236.

232. *See* 16 U.S.C. § 1455(d)(8) (2006).

233. *Id.* § 1451(l).

234. *Id.* § 1455(d)(8).

235. *See* Russell, *supra* note 73, at 248.

236. Russell, *supra* note 73, at 239.

B. Denmark: An Example of Offshore Success

Not surprisingly, offshore wind power development has been most successful in places with a powerful, centralized government implementing a strong pro-offshore wind power policy.²³⁷ Denmark in particular has been successful in its promotion of wind power, especially offshore wind power.²³⁸ By the end of 2006, Denmark was generating 20 percent of its electricity from wind, both offshore and onshore.²³⁹ Since 1991, Denmark has erected eight offshore wind farms, with a total capacity of 423 MW,²⁴⁰ meeting about 4.5 percent of Denmark's power needs.²⁴¹ The Danish Energy Authority, the governmental agency that oversees energy facility construction, required the construction of the two largest Danish offshore wind farms—Horns Rev and Nysted.²⁴² Its requirement resulted from a governmental action plan outlining the expansion of wind power in Denmark, which emphasized the expansion of offshore wind power in particular.²⁴³

The Danish government has promoted wind power generation for decades, and the Danish Energy Authority serves as the centralized head of the Danish government's offshore wind policy implementation.²⁴⁴ The Energy Authority is a "one stop shop" for the many parties interested in offshore wind power development.²⁴⁵ It determines whether to pursue an Environmental Impact Assessment, which it then uses, along with relevant legislation, to determine whether to allow offshore development.²⁴⁶

At the same time, the government has worked to win support from a wide range of stakeholders, including energy companies, industry, municipalities, research institutions, nongovernmental organizations, and consumers.²⁴⁷ In localities around the Horns Rev offshore wind farm, people expressed concerns before construction regarding the lack of local involvement in the process, the negative visual and aesthetic impact of the project, and the resulting negative effect on tourism.²⁴⁸ After construction, and after no drop in tourism occurred, attitudes gradually shifted to neutral or even somewhat positive towards the

237. See Dinnell & Russ, *supra* note 33, at 566–67; Watson & Courtney, *supra* note 60, at 267.

238. See generally DONG ENERGY ET AL., *supra* note 85 (describing the successful development of offshore wind power in Denmark).

239. *Id.* at 4.

240. *Id.* at 26.

241. Kate Galbraith, *Trimming the Costs of Wind Power*, N.Y. TIMES, Dec. 6, 2009, <http://www.nytimes.com/2009/12/07/business/energy-environment/07iht-green07.html>.

242. DONG ENERGY ET AL., *supra* note 85, at 16, 26–27.

243. *Id.*

244. *Id.* at 124–29.

245. *Id.* at 128–29.

246. *Id.*

247. *Id.* at 125–29.

248. *Id.*

project.²⁴⁹ Denmark offers a lesson in the power of constructed offshore wind projects to change negative attitudes.²⁵⁰ The same transformation might be possible in the United States.

In 2007, after nearly a year of negotiations, the Danish government committed to increasing its wind power generation capacity by 1,300 MW by 2012, bringing its capacity to a total of 4,400 MW,²⁵¹ or nearly 50 percent of Denmark's total power needs.²⁵² This increase will include 400 MW of new offshore generation on existing wind farms, Horns Rev and Nysted, and at least 400 MW of offshore generation in new wind farms.²⁵³ The Danish government's commitment to renewable energy, wind power, and, in particular, offshore wind power, fits into the European Union's broad pro-renewable energy goals. Specifically, the EU aims to generate 21 percent of its electricity from renewable energy sources by 2010 as part of its efforts to combat climate change and to reduce its dependence on coal, oil, and natural gas.²⁵⁴ A number of other EU countries also have strong offshore wind programs.²⁵⁵ Although Denmark has traditionally been touted as the leader in offshore wind production, the United Kingdom recently overtook it with a total offshore generation capacity of 590 MW.²⁵⁶

C. Suggested Revisions to the CZMA

Despite its ineffectiveness to date, the CZMA has great potential to serve as a framework for offshore wind power development. With some simple but clear revisions that could enhance federal influence, mimicking Denmark's stronger centralized control of energy development, the CZMA could be used to mandate offshore wind power-friendly CZMPs where applicable. At the same time, the Act will continue to uphold the federalism values ingrained in the management of coastal resources in the United States. These revisions should be:

To include an explicit mandate for offshore wind power development where appropriate and feasible on all U.S. coasts;

To require revisions to CZMPs in accordance with this new mandate;
and

249. *Id.*

250. *Id.* at 119.

251. DANISH WIND INDUS. ASS'N, ANNUAL REPORT 2008 11 (Bjarne Lundager Jensen et al. eds., 2008).

252. If 4.5 percent of Denmark's power needs is 423 MW, then its total demand is about 9,400 MW, and 4,400 MW is about 46 percent of total demand. See Galbraith, *supra* note 241.

253. DANISH WIND INDUSTRY ASSOCIATION, *supra* note 251, at 11–12.

254. *Id.* at 9.

255. DONG ENERGY ET AL., *supra* note 55, at 23–24.

256. Alok Jha, *UK Overtakes Denmark as World's Biggest Offshore Wind Generator*, GUARDIAN UNLIMITED, Oct. 21, 2008, <http://www.guardian.co.uk/environment/2008/oct/21/windpower-renewableenergy1>.

To increase funding and other incentives for offshore wind power development.

Revising the CZMA is not a new idea for Congress. For example, during the Cape Wind federal jurisdiction saga, Cong. William D. Delahunt (D-MA) proposed a set of revisions to the CZMA²⁵⁷ in response to the Cape Wind federal jurisdiction confusion.²⁵⁸ Although these did not pass,²⁵⁹ and focused on agency jurisdiction over offshore wind rather than the promotion of offshore wind, the proposal at least demonstrates some willingness in Congress to take on the idea of revising the CZMA. Indeed, the CZMA has been amended in the past, for example to encourage aquaculture.²⁶⁰

In a promising sign of state willingness to cooperate in coastal management, Massachusetts and fifteen other states participated in MMS's initial Programmatic Environmental Impact Statement (PEIS) process, which was MMS's effort to determine how to address offshore wind permitting.²⁶¹ Several commenters in the process, including representatives of state agencies, urged MMS to coordinate with state authorities in finding suitable locations for offshore wind facilities.²⁶² More recently, Massachusetts's Ocean Management Plan explicitly suggests coordination with MMS for offshore renewable energy siting.²⁶³

1. Mandate Offshore Wind Power Development

Although the United States has evolved a fundamentally different approach to coastal management from Denmark, revisions to the CZMA should shift our national approach toward increased, centralized influence and coordination that has worked so effectively in that country. Currently the CZMA recognizes the potential importance of offshore energy development and requires the consideration of the development of energy facilities that "are of greater than local significance" in state plans.²⁶⁴ These vague standards are not sufficient, however, as evidenced by the failure of offshore wind power development in the United States, and in Cape Wind in particular. The CZMA should be revised to include an explicit mandate to states to permit, and possibly even to promote, offshore wind energy and other renewable energy development in appropriate locations. The term "development" should broadly encompass generation facilities as well as transmission lines and other works required to allow facilities to operate effectively. While it is important for states to continue to respond to local concerns and negative impacts, the federal

257. Coastal Zone Renewable Energy Promotion Act, H.R. 1183, 108th Cong (2003).

258. See Breselor, *supra* note 113, at 211–12.

259. See *id.* at 208.

260. See Russell, *supra* note 73, at 256–57.

261. Jensen, *supra* note 12, at 14.

262. *Id.* at 16.

263. MASS. EXECUTIVE OFFICE OF ENERGY & ENVT'L AFFAIRS, *supra* note 217, at 2-2.

264. Eberhardt, *supra* note 17, at 390 (quoting 16 U.S.C § 1455(d)(8)).

government needs a stronger voice in favor of the national interest in offshore wind power development.

This new mandate would not have a detrimental effect on the federal government's broad goal of environmental protection. It would not give offshore wind power developers a right to develop anywhere off the coast, but it would push development in locations that are appropriate environmentally. Along with studies relating to optimal coastal development conditions, for example, wind pattern studies, MMS's PEIS could serve as a useful starting point in defining what "appropriate locations" should entail. The PEIS examines "the potential environmental consequences of implementing the [Alternative Energy and Alternate Use Program on the OCS] and will be used to establish initial measures to mitigate environmental consequences."²⁶⁵ Individual projects would almost certainly still require individual EISs under NEPA, which would further ensure environmentally appropriate offshore renewable development. In fact, NEPA would effectively serve as a backstop to the development that a revised CZMA would encourage, as it would discourage or prohibit environmentally harmful overdevelopment.

This revision to the CZMA could change how coastal states treat offshore wind power development in two ways. First, it would require changes to many states' CZMPs to reflect the new national priority for offshore renewable energy sources, including offshore wind. Second, the new CZMA mandate would affect how states approach the federal consistency review process with respect to renewable permitting and construction in state and federal waters.²⁶⁶ The federal government would likely certify offshore wind projects as consistent with states' revised CZMPs because development of offshore renewable energy would be an explicit goal in the states' CZMPs under the revised CZMA. Similarly, states would less frequently be able to object to these determinations, because they would have difficulty finding inconsistency with their revised state CZMPs.²⁶⁷ And even if a coastal state did object to a federal determination, the Secretary of Commerce could overrule the state's objection as inconsistent with the new objectives of the CZMA.²⁶⁸ Thus, the revised CZMA would more effectively compel states to consider the national benefits of offshore wind in addition to just their consideration of the local costs. Further, it would give offshore wind proponents support in combating local opposition to projects.

This revision could come in tandem with revisions to the Energy Policy Act or as part of an entirely new energy agenda. President Barack Obama has

265. MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, OCS ALTERNATIVE ENERGY AND ALTERNATE USE PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ES-1 (2007), available at <http://ocsenergy.anl.gov/index.cfm>.

266. See 16 U.S.C. § 1456(c)(1)(A), (1)(C), (3)(A) (2006).

267. See *id.* § 1456(c)(1)(C), (3)(A).

268. See *id.* § 1456(3)(A).

repeatedly expressed interest in a new trajectory for energy policy in the United States that focuses on climate change, energy efficiency, renewable energy, and energy independence.²⁶⁹ Congress could take advantage of this momentum to make these related revisions to the CZMA as well. In fact, reform of an existing, familiar set of regulations, like the CZMA, may be more palatable to Congress, and an easy first step to take with regard to renewable energy.

2. Require Revisions to State Plans

To give this new offshore renewable energy mandate effect, Congress or the Secretary of Commerce should instruct states to revise their CZMPs in order to achieve full compliance with the new requirement.²⁷⁰ Once the plans are revised, the CZMA already provides the Secretary of Commerce with a mechanism to ensure there are no gaps or deficiencies in state plans. As noted previously, before approving a state's CZMP, the Secretary of Commerce must ensure the CZMP is in compliance with the CZMA and all other additional rules and regulations the Secretary has promulgated.²⁷¹ If the CZMA's "purposes" were to include promotion of offshore wind power generation, the Secretary of Commerce could make sure the CZMPs carry out that purpose.

Thus, states could retain some measure of control, but the broader benefits of offshore wind power development would be integrated into both the CZMA and the CZMPs. As noted previously, CZMPs revised in favor of offshore wind would also give proponents of development more statutory support in any state litigation by offshore wind opponents and may even deter such litigation altogether.

3. Increase Funding and Incentives for Offshore Wind

As previously discussed, a federal agency, MMS, is responsible for siting and permitting offshore wind power generation facilities.²⁷² Although the CZMA alludes to the ability of the federal government to play another role by

269. See, e.g., Address Before a Joint Session of the Congress on the State of the Union, *supra* note 9; Peter Baker, *Obama Calls His Budget Sweeping, Needed Change*, N.Y. TIMES, Mar. 1, 2009, at A17; Peter Baker & John M. Broder, *Obama Pledges Public Works on a Vast Scale*, N.Y. TIMES, Dec. 6, 2008, at A1; Kate Galbraith, *Obama Vows Support for Renewables—and a Carbon Cap*, N.Y. TIMES GREEN INC. BLOG (Feb. 25, 2009, 6:57 AM), <http://greeninc.blogs.nytimes.com/2009/02/25/obama-vows-support-for-renewables-and-a-carbon-cap>.

270. See Russell, *supra* note 73, at 256–57. Russell urges a similar approach, but is more timid. He suggests “encouraging” coastal plan revision, but shies away from amending the CZMA itself, suggesting instead that agencies find ways to induce states to change their plans to encourage offshore development. While he acknowledges the potential for amendment, he cites two primary obstacles: (1) the historical lack of federal commitment to significant wind energy development, given the heightened level that would be required to have an amendment work; and (2) a history of approving coastal zone management plans that are overly general.

271. 16 U.S.C. § 1455(d)(1) (2006).

272. See *supra* Part III.A (discussing the Energy Policy Act of 2005).

encouraging energy facility development through “financial assistance,”²⁷³ it is once again vague. Congress would need to back up its commitment to offshore wind power development—and renewable energy, in general—with funding increases and incentives for such development in particular. Such assistance could include incentives for not only generation facilities, but also transmission and distribution lines, and any other related works necessary for functioning offshore wind farms. Funding could be dependent on state CZMP revision, as described above, to encourage prompt revision. Congress has already recognized the importance of tax incentives for renewable energy in its renewal of the Production Tax Credit through 2012.²⁷⁴ Other studies have shown a correlation between these credits and increases in renewable energy investment, and have postulated more significant increases with a longer-term incentive.²⁷⁵

While this revision would likely be the hardest of the three for Congress to swallow, particularly during an economic downturn, there is at least one compelling reason for Congress to consider it: offshore wind power development can create jobs, both regionally and nationally.²⁷⁶ Indeed, President Obama has explicitly acknowledged the potential for clean energy to create new jobs, with particular urgency as the United States continues to see high rates of unemployment.²⁷⁷ In addition, the President has acknowledged the importance of public spending to stimulate the economy.²⁷⁸ In particular, he has promised to spend significantly on renewable energy, in part because of its job-creation potential.²⁷⁹ Or, as with the other aforementioned revisions to the CZMA, these incentives might be tied into broader revisions to the Energy Policy Act or the creation of new climate change legislation.²⁸⁰ While this idea might buck historical trends related to federal involvement in Coastal Zone development, it is well within the realm of practical policies already being discussed.

273. 16 U.S.C. § 1451(j) (2006).

274. See American Recovery & Reinvestment Act of 2009, Pub. L. No. 111-5, § 1101, 123 Stat. 319 (to be codified at 26 U.S.C. § 45).

275. See Ryan Wiser et al., *Using the Federal Production Tax Credit to Build a Durable Market for Wind Power in the United States*, ELECTRICITY JOURNAL, Nov. 2007, at 77.

276. See Musial, Butterfield & Ram, *supra* note 11, at 9; Watson & Courtney, *supra* note 60, at 269–70.

277. Remarks at Trinity Structural Towers Manufacturing Plant in Newton, Iowa, *supra* note 61.

278. See Baker & Broder, *supra* note 269.

279. See *id.*

280. See John Kerry & Lindsey Graham, Op-Ed., *Yes We Can (Pass Climate Change Legislation)*, N.Y. TIMES, Oct. 10, 2009, at WK11 (discussing what future climate change legislation might look like); Barack Obama, *Renewing American Leadership*, FOREIGN AFFAIRS, July–Aug. 2007, at 2 (stressing the importance of renewable energy to addressing climate change).

D. Implications for Other Types of Offshore Development and the Potential for Mutual Benefits

Despite offshore wind power's lack of success, offshore production of conventional fuels has been very successful in the United States. In the two decades preceding 2003, almost 25 percent of the nation's natural gas production and almost 30 percent of its oil production came from offshore.²⁸¹ Conventional offshore production is environmentally risky, however, and requires extensive environmental permitting from a variety of agencies.²⁸² Indeed, offshore drilling has been subject to substantial, ongoing controversy, related especially to the environmental damage it causes.²⁸³ Similarly, importing liquefied natural gas via ship and pipeline through coastal states into the United States has raised environmental as well as safety concerns.²⁸⁴ Nonetheless, this industry is also expected to increase as the nation's demand for natural gas increases and its supplies diminish.²⁸⁵

The proposed revision to the CZMA should not impact the regulation and development of these conventional resources as it refers explicitly to offshore renewable energy development. The existing oil and gas industry, however, will likely have a role in the development of offshore wind energy.²⁸⁶ These industries and related industries, for example, the submarine cable industry and the offshore maintenance industry, have experience in siting, building, operating, and maintaining offshore structures.²⁸⁷ Indeed, Congress recognized this in granting MMS, the agency that has traditionally overseen offshore oil and gas development, permitting authority over offshore renewable energy facilities, including offshore wind facilities.²⁸⁸ Offshore wind power development may be able to learn and profit from this existing knowledge base, and the possibility exists for combined offshore oil or gas and renewable projects.²⁸⁹

281. OFFICE OF OIL AND GAS, U.S. DEP'T OF ENERGY, OVERVIEW OF U.S. LEGISLATION AND REGULATIONS AFFECTING OFFSHORE NATURAL GAS AND OIL ACTIVITY 3 (2005), available at http://www.eia.doe.gov/pub/oil_gas/natural_gas/feature_articles/2005/offshore/offshore.pdf.

282. *Id.* at 9–11.

283. *See, e.g.*, Deborah Zabarenko, *Ocean Advocates Slam Expanded U.S. Offshore Drilling*, REUTERS UK EDITION (Feb. 11, 2009, 20:28 GMT), <http://uk.reuters.com/article/oilRpt/idUKN1138819920090211?pageNumber=1&virtualBrandChannel=0>.

284. *See, e.g.*, Wendy Zellner & Brian Hindo, *Ports in the Storm for Liquefied Natural Gas*, BUS. WEEK, Mar. 28, 2005, available at http://www.businessweek.com/magazine/content/05_13/b3926052_mz011.htm.

285. U.S. DEP'T OF ENERGY, LIQUEFIED NATURAL GAS: UNDERSTANDING THE BASIC FACTS 2–3 (2005), available at http://fossil.energy.gov/programs/oilgas/publications/lng/LNG_primerupd.pdf [hereinafter LIQUEFIED NATURAL GAS PRIMER].

286. *See* Musial, Butterfield & Ram, *supra* note 11, at 2.

287. *Id.*

288. Energy Policy Act of 2005, 43 U.S.C. § 1337 (2006).

289. LIQUEFIED NATURAL GAS PRIMER, *supra* note 285, at 2–3.

CONCLUSION

A revised CZMA would provide a promising solution to the problems that offshore wind energy and other offshore renewable energy sources have faced in the United States. Specifically, offshore wind power development has faced repeated failures due to the mismatch between local costs and national benefits, and the absence of a regulatory framework to reconcile them. While it may come too late to make a difference for Cape Wind, a new CZMA could still ensure success for offshore wind power in other locations around the United States.

Still, to be truly effective, revising the CZMA needs to be just one step in a broader offshore wind or renewable energy program. While a new CZMA would address problems related to offshore wind farm siting, this is just one barrier that offshore wind power development needs to overcome. For example, as with all renewable energy sources, the importance of positive federal government policies and incentives, such as the production tax credits mentioned previously, are key to offshore wind power's success.

Under the Obama administration, which seems especially receptive to renewable energy promotion, the United States has the exciting opportunity to make great strides with offshore wind power development and renewable energy overall. Indeed, although Congress has struggled, it continues to debate various climate change legislative proposals, many of which relate closely to renewable energy promotion.²⁹⁰ President Obama also continues to stress the importance of renewable energy to the future of the United States.²⁹¹ Denmark exemplifies how successful offshore wind power development can be under the influence of a government with a positive outlook on renewable energy production that pervades multiple agencies and programs in the government.²⁹² Indeed, President Obama has acknowledged Denmark and its successes in his efforts to promote offshore wind power.²⁹³ Furthermore, an overarching pro-renewable policy could instigate the development of various renewable technologies—including offshore wind power, which has seen substantial success in not only Denmark, but in other EU countries.²⁹⁴

Even without firm policies in place and no projects yet built, offshore wind project proposals are sprouting up across the United States. As of the end

290. Darren Samuelsohn, *Senate Climate Talks Intensify with New Carbon Pricing Draft Expected This Week*, N.Y. TIMES, Mar. 1, 2010, <http://www.nytimes.com/cwire/2010/03/01/01climatewire-senate-climate-talks-intensify-with-new-carb-17075.html>.

291. Address Before a Joint Session of the Congress on the State of the Union, *supra* note 9.

292. See generally DONG ENERGY ET AL., *supra* note 85 (describing Denmark's successful development promotion of offshore wind power via mandates from the central government).

293. Remarks at Trinity Structural Towers Manufacturing Plant in Newton, Iowa, *supra* note 61.

294. DANISH WIND INDUSTRY ASSOCIATION, *supra* note 251, at 9; DONG ENERGY ET AL., *supra* note 85, at 23–24.

of 2008, eleven projects had been proposed in New Jersey, Rhode Island, Delaware, New York, Georgia, Texas, Ohio, and Maine; combined, these projects represent a total of 2,075 MW of capacity.²⁹⁵ MMS has granted or is expected to grant federal approval to most of these projects.²⁹⁶ Eleven more projects were in earlier stages of development at the end of 2008.²⁹⁷ Despite these promising signs, all these projects stand to face the same obstacles as the Cape Wind project as long as the current regulatory framework remains in effect. With revisions to the CZMA, Congress can help make sure these projects move forward, and pave the way for more in the future.

295. WISER ET AL., *supra* note 12, at 11.

296. *Id.*

297. *Id.*

