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Offshore Windfall: What Approval of the United States' First Offshore Wind Project Means for the Offshore Wind Energy Industry

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COMMENT

OFFSHORE WINDFALL: WHAT APPROVAL OF THE UNITED STATES' FIRST OFFSHORE WIND PROJECT MEANS FOR THE OFFSHORE WIND ENERGY INDUSTRY

I. INTRODUCTION

Environmental concerns, supply uncertainties, and energy prices are driving the United States to rethink its energy policy, and in turn, to work toward the development of cleaner, renewable energy sources. As evidence of this policy change, the Energy Information Administration reported that use of renewable energy in the United States grew 3.3% over the last year, much faster than the 0.5% growth in total energy use.[1] Wind power is among the many types of energy that the federal government considers a renewable energy source.[2] "Wind energy has been the world's fastest growing energy source on a percentage basis for more than a decade," and wind energy capacity is expected to double approximately every three to four years.[3] The U.S. Department of Energy ("DOE") considers wind power to be "one of the cleanest and most environmentally neutral energy sources in the world to-

1. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ANNUAL ENERGY OUTLOOK 2009 WITH PROJECTIONS TO 2030, at 3 (2009), *available at* http://www.eia.doe.gov/oiaf/aeo/pdf/0383(2009).pdf.

2. *See* 26 U.S.C. § 45(c)(1)(A) (2006) (defining the term "qualified energy resources" for the purpose of renewable energy production credits under the Internal Revenue Code). Additional sources include closed-loop biomass, open-loop biomass, geothermal energy, solar energy, small irrigation power, municipal solid waste, and hydropower. *Id.* § 45(c)(1)(B)–(H).

3. OFFSHORE WIND COLLABORATIVE ORG. GROUP, A FRAMEWORK FOR OFFSHORE WIND ENERGY DEVELOPMENT IN THE UNITED STATES 2 (2005), *available at* http://www.usowc.org/pdfs/final_09_20.pdf.

day."[4] Indeed, wind energy does not degrade our air or water, and it avoids the detrimental environmental effects associated with mining and drilling.[5] The expanded use of wind energy also slows the impacts of climate change by removing greenhouse gas emissions from the atmosphere.[6]

Onshore wind resources have the potential to supply much of the nation's energy needs, but the challenge of transmitting electricity from remote onshore sites to large load centers limits the use of land-based wind turbines.[7] In contrast, offshore wind resources "are located in relative proximity to the country's largest centers of electricity use."[8] "The [DOE] estimates that the wind resources along American ocean and Great Lakes coasts are capable of providing 900,000 megawatts (MW) of electricity—an amount nearly equivalent to the nation's current total installed capacity."[9]

Energy developers virtually ignored offshore wind as a domestic energy resource until roughly the last ten years. In 2001, Cape Wind became the first wind energy project proposed for development off the coast of United States.[10] The developers of Cape Wind sought to build the world's largest offshore wind energy facility just over five kilometers off the coast of Massachusetts.[11] Eight years and countless challenges later, the Cape Wind project

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4. U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030: INCREASING WIND ENERGY'S CONTRIBUTION TO U.S. ELECTRICITY SUPPLY 105 (2008), *available at* http://www1.eere.energy.gov/Windandhydro/pdfs/41869.pdf.

5. *Id.*

6. *See id.* at 107. According to DOE, "a single 1.5 MW [megawatt] wind turbine displaces 2,700 metric tons of CO_2 per year," the equivalent of planting four square kilometers of forest. *Id.*

7. W. MUSIAL & S. BUTTERFIELD, FUTURE FOR OFFSHORE WIND ENERGY IN THE UNITED STATES 1 (2004), *available at* http://www.nrel.gov/docs/fy04osti/36313.pdf.

8. U.S. OFFSHORE WIND COLLABORATIVE, U.S. OFFSHORE WIND ENERGY: A PATH FORWARD 4 (2009), *available at* http://www.usowc.org/pdfs/PathForwardfinal.pdf.

9. *Id.* This estimate excludes the offshore zone from the shoreline to five nautical miles. MUSIAL & BUTTERFIELD, *supra* note 7, at 4. It also excludes two-thirds of the area between five and twenty nautical miles from shore to account for shipping lanes and concerns about effects on birds, fish, and marine mammals. *Id.* In addition, this estimate leaves out offshore wind resources in the Gulf Coast and Great Lakes regions because those resources have yet to be fully characterized. *Id.*

10. U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 4.

11. MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, RENEWABLE ENERGY AND ALTERNATE USE PROGRAM, TECHNOLOGY WHITE PAPER ON WIND ENERGY POTENTIAL ON THE U.S. OUTER CONTINENTAL SHELF 7 (2006), *available at* http://ocsenergy.anl.gov/documents/docs/OCS_EIS_WhitePaper_Wind.pdf. Developers planned to build 130 turbines and to produce 420 megawatts of electricity. *Id.*

has one last bureaucratic hoop to jump through—final approval of the project by the U.S. Department of the Interior ("DOI")—before its developers can begin construction.[12] Final approval and the eventual construction of the Cape Wind project would send a highly anticipated signal to the world that the United States is ready to begin harnessing this enormous resource.[13] Thus, Cape Wind is a bellwether for the offshore wind energy industry in the United States.

This comment explores the Cape Wind project with an emphasis on its role as the first United States offshore wind energy project. Part II of this comment explains the potential energy resource that offshore wind provides and examines some of the economic, technological, and regulatory challenges facing the development of offshore wind projects in United States waters. Part III of this comment introduces the Cape Wind project as a case study by briefly describing the particular political struggles and permitting challenges faced by its developers. Part IV of this comment analyzes how DOI approval and the eventual construction of Cape Wind will influence the offshore wind industry in the United States. This comment concludes that the offshore wind energy industry is poised for enormous growth immediately after Cape Wind's turbines are spinning and providing electricity to the power grid.

II. OFFSHORE WIND ENERGY

A. *Potential Energy Source*

Offshore wind energy is a vast resource that has the potential to address the United States' urgent environmental and energy needs. Wind resources above the United States' outer continental

12. *See* Tina Seeley, *Cape Cod Decision Sought This Year, Salazar Says*, BLOOMBERG.COM, Nov. 2, 2009, http://www.bloomberg.com/apps/news?pid=20601110&sid=angM4Ryouhnc#. As of the date of publication of this article, DOI had yet to give final approval to the Cape Wind project. However, U.S. Secretary of the Interior Ken Salazar said that he expected the DOI to issue a conclusion by April 2010. *See* John M. Broder, *Decision Promised Soon on Cape Cod Wind Farm*, N.Y TIMES, Jan. 14, 2010, at A22.

13. *See* Letter from Edward J. Markey, Chairman, H. Subcomm. on Energy and Env't, to the Honorable Ken Salazar, Sec'y, Dep't of the Interior (Nov. 9, 2009), *available at* http://globalwarming.house.gov/files/LTTR/091109MarkeySalazar.pdf ("Approving the Cape Wind project . . . would send a strong message . . . about the United States' commitment to developing sources of clean energy and reducing global warming pollution.").

shelf ("OCS") are abundant and broadly dispersed. As mentioned earlier, the winds off the United States' coasts contain more potential energy than the nation's total amount of current installed electric capacity.[14] Of the lower forty-eight states, twenty-eight border a coastline.[15] These same twenty-eight states use 78% of the nation's electricity.[16] Offshore wind above waters measuring less than thirty meters deep contains enough energy to supply all but two of these coastal states with at least 20% of their electricity needs.[17] "For most coastal states, offshore wind resources are the only indigenous energy source capable of making a significant energy contribution."[18] Offshore wind is a viable resource located in close proximity to areas of the country where electricity is highest in demand. Why, then, are there no commercial offshore wind farms along the United States' coasts?

B. *Primary Obstacles*

1. Economic Challenges

Cost is probably the biggest obstacle for the offshore wind energy industry. Wind energy projects are more expensive than other common forms of electricity generation like coal-fired power plants.[19] Expensive offshore wind energy projects present a challenge when it comes to finding financing for their construction and maintenance.[20] Despite these economic challenges, development of offshore wind is still extremely attractive because of the potential energy source available.[21]

Based on limited data from completed offshore wind projects in Europe, the U.S. Offshore Wind Collaborative estimates that a fully installed offshore wind farm will cost as much as $4600 per

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14. MUSIAL & BUTTERFIELD, *supra* note 7, at 4.

15. U.S. DEP'T OF ENERGY, *supra* note 4, at 48.

16. *Id.* (citing ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2005 xiii (2006), *available at* http://www.eia.doe.gov/oiaf/1605/archive/gg06rpt/pdf/057305.pdf).

17. *Id.* For many of these states, offshore wind could supply 100% of their electricity needs. *Id.*

18. *Id.*

19. *See* AM. WIND ENERGY ASS'N, THE ECONOMICS OF WIND ENERGY (2005), http://www.awea.org/pubs/factsheets/EconomicsOfWind-Feb2005.pdf; *see also* U.S. Dep't of Energy, Coal, http://www.energy.gov/energysources/coal.htm (last visited Feb. 26, 2010).

20. *See id.*

21. *See supra* Part II.A.

kilowatt of installed electric capacity.[22] That amount is almost twice as expensive as an onshore wind farm.[23] The higher price tag for offshore wind projects results from extra "costs related to turbines, installation, O&M [operation and maintenance], support structures, electrical infrastructure, and engineering and management."[24] More costs arise because offshore wind turbines must be equipped to handle more severe weather conditions than their onshore counterparts. For example, monopile foundations require stronger, more expensive materials in order to withstand storms, waves, and the sea air.[25] Costs are also higher because offshore wind projects must be larger than onshore projects in order to offset additional costs of cabling and installation in deeper water far from shore.[26] These added costs reduce the number of potential investors because, absent government financial incentives, offshore wind energy cannot compete on a cost-per-kilowatt-hour basis with traditional fossil fuels.[27]

Addressing economic challenges and making offshore wind projects more attractive to investors will take a concerted effort on the part of the government and the private sector. Although the cost of onshore wind energy has decreased significantly over the past twenty years, at $0.04 per kilowatt-hour ("kWh"), wind energy remains more expensive than coal or hydropower.[28] Offshore wind energy is even more expensive, as it is projected to cost about twice as much as onshore wind power.[29] Notwithstanding the fact that the coal and gas industries are much more mature than wind energy, another contributing factor to the difference in cost is the enormous gap in the amount of government subsidies for fossil fuels compared to those for renewable energy

22. U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 28.

23. *See id.* (estimating that a land-based wind system will cost $2400 per kilowatt of installed electric capacity).

24. *Id.* at 29.

25. *See id.* at 30.

26. *Id.* at 29–30.

27. *See id.* at 31.

28. *Id.* at 31–32. The cost per kWh of wind energy has dropped from $0.40 to as low as $0.04. *Id.* at 31. Compare that to natural gas at roughly $0.04–0.05 per kWh, hydropower at $0.03–0.04 per kWh, and coal at $0.02–0.03 per kWh. MINERALS MGMT. SERV., *supra* note 11, at 13.

29. *See supra* notes 22–23 and accompanying text. In Europe today, onshore wind energy ranges from $0.08 per kWh to $0.15 per kWh, and offshore wind energy is about twice as expensive. U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 32.

sources.[30] From 2002 to 2008, the federal government subsidized five dollars for fossil fuels for every two dollars it subsidized for renewable energy.[31] It will be hard for offshore wind energy to compete if the federal government does not provide support similar to what it has provided for fossil fuels.

Offshore wind projects in Europe address financial challenges with government market "mechanisms such as feed-in tariffs and tax credits to make offshore wind development more attractive to investors."[32] Currently, the United States does not offer similar incentives specifically to offshore wind developers.[33] Wind energy does receive an incentive in the form of a production tax credit ("PTC") for electricity produced from renewable sources.[34] The PTC provides a financial tax credit for each kWh produced from qualified energy sources by an electric utility and sold to consumers.[35] The current PTC is $0.015 per kWh,[36] which amounts to $0.021 per kWh after adjustment for inflation.[37] While this amount of credit does help a little, it is not enough to bridge the gap when coal costs $0.02 to $0.03 per kWh, and offshore wind energy costs more than $0.08 per kWh.[38] The American Recovery and Reinvestment Act of 2009 ("ARRA") extended the PTC for three more years through December 31, 2012.[39] The extension of the PTC is vital to encouraging investment in offshore wind ener-

30. *See* ENVTL. LAW INST., ESTIMATING U.S. GOVERNMENT SUBSIDIES TO ENERGY SOURCES: 2002–2008, at 6, 21 (2009), *available at* http://www.elistore.org/Data/products/d19_07.pdf (determining that the federal government provided $72,473,000,000 in subsidies for fossil fuels and only $28,943,000,000 for renewable energy). The study revealed that a large portion of the subsidies for fossil fuels came from just a few provisions of the tax code and that over half of the renewable energy subsidies were for corn ethanol. *Id.* at 27. The study took into account tax expenditures, foregone revenues, foreign tax credits, and reduced government takes from leasing, grants, and direct payments. *Id.* at 6–21 (listing subsidies for fossil fuels by those specific categories).

31. The ratio is derived from dividing subsidies for fossil fuels by subsidies for renewable energy. *See id.* at 6, 21.

32. U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 31.

33. *Id.*

34. *See* 26 U.S.C. § 45 (2006) (laying out the details of the PTC).

35. *Id.* § 45(a).

36. *Id.* § 45(a)(1).

37. *See Inflation Adjustment Bumps PTC Up to 2.1 Cents/kWh*, WIND ENERGY WKLY., June 20, 2008, http://www.awea.org/newsroom/wind_energy_news/Inflation_Adjustment_Bumps_062008.html.

38. Offshore wind energy costs roughly twice as much as onshore wind energy, which costs about $0.04/kWh. *See* U.S. OFFSHORE WIND COLLABORATIVE *supra* note 8, at 31–32.

39. *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 1101, 123 Stat. 115, 319 (to be codified as amended at 26 U.S.C. § 45(d)(1)).

gy, but investors cannot attain full confidence when incentives like the PTC expire every three to four years.[40] The ARRA also gives wind energy developers the ability to claim a 30% investment tax credit ("ITC") in lieu of a PTC for facilities placed online from 2009 to 2012.[41] The ITC then qualifies for conversion into a grant from the U.S. Department of the Treasury.[42]

The offshore wind industry believes that government policies need to distinguish between offshore wind energy and onshore wind energy in order to foster offshore development and cost-reducing innovation.[43] The offshore wind industry desires long-term incentives that will remain in place for at least ten years in order to promote significant growth.[44] It also desires larger incentives and stronger incentive structures modeled after those in Europe.[45] If the United States is serious about becoming a world leader in offshore wind energy, and renewable energy, it will not take these recommendations lightly.

2. Technology Challenges

One of the things keeping the offshore wind energy industry from growing is a lack of sufficient technology. Expanded growth of the offshore wind industry will depend on research, development, and innovation.[46] Areas of technological need include improved reliability, greater environmental compatibility, and cost reduction.[47] Technological advances must address these areas of need with regard not just to the design of turbines but also to the installation process and maintenance.

At present, offshore wind turbines are basically larger versions of onshore wind turbines that have been adapted to the marine environment.[48] The current foundation system for offshore wind

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40. *See* U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 32 (suggesting the need for an extension of the PTC by at least ten years to "foster project development and cost-reducing innovation").

41. § 1102, 123 Stat. at 319–20 (to be codified as amended at 26 U.S.C. § 48(a)).

42. § 1603, 123 Stat. at 364.

43. *See* U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 32 (suggesting policies that recognize offshore wind energy as distinct from onshore wind energy).

44. *Id.*

45. *Id.*

46. *Id.* at 27.

47. *Id.*

48. *Id.* at 23–24. "A typical onshore turbine . . . has a tower height of about 60 to 80 m,

turbines consists of large steel tubes called monopiles, which are typically embedded twenty-five to thirty meters below the mud line.[49] Monopile designs are considered appropriate for waters up to thirty meters deep.[50] Offshore wind farms use large turbines "ranging from the Vestas V-80 2 MW turbine to GE Wind's 3.6 MW turbine to Repower's 126 m diameter, 5 MW turbine."[51]

Present foundation technology limits the offshore wind energy industry's ability to harness the full potential of offshore wind energy. The strongest and most consistent winds blow above waters deeper than thirty meters.[52] A marginal "10% increase in wind speed creates a 33% increase in available energy."[53] Thus, meaningful growth of offshore wind energy is dependent upon the research and development of new technologies that enable developers to place turbines in deep water. Some anticipate the creation of "[s]tiffer, multi-pile configurations with broader bases suitable . . . for water depths up to 60 m or greater."[54] From there, many expect that foundations will transition even further, toward floating turbine structures that would be fastened and secured to the ocean floor by wires.[55] Such a transition would have to make use of existing technologies from the oil and natural gas industries, which already use floating platforms.[56] Unlike oil and gas projects on the OCS, wind projects require fast, modular installations that can be replicated easily due to the anticipated frequency of maintenance.[57] Researchers believe that "[t]he biggest chal-

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and blades about 30 to 40 m long; most offshore wind turbines are at the top end of this range." MINERALS MGMT. SERV., *supra* note 11, at 5.

49. *See* U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 30.

50. *Id.* at 23.

51. *Id.*

52. *See* MUSIAL & BUTTERFIELD, *supra* note 7, at 3 (displaying Table 2, which estimates that 809,725 combined MW of power are available in the wind blowing above deep waters while only 97,975 MW of power exist in the wind above waters measuring less than thirty meters deep).

53. U.S. DEP'T OF ENERGY, *supra* note 4, at 25 (explaining that "[t]he amount of energy in the wind available for extraction by the turbine increases with the cube (the third power) of wind speed").

54. *See* U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 23.

55. *See id.* For an illustration of the expected evolution of offshore wind turbine foundations, see MUSIAL & BUTTERFIELD, *supra* note 7, at 5–6. For an interesting news article describing the world's first floating wind turbine and U.S. plans to develop a prototype, see Henry Fountain, *Seeking Wind Energy, Some Consider the Sea*, N.Y. TIMES, Nov. 18, 2009, at F6.

56. *See* MINERALS MGMT. SERV., *supra* note 11, at 9 ("It is possible that floating structures developed for offshore oil and gas industries can be adapted for wind turbines.").

57. *See* U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 25.

lenge for deepwater wind turbines will be to merge the mature but expensive technologies borne of the oil and gas industry with the experience of low-cost economic drivers fueling the shallow water offshore wind energy industry."[58]

Present constraints on turbine capacity also limit the amount of wind energy that can be harnessed for electricity. The power and productivity of wind turbines increases as turbine tower height and the area swept by the turbine blades increase.[59] For example, an increase in rotor diameter from ten meters to fifty meters "yields a 55-fold increase in yearly electricity output" because of the increase of the tower height and the size of the swept area.[60] Added costs due to the construction and operation of offshore wind farms can be absorbed more easily if the wind farm is able to generate more electricity. Most believe that offshore wind projects will need 5 MW or larger turbines to capture wind power and reach the economies of scale needed to make long-distance offshore sites financially viable.[61]

The installation process also brings technological challenges to the offshore wind energy industry. In order to install offshore wind turbines, developers will need to hire a fleet of vessels including "barges with compensated cranes, leg stabilized feeder fleets, oil and gas dynamic positioning vessels, and floating heavy lift cranes."[62] "This imposes a limitation on American offshore wind development, since all vessels used for construction and operations and maintenance (O&M) . . . have been European,"[63] and United States law mandates that only United States-based vessels may work in United States waters, with little exception.[64] Thus, growth of domestic offshore wind energy also depends on the construction of new, customized vessels in the United States. Technology must also find ways to address uncertainties associated with connecting to the electrical grid and finding ways to

58. *See* MUSIAL & BUTTERFIELD, *supra* note 7, at 6.

59. AM. WIND ENERGY ASS'N, *supra* note 19.

60. *Id.*

61. MINERALS MGMT. SERV., *supra* note 11, at 8.

62. U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 25.

63. *See id.*

64. *See* 46 U.S.C. §§ 55101–55111 (2006) (requiring that vessels engaged in transportation, dredging, and towing in United States waters be wholly owned by citizens of the United States, subject to minor exceptions).

assemble turbines at nearby land locations just prior to installation in the seabed.

DOE recognizes that the advancement of offshore wind energy will require "technologies that are substantially different from those employed in land-based installations," and technology must "be tailored to U.S. offshore requirements, which differ from those in the European North Sea environment."[65] Such an endeavor will require the attention of stakeholders from public, private, and nonprofit organizations in order to help the United States harness its vast offshore wind resources.

3. Regulatory Challenges

Offshore wind energy involves a complex compilation of different legal fields, including international law, environmental law, energy law, and involvement with federal, state, and local government agencies. Because offshore wind energy is a new endeavor, the system for leasing and regulating such projects in United States waters was non-existent up until very recently. Offshore wind developers must be patient as government agencies learn to regulate these projects on the fly.

a. Federal Agency Jurisdiction

Until April 2009 it was unclear which federal agency had jurisdiction over renewable offshore energy projects. Although the Minerals Management Service ("MMS") within DOI had jurisdiction over leasing and development on the OCS,[66] the Federal Energy Regulatory Commission ("FERC") claimed jurisdiction over hydrokinetic projects on the OCS pursuant to the Federal Power Act.[67] This dispute was resolved in a Memorandum of Understanding between DOI and FERC signed on April 9, 2009.[68]

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65. U.S. DEP'T OF ENERGY, *supra* note 4, at 54.

66. In 2005 Congress passed the Energy Policy Act of 2005. Pub. L. No. 109-58, 119 Stat. 594. Section 388 of the Energy Policy Act amended the Outer Continental Shelf Lands Act to grant DOI the authority to regulate renewable energy projects on the OCS. *See* § 388, 119 Stat. at 744–47 (codified at 43 U.S.C. § 1337(p) (2006)).

67. Peter J. Schaumberg & Angela F. Colamaria, *Siting Renewable Energy Projects on the Outer Continental Shelf: Spin, Baby, Spin!*, 14 ROGER WILLIAMS U. L. REV. 624, 628–29 (2009); *see* 16 U.S.C. §§ 791–823d (2006).

68. Memorandum of Understanding Between the U.S. Dep't of the Interior and Fed. Energy Regulatory Comm'n 1 (Apr. 9, 2009), *available at* http://www.ferc.gov/legal/maj-

The memorandum recognized that MMS has exclusive jurisdiction over leasing, licensing, and conducting necessary environmental reviews related to non-hydrokinetic projects on the OCS, including wind and solar projects.[69] FERC retained jurisdiction over the licensing of hydrokinetic projects, like those attempting to capture wave energy on the OCS.[70]

With jurisdiction decided, MMS issued a final rule for renewable energy development on the OCS on April 22, 2009.[71] The final rule went into effect on June 29, 2009.[72] It "establish[es] a program to grant leases, easements, and rights-of-way . . . for renewable energy project activities on the [OCS]," while also creating methods for sharing revenues with coastal states.[73] The ultimate goal of the final rule is to "ensure the orderly, safe, and environmentally responsible development of renewable energy sources on the OCS."[74] The final rule provides a solid framework for renewable energy development on the OCS, but it is uncertain whether the final rule will enable timely, cost-effective development of offshore wind energy projects.

b. Federal Statutory Requirements

In addition to leasing requirements, many federal statutory requirements apply to offshore wind energy projects on the OCS. Satisfying these statutory requirements is the responsibility of MMS and renewable energy developers that receive licenses from MMS.[75] The remainder of this segment describes some of the most relevant statutes and their impacts on the development of offshore wind projects.

The most prominent statute is the National Environmental Policy Act ("NEPA") which requires all federal agencies to provide a statement on the environmental impact of any "[m]ajor Federal

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ord-reg/mou/mou-doi.pdf.

69. *Id.*

70. *Id.*

71. *See* Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, 74 Fed. Reg. 19,638 (Apr. 29, 2009) (to be codified at 30 C.F.R. pts. 250, 285, 290).

72. *Id.*

73. *Id.*

74. *Id.*

75. *See id.*

actions significantly affecting the quality of the human environment."[76] Under the Environmental Protection Agency ("EPA") regulations interpreting NEPA, the term "[m]ajor Federal action includes actions with effects that may be major and which are potentially subject to Federal control and responsibility."[77] The regulation also provides that the "[a]pproval of specific projects, such as construction or management activities located in a defined geographic area" is a typical category of a federal action under NEPA.[78] MMS had to determine whether to submit an Environmental Impact Statement ("EIS") or an Environmental Assessment ("EA"). An EIS is typically much larger in scope and scale than an EA.[79] EPA regulations state that, in determining whether to prepare an EIS, agencies should look to their own procedures to decide if the proposed action is one which "[n]ormally requires an [EIS]" or "[n]ormally does not require either an [EIS] or an [EA]."[80] If the agency is unsure about whether it must prepare an EIS, it shall prepare an EA.[81] Based on the scope of the proposed leasing program, MMS determined that it had to prepare a Programmatic Environmental Impact Statement ("PEIS").[82] The PEIS analyzed the environmental impacts of and possible alternatives to the development of renewable energy projects on the OCS.[83] In addition, MMS anticipates that any site assessment plan submitted by a developer will undergo appropriate NEPA reviews, which may require an EIS or an EA.[84] This means that

76. 42 U.S.C. § 4332(2)(c) (2006).

77. 40 C.F.R. § 1508.18 (2009).

78. *Id.* § 1508.18(b)(4).

79. *See* Environmental Protection Agency, National Environmental Policy Act Basic Information, http://www.epa.gov/oecaerth/basics/nepa.html#eis (last visited Feb. 26, 2010) (explaining that an EA generally includes brief discussions of the need for the proposal, alternatives, and environmental impacts while an EIS includes full discussions on the purpose of and need for the project, alternatives, and effects on the environment).

80. 40 C.F.R. § 1501.4(a).

81. *Id.* § 1501.4(b).

82. OCS Alternative Energy and Alternate Use Programmatic EIS Information Center, Why a Programmatic EIS Is Approved, http://ocsenergy.anl.gov/eis/why/index.cfm (last visited Feb. 26, 2010).

83. *See* Summary of the Final Rule, 74 Fed. Reg. 19,638 (Apr. 29, 2009). The final PEIS examines the potential environmental effects of the program for authorizing renewable energy activities on the OCS. *Id.* at 19,329. It identified four alternatives: (1) no action at all; (2) an action which would establish the program; (3) a case-by-case alternative which would perform individual project evaluations; and (4) the preferred alternative, which was a combination of establishing a program and reviewing projects individually. *Id.* The PEIS is available at http://ocsenergy.anl.gov/documents/fpeis/index.cfm.

84. *Id.* at 19,639–41.

developers of offshore wind projects must be prepared to undertake detailed and complete environmental reviews of the effects of the proposed project.

In addition to NEPA, MMS regulations require offshore wind developers to assist the agency in complying with other relevant federal laws.[85] For example, the Endangered Species Act of 1973 ("ESA") requires federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that the agency's actions are "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat . . . ."[86] Offshore wind developers will need to assist MMS in analyzing the impact of their projects on endangered species known to inhabit the proposed construction site.[87]

The Coastal Zone Management Act ("CZMA") also imposes requirements on MMS during the process of licensing offshore wind projects.[88] Among other things, CZMA requires federal agencies to conduct activities in a manner consistent with policies developed and approved by individual states.[89] In order to ensure such consistency, MMS must determine if the proposed offshore wind project will affect any land or water use in a state's coastal zone, and if so, MMS will provide the consistency determination at least ninety days prior to a competitive lease sale.[90] Developers should expect potential delays associated with compliance with CZMA, especially if the state disagrees with the MMS consistency determination.[91]

The last prominent federal statute applicable to offshore wind energy development is the Rivers and Harbors Appropriations

85. 30 C.F.R. § 285.611. For a useful table describing the principle federal laws that potentially apply to the regulation of offshore wind projects, see Jeremy Firestone et al., *Regulating Offshore Wind Power and Aquaculture: Messages from Land and Sea*, 14 CORNELL J.L. & PUB. POL'Y 71, 79–81 (2004).

86. 16 U.S.C. § 1536(a)(2) (2006). The U.S. Fish and Wildlife Service has the authority to implement the ESA. *See* 50 C.F.R. § 10.1.

87. *See* 16 U.S.C. § 1536(a)(2).

88. *Id.* §§ 1451–1466.

89. *Id.* § 1456(c)(1)(A).

90. Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, 74 Fed. Reg. 19,638, 19,651 (Apr. 29, 2009) (to be codified at 30 C.F.R. pts. 250, 285, 290).

91. *Id.* (citing 15 C.F.R. §§ 930.30–.46).

Act of 1899 ("RHAA").[92] RHAA requires approval of the creation of any obstruction in the navigable waters of the United States by the Army Corps of Engineers ("the Corps").[93] The Corps' regulations require an RHAA section 10 permit for "the construction of artificial islands, installations, and other devices on the seabed, to the seaward limit of the outer continental shelf."[94] Section 10 permits are also required for power transmission lines crossing United States navigable waters.[95] RHAA is yet another permitting requirement for which offshore wind energy developers need to prepare.

As expected, the regulatory process for offshore wind energy projects is very expansive. The sheer number of reviews, studies, and permits is quite daunting. The amount of time and money necessary to comply with the relevant regulations will continue to be a challenge while the offshore wind energy pushes through its infancy stages.

III. THE CAPE WIND PROJECT

A. *Background*

Cape Wind is the brainchild of a small group of Massachusetts energy developers led by Jim Gordon, an energy entrepreneur with over thirty years of experience in the energy business.[96]

In the summer of 2001, Gordon and his group went public with their plans to build the world's largest offshore wind farm in the middle of Nantucket Sound.[97] They chose Nantucket Sound because it is an ideal place for an offshore wind farm. First, Nantucket Sound is blessed with outstanding Class 6 winds, which are capable of large, utility scale electricity production.[98] As an

92. 33 U.S.C. §§ 401, 403–04, 406–09, 411–16, 418.

93. *Id.* § 403.

94. 33 C.F.R. §§ 322.3(a)–(b).

95. *Id.* § 322.5(i)(1).

96. *See* WENDY WILLIAMS & ROBERT WHITCOMB, CAPE WIND: MONEY, CELEBRITY, CLASS, POLITICS, AND THE BATTLE FOR OUR ENERGY FUTURE ON NANTUCKET SOUND xiii (2007); Cape Wind, Company History and Management Team, http://www.capewind.org/article27.htm (last visited Feb. 26, 2010).

97. *See* WILLIAMS & WHITCOMB, *supra* note 96, at 20 (detailing the contents of a one-page story in the July 28, 2001 edition of the *Boston Globe*).

98. *See* U.S. Dep't of Energy, Energy Efficiency & Renewable Energy, Wind and Hydropower Technologies Program, http://www.windpoweringamerica.gov/maps_template.

added bonus, Nantucket Sound's winds tend to blow the fastest during winter and summer when electricity demands are the highest.[99] Also, the New England region depends on fossil fuels for its energy needs, and the region lacks its own indigenous supply.[100] Lastly, the overdeveloped coastlines of the region provide little space for onshore wind projects.[101]

Despite Nantucket Sound's offshore wind energy potential, many Cape Cod residents vehemently opposed the project.[102] Locals argued that the proposed wind farm would obstruct their view of Nantucket Sound and would pose a danger to navigation.[103] Backers of the project tried to explain that the wind turbines would be installed about one-third to one-half mile apart in the shallow waters above Horseshoe Shoal and that boaters would still have plenty of room to navigate Nantucket Sound.[104] Supporters also tried to explain that, at five miles from land, the turbines would only appear to be "the height of an outstretched thumb placed along the horizon."[105] Unwilling to listen to all of the facts, the wealthy local residents funded the Alliance to Protect Nantucket Sound.[106] This opposition to the Cape Wind project drew the attention of comedians John Stewart and Jason Jones, inspiring Comedy Central's *The Daily Show* to televise a satirical news report on the absurdness of the protesters' claims.[107] However, the local debate was no laughing matter. This well-funded opposition was ready and willing to put up a long fight.

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asp?stateab=ma (last visited Feb. 26, 2010) ("Massachusetts has wind resources consistent with utility-scale production. Excellent-to-outstanding resource is located on the northern part of Cape Cod . . . ."); U.S. Dep't of Energy Nat'l Renewable Energy Laboratory, Massachusetts—50m Wind Power (2007), http://www.windpoweringamerica.gov/pdfs/wind_maps/Ma_50m.pdf (illustrating Class 6 winds in Nantucket Sound in red).

99. WILLIAMS & WHITCOMB, *supra* note 96, at xiii–xiv.

100. *Id.* at xiv.

101. *Id.*

102. *See id.* (explaining that the powerful homeowners on Cape Cod viewed Gordon and his team as "interlopers").

103. *See id.* at 39.

104. *See id.*

105. *Id.* at 42.

106. *See* Save Our Sound, Alliance to Protect Nantucket Sound, Our Mission, http://www.saveoursound.org/site/PageServer?pagename=About_Us_Mission (last visited Feb. 26, 2010).

107. *The Daily Show* (Comedy Central television broadcast Aug. 7, 2007), *available at* http://www.thedailyshow.com/watch/tue-august-7-2007/jason_jones-180---nantucket.

B. *State Opposition*

Cape Wind expected opposition from wealthy Cape Cod residents and the Alliance to Protect Nantucket Sound, but the project also met persistent opposition from the Massachusetts state government. Republican Mitt Romney was sworn in as Governor of Massachusetts in January of 2003.[108] Early in Romney's governorship, many voters realized that he had his political sights set on a higher office: President of the United States.[109] That goal led him to oppose the Cape Wind project fervently.[110]

Romney and other state politicians tried a number of tactics, hoping to stall or kill Cape Wind. In one instance, state government officials tried to delay the permitting process through a Massachusetts Energy Facilities Siting Board ("Siting Board") ruling.[111] Although Massachusetts no longer determined electric power supply rates, the Siting Board had the authority to determine the placement of power cables.[112] Cape Wind opponents sought to convince the Siting Board to deny permission to lay Cape Wind's power cables from the wind farm to its land connection.[113] Luckily for Cape Wind's developers, the Siting Board had recently set a favorable precedent by approving the installation of a different power cable through Nantucket Sound to Nantucket Island.[114] Still, the debate at the Siting Board had the potential to "stretch Cape Wind's permitting out for several years."[115]

The Alliance to Protect Nantucket Sound also sought to move Massachusetts's seaward boundary in order to extend the state's jurisdiction three miles farther into the water.[116] The Alliance found several new "drying rocks" in Nantucket Sound, and its efforts resulted in the extension of state jurisdiction slightly into the proposed Cape Wind site.[117] The Alliance believed that the

108. The Crimson Staff, *Romney Sworn in As Mass. Governor*, HARV. CRIMSON, Jan. 6, 2003, *available at* http://www.thecrimson.com/article/2003/1/6/romney-sworn-in-as-mass-governor/.

109. *See* WILLIAMS & WHITCOMB, *supra* note 96, at 211.

110. *See id.* at 211–12.

111. *Id.* at 216–18.

112. *Id.* at 217.

113. *Id.*

114. *Id.*

115. *Id.* at 218.

116. *Id.* at 219.

117. *Id.*

new boundary gave Massachusetts jurisdiction over the siting of Cape Wind and that the project's developers would have to start the permitting process all over again.[118] Cape Wind's developers came up with a simple solution when they decided to move the affected turbines farther out to sea and back into federal waters.[119]

C. *Federal Permitting Challenges*

Cape Wind Associates, LLC sought permission to construct and operate the wind farm from the Corps in November of 2001.[120] Developers of the Cape Wind project planned to erect approximately 130 wind turbines capable of producing up to "454 megawatts [of electricity] and an average output of 186.2 megawatts."[121] Believing that it was the lead agency with regulatory authority over renewable energy projects on the OCS, the Corps went forward with its review process and determined that the Cape Wind project required an EIS.[122] The Corps and the project developers spent three years analyzing the scientific, environmental, and economic impacts of the proposed Cape Wind project.[123] In accordance with federal permitting agencies, Cape Wind developers studied the project's affect on wildlife, air and water quality, visual impact, noise, cultural resources, navigation, geological conditions, and other possible characteristics of Nantucket Sound.[124] The studies resulted in a 3800 page Draft Environmental Impact Statement ("DEIS"), which the Cape Wind developers lauded as showing "that Cape Wind will produce compelling public benefits with positive environmental and economic impacts."[125] The developers' optimism was a bit premature.

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118. *Id.*

119. *Id.*

120. MINERALS MGMT. SERV., U.S. DEP'T OF THE INTERIOR, EXECUTIVE SUMMARY, CAPE WIND ENERGY PROJECT FINAL ENVTL. IMPACT STATEMENT E-4 (2009), http://www.mms.gov/offshore/RenewableEnergy/PDFs/FEIS/ExecutiveSummary.pdf [hereinafter CAPE WIND IMPACT STATEMENT].

121. *Id.* at E-1 to E-2.

122. *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).

123. *See* Press Release, Cape Wind, Army Corps of Engineers Releases Cape Wind Draft Environmental Impact Statement to Public (Nov. 8, 2004), *available at* http://www.capewind.org/news280.htm. The Draft EIS also included the input of seventeen different federal and state agencies and public participation. *Id.*

124. *See* Cape Wind, Permitting Update, http://www.capewind.org/article72.htm (last visited Feb. 26, 2010).

125. *Id.*

In August 2005 Congress passed the Energy Policy Act of 2005.[126] The Energy Policy Act amended the Outer Continental Shelf Lands Act, giving MMS the authority to issue leases, easements, or rights-of-way for renewable energy projects on the OCS.[127] Subsequently, MMS reviewed the Cape Wind application with respect to NEPA. MMS determined that its requirements under NEPA were "substantially different than those under which [the Corps] would have authorized the proposed action, and so it was determined that a new [DEIS] would need to be prepared."[128] Over a year and a half later, MMS made its DEIS available to the public.[129] It would be another year before MMS issued its Final EIS.[130] The Final EIS identified no lasting major adverse impacts on wildlife, navigation, fishing, tourism, or recreation.[131]

In the beginning of 2009, Cape Wind's developers believed that the only thing delaying the construction of Cape Wind was final approval by DOI. However, the arduous permitting process received another curveball in November 2009 when the Massachusetts Historical Society agreed with the Wampanoag tribes that Nantucket Sound may be eligible for listing on the National Register of Historic Places ("the Register") as their "traditional cultural property."[132] MMS forwarded the request for listing on the Register to the National Park Service for consideration of eligibility.[133] In January 2010 the National Park Service surprisingly declared Nantucket Sound eligible for listing on the Register,[134] de-

126. Pub. L. No. 109-58, 119 Stat. 594.

127. *Id.* § 388, 119 Stat. 594, 744–47 (codified at 43 U.S.C. § 1337(p) (2006)).

128. CAPE WIND IMPACT STATEMENT, *supra* note 120, at E-4. MMS published its notice of intent to prepare an EIS in May of 2006. 71 Fed. Reg. 30,693 (May 30, 2006).

129. Notice of Availability (NOA) of Draft Environmental Impact Statement and Public Hearings for the Cape Wind Energy Project, Nantucket Sound, Massachusetts, 73 Fed. Reg. 3482 (Jan. 18, 2008).

130. *See* Notice of Availability of Final Environmental Impact Statement for the Proposed Cape Wind Energy Project on the Outer Continental Shelf off Massachusetts, in Nantucket Sound, 74 Fed. Reg. 3635 (Jan. 21, 2009).

131. *See* CAPE WIND IMPACT STATEMENT, *supra* note 120, at E-11 to E-12 tbl.E-1 (summarizing impacts during construction and operation).

132. Associated Press, *Mass. Commission Ruling Means Delay for Cape Wind*, Nov. 6, 2009, *available at* http://abcnews.go.com/Business/wirestory?id=9015039.

133. *See* Patrick Cassidy, *Historic Designation Could Change Sound*, CAPE COD TIMES, Nov. 16, 2009, http://www.capecodonline.com/apps/pbcs.dll/article?AID=/20091116/NEWS/911160310 (noting that MMS had not forwarded the request for listing in the Register to the National Park Service as of the date of publication).

134. U.S. Dep't of the Interior, Nat'l Park Serv., National Register of Historic Places Determination of Eligibility, Jan. 4, 2010, *available at* http://www.nps.gov/nr/publications/

spite the fact that the Register had never listed any portion of the ocean prior to this determination.[135] A decision to list Nantucket Sound on the Register could have permanent precedential repercussions not just for Nantucket Sound but also for other future historic designations.[136] Because the National Park Service and MMS are both divisions within DOI,[137] Secretary Salazar still has the authority to approve the project after consulting with the Advisory Council on Historic Preservation.[138] Secretary Salazar has given the tribes and project developers until March 1, 2010, to agree on ways to minimize the project's impact on the sound's cultural and historical value.[139] If the two sides cannot agree, Secretary Salazar intends to make a final decision on Cape Wind's approval no later than April 2010.[140]

D. *Cape Wind's Proponents*

Despite noticeable state and local opposition to the project, Cape Wind enjoys very large support throughout Massachusetts, and the rest of the United States. Many prominent groups, organizations, businesses, and politicians have voiced support for the project.[141] Locally, polls have shown that a majority of Cape Cod residents and a vast majority of Massachusetts residents support Cape Wind.[142] Outside of Massachusetts, Cape Wind is seen by some as an opportunity for the United States to make a statement that offshore renewable energy is a priority.[143] Representa-

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guidance/NantucketSoundDOE.pdf.

135. *See* Cassidy, *supra* note 133.

136. *See id.* (explaining that future activities in Nantucket Sound that require federal permitting or funding would be required to go through a consultation process, and such precedent may affect delays in future offshore renewable energy developments).

137. *Id.*

138. *See* Broder, *supra* note 12.

139. Beth Daley, *A Decision in Sight on Cape Wind Dispute*, BOSTON GLOBE, Jan. 5, 2010, http://www.boston.com/lifestyle/green/articles/2010/01/05/decision_in_sight_for_whichfarm_dispute/.

140. *See* Broder, *supra* note 12.

141. Cape Wind, Project Supporters, http://www.capewind.org/article47.htm (last visited Feb. 26, 2010). Notable supporters include Greenpeace, the National Resources Defense Council, the World Wildlife Fund, the American Lung Association, Woods Hole Research Center, and various newspapers. *Id.*

142. *See* Jack Coleman, *New Poll: 81% of State, 61% of Cape Favor Cape Wind*, CAPECODTODAY.COM, June 7, 2006, http://www.capecodtoday.com/news419.htm.

143. *See* Letter from Frances Beinecke, President, Nat'l Res. Def. Council, to the Honorable Ken Salazar, Sec'y, Dep't of the Interior (Nov. 17, 2009), *available at* http://docs.nrdc.org/energy/files/ene_09111901a.pdf.

tive Edward Markey, Chairman of the House Subcommittee on Energy and Environment, expressed a belief that approval of the Cape Wind project prior to the United Nations Climate Change Conference in Copenhagen in December of 2009 "would send a strong message to international negotiators about the United States' commitment to developing sources of clean energy and reducing global warming pollution."[144]

IV. CAPE WIND'S IMPACT

At the time of Cape Wind's initial proposal, many questions were unanswerable because there had never been a renewable energy project on the United States' OCS. How will investors overcome high costs and a lack of experience? Is the technology mature enough? How will the United States license or lease developments in federal waters? Will constituents support or oppose such projects? Through a permitting process that lasted over eight years, Cape Wind discovered solutions to these and other questions. As a result, the path to constructing offshore wind energy projects will be much easier for future developers.

A. *Permitting, Construction, & Public Opinion*

The promulgation of MMS's final rule for the regulation of renewable energy projects on the OCS gives investors reason for optimism. As noted earlier, the final rule establishes a program for leasing renewable energy projects on the OCS and for creating methods for sharing revenues with coastal states.[145] Now that the program is in place, offshore wind developers have a roadmap for getting their projects properly sited. As the first offshore wind farm to go through this process, Cape Wind is in a position to be the first development to test the final rule. Cape Wind will be able to identify strengths and weaknesses of the leasing program. At the same time, MMS personnel will gain experience in processing applications. The overall process will gain maturity, and future developers will benefit greatly from a smoother process.

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144. Letter from Edward J. Markey, Chairman, House Subcomm. on Energy and Env't, to the Honorable Ken Salazar, Sec'y, Dep't of the Interior (Nov. 9, 2009), *available at* http://globalwarming.house.gov/files/LTTR/091109MarkeySalazar.pdf.

145. *See supra* note 73 and accompanying text.

The Cape Wind project has gone a long way toward illustrating how to manage compliance with federal statutes and permitting agencies. Cape Wind had to prepare not one, but two EISs.[146] In completing the requirements of both EISs and attaining a Final EIS from MMS, Cape Wind's developers conducted an exhaustive amount of research.[147] Because Cape Wind has survived that gauntlet, its studies serve as an example to future offshore wind developers of what must be done to navigate NEPA requirements successfully. Future developers do not have to start from scratch, as Cape Wind had to do, and they can apportion costs with more certainty. MMS has also gained valuable experience with NEPA compliance. The agency will be more prepared as it proceeds to conduct future EISs and will also be able to pass its knowledge along to future developers who may be going through the process for the first time.

Construction of Cape Wind will provide valuable experience to American ships and construction crews. The United States currently does not have a domestic fleet experienced in or capable of constructing offshore wind turbines.[148] This inexperience will likely create difficulties during the construction process. During construction, Cape Wind can make note of specific challenges or setbacks, and lessons can be forwarded through organizations like the U.S. Offshore Wind Collaborative to future developers who will benefit from a more streamlined construction process. When policymakers see how Cape Wind spurs assembly and transportation activities during the construction phase, they will be influenced to pursue similar projects in their own states and localities.

The economic benefits that Cape Wind brings to the region will positively influence policymakers and residents of other proposed offshore wind sites. An economic impact study of Cape Wind concluded that the project will create between six hundred and one thousand full-time jobs.[149] The study also predicts a significant increase in local and state tax revenue as a result of Cape Wind.[150] It will be very difficult for local policymakers to turn their backs

146. *See supra* notes 123–30 and accompanying text.

147. *See supra* notes 124–25 and accompanying text.

148. *See supra* notes 62–64 and accompanying text.

149. *See* GLOBAL INSIGHT, ECONOMIC IMPACT ANALYSIS OF THE CAPE WIND OFF-SHORE RENEWABLE ENERGY PROJECT 2 (2003), http://www.capewind.org/downloads/Economic_Impact.pdf.

150. *Id.*

on the economic benefits that come with an offshore wind energy project. Public opinion of offshore wind energy is also likely to change once the public is aware of the positive economic impact Cape Wind will have on the region.

Cape Wind also provides a lesson on how to deal with public opposition to the visual effects of offshore wind farms. Cape Wind has shown that the most important virtue for offshore wind developers is persistence. In the beginning, many locals around Nantucket Sound were opposed to Cape Wind because they believed the wind turbines would obstruct views of the Sound.[151] Cape Cod's elite funded a long battle against the project, but Cape Wind survived because Jim Gordon, the only major investor, was not about to give up easily.[152] In addition, many local residents became offended by the wealthy locals' attempts to use their money to kill the project without allowing time for democratic debate.[153] Future developers now have the blueprint to successfully defeat biased opposition. A secondary benefit of Cape Wind with regard to offshore wind's visual effects is its role as a real-life example of what an offshore wind farm looks like. Once Cape Wind is constructed, local residents and visitors to Cape Cod will be able to see the turbines with their own eyes, and such an experience may convince some opponents that the visual effects are not as offensive as people originally thought they would be.

B. *Investor Confidence*

Offshore wind energy developers predict that the industry will experience an enormous growth surge immediately after Cape Wind is online.[154] The potential profitability of offshore wind energy is not in question. Observers expect Cape Wind's developers to make a lot of money once its turbines are online.[155] Unfortunately, potential investors have remained on the sidelines be-

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151. *See supra* note 103 and accompanying text.

152. WILLIAMS & WHITCOMB, *supra* note 96, at 218 (explaining that Gordon's investment, about $20 million of his own money, was by far the largest).

153. *See id.* at 308 (explaining that a grassroots movement grew up, consisting of people offended by the wealthy's "hijacking of the democratic process").

154. *See* Peter D. Mandelstam, *The Regulation of Offshore Wind*, ENERGY BIZ, Sept./Oct. 2007, at 106, *available at* http://energycentral.fileburst.com/EnergyBizOnline/2007-5-sep-oct/Legal_Wind.pdf.

155. WILLIAMS & WHITCOMB, *supra* note 96, at 302.

cause no one has proven that it is possible to build a turbine in United States waters yet. However, an operational Cape Wind will make offshore wind energy a reality in the United States. An operational Cape Wind is the ultimate green light for capital investment, and with capital investment comes a flurry of other positive developments for offshore wind energy.

A real offshore wind farm may encourage government to rethink investment in offshore wind energy. Potential developers who begin to invest large sums of capital will likely put pressure on federal and state politicians to increase government incentives for offshore wind. Such pressure may be what the industry needs in order to achieve the long-term financial guarantees it desires.[156] Long-term guarantees will then lead to even further investment.

New investments will positively influence innovation and new technologies to meet offshore wind energy's growing needs. The industry will be better suited to develop larger turbines at a lower cost. As the cycle continues and the industry becomes more and more mature, offshore wind energy may someday gain a competitive advantage over other renewable energies and traditional fossil fuels.

C. *Global Impact*

Another important aspect of Cape Wind is its role in demonstrating to the world that the United States is committed to the development of renewable energy and, in particular, offshore wind energy.[157] The international community has criticized the United States for failing to show leadership on the issue of global climate change.[158] As the United Nations continues to seek an international agreement that addresses climate change on a worldwide level,[159] the United States can point to Cape Wind as a sign

156. *See* U.S. OFFSHORE WIND COLLABORATIVE, *supra* note 8, at 32 (suggesting the United States bolster incentives for offshore wind by providing long-term stability for PTCs, loans, power purchase agreements, and renewable energy credits).

157. *See* Letter from Edward J. Markey, *supra* note 144.

158. *See* BBC Weather Centre, Climate Change, http://www.bbc.co.uk/climate/policies/usa_policy.shtml (last visited Feb. 26, 2010) ("The USA has in the past received a large degree of international criticism for its stance on climate change.").

159. *See* Bryan Walsh, *Is There Any Hope for Agreement at Copenhagen?*, TIME, Nov. 8, 2009, *available at* http://www.time.com/time/specials/packages/article/0,28804,1929071_1929070_1936440,00.html (detailing particular challenges to reaching an international

of things to come. Cape Wind's construction would provide a positive example of the United States' commitment to reducing greenhouse gas emissions and addressing global climate change.

V. CONCLUSION

As the first proposed offshore wind project in United States waters, Cape Wind endured an arduous process filled with delays caused by skepticism and the lack of a defined regulatory scheme. The project's developers never flinched, despite the fact that their personal fortunes were on the line. Their persistence has paid off, as Cape Wind is one last hurdle away from beginning construction. New Englanders stand to receive an average output of approximately 186 MW of clean, renewable energy from Cape Wind's turbines;[160] however, Cape Wind's greatest gifts will be the trail it blazes as America's first offshore wind farm, the confidence it will give to investors and policymakers, and the blueprint it will provide for future offshore wind energy projects.

Michael P. Giordano

climate change agreement in 2009).

160. *See supra* note 121 and accompanying text.