What's the Holdup? How Bureaucratic Obstacles Are Undercutting the True Potential of American Wind Power

"'A great wind is blowing, and that gives you either imagination or a headache.'"[1]

I. INTRODUCTION

Wind power is now the fastest growing source of alternative energy in the United States, due in part to desires to increase utilization of cleaner energy and to withdraw from dependence on foreign energy.[2] Studies have shown that if properly harnessed, the United States has enough wind-energy potential to provide well over the amount of electricity currently consumed nationally.[3] Capitalizing on this potential, thirty-eight states currently maintain utility-scale wind projects, with fourteen states amassing over one thousand megawatts (mW) of energy from these projects.[4] Although all current wind power

1. GAMALIEL BRADFORD, DAUGHTERS OF EVE 192 (1930) (quoting Catherine the Great).

2. *See* U.S. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ELECTRIC POWER ANNUAL 2011, at 9 tbl.1.1 (2013), http://www.eia.gov/electricity/annual/pdf/epa.pdf (providing data regarding wind-power growth in United States); Brit T. Brown & Benjamin A. Escobar, *Wind Power: Generating Electricity and Lawsuits*, 28 ENERGY L.J. 489, 490-91 (2007) (discussing strengths of United States wind-power potential); Alexa Burt Engelman, *Against the Wind: Conflict over Wind Energy Siting*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10,549, 10,549 (2011). Technological advancement has made wind a viable option for the United States. *See* Engelman, *supra*, at 10,549 (noting emergence of wind and other alternative energies as "serious players" in energy sector). In terms of new production, the domestic wind industry accounted for more than thirty-five percent of new electrical-generating capacity between 2008 and 2011 alone. *Industry Statistics*, AM. WIND ENERGY ASS'N (Jan. 30, 2013), http://www.awea.org/learnabout/industry_stats/index.cfm (providing figures about developing wind technology in United States). By the end of December 2012, the wind industry was putting out 60,007 mW of cumulative energy. *See id*.; *see also* Brown & Escobar, *supra*, at 491 (providing 2007 statistics in order to estimate modern statistics). In fact, the industry has expanded so rapidly in recent years that in the first quarter of 2011 alone, 1118 mW of wind power were implemented nationally. AM. WIND ENERGY ASS'N, U.S. WIND INDUSTRY FIRST QUARTER 2011 MARKET REPORT (2011) [hereinafter 2011 MARKET REPORT], http://www.awea.org/learnabout/publications/reports/upload/1Q-Market-Report_-Public.pdf (providing information about wind industry's output through first half of 2011). Only 541 mW were added during the first quarter of 2010. *Id.*

3. *See* Alexis Madrigal, *America's Wind Energy Potential Triples in New Estimate*, WIRED (Feb. 19, 2010), http://www.wired.com/wiredscience/2010/02/better-wind-resource-maps/ (positing United States has far larger wind reserves than previously believed). Based on a report by the National Renewable Energy Laboratory, wind potential in environmentally unprotected areas could reach thirty-seven million gWh per year. Madrigal, *supra*; *see* U.S. Dep't of Energy, *New Wind Resource Maps and Wind Potential Estimates for the United States*, WIND POWERING AM. (Feb. 19, 2010), http://www.windpoweringamerica.gov/filter_detail.asp?itemid=2542 (providing maps and statistics utilized to produce generation estimates).

4. *See* 2011 MARKET REPORT, *supra* note 2 (providing statistical information on state wind-farm sizes); *see also* PATRICIA E. SALKIN, 4 AMERICAN LAW OF ZONING § 37:9 (5th ed. 2011) (displaying statistics

generated in the United States is produced through land-based operations, the country is pursuing offshore projects—specifically the perpetually delayed Cape Wind project located off the coast of Massachusetts.[5] If the United States wants to continue expansion of wind power both efficiently and lucratively, it must develop a regulatory scheme designed, updated, and maintained specifically for this growing market.[6]

The United States does not have any centralized regulatory, statutory, or administrative authority designed specifically to address wind energy.[7] Potential wind projects—often-called wind farms—must traipse through a mire of local, state, and federal regulations, few of which provide regularity or guidance from project to project.[8] On the federal level, an amalgamation of statutes governs various facets of a wind project's evolution: permitting, development, decommission, taxation, and rights to opposition are all governed by many different laws.[9] In addition, states generally have their own radically different approaches to handling wind power.[10] Many states even allow cities and towns to pass their own ordinances for handling wind power, which often result in moratoriums or competition between neighbors for lucrative turbine leases.[11] Without any national voice or approach to the development of wind technology, the United States is at a dramatic disadvantage to countries that

concerning wind-farm sizes and prevalence throughout various states).

5. *See* Brown & Escobar, *supra* note 2, at 502-03 (describing history of Cape Wind project and other potential offshore wind farms). The proposed site for Cape Wind, Horseshoe Shoal, is located 13.8 miles from Nantucket, an island approximately thirty miles south from the coast of Cape Cod, Massachusetts. *See id.* The privately developed project would include 130 wind turbines—each 250 feet tall—located completely in federal waters. *See id.* at 695-96 (outlining scale of Cape Wind project); *Project at a Glance*, CAPE WIND, http://www.capewind.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=24&page=1 (last visited Feb. 6, 2013) (providing brief overview of Cape Wind project). Along with traipsing through rigorous federal guidelines, attempting to obtain permits, and securing investments, Cape Wind has found itself embroiled in litigation for nearly a decade. *See* 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, 547-53 (2007) (describing various legal challenges to Cape Wind project); *infra* Part II.C.3.b (examining legal hurdles hindering Cape Wind project).

6. *See* Dinnell & Russ, *supra* note 5, at 589-90 (postulating how centralized, federal wind act could simplify regulation and develop markets); *infra* Part III (addressing need for centralized wind commission).

7. *See* Dinnell & Russ, *supra* note 5, at 579-80 (stating United States lacks any focused wind-regulation strategy).

8. *See infra* Part II.B-C (discussing various state and federal regulations necessary to create wind farms).

9. *See infra* Part II.B (observing large number of regulations required to develop and maintain wind farms).

10. *See* SALKIN, *supra* note 4, § 37:9 (highlighting various state approaches to controlling wind power); *infra* Part II.F (highlighting state approaches—successful and otherwise—to wind power).

11. *See* Engelman, *supra* note 2, at 10,557 (highlighting pitfalls of wind development in towns without zoning). "In New York, zoning authority is delegated to local governments under a system dubbed 'home rule.' Municipalities have the discretion to create zoning laws that are consistent with the purposes and standards of state law, but are not required to do so." *Id.* Without zoning laws in place for wind development, small towns often have difficulty during the initial stages of turbine installation. *See id.*

have taken a proactive approach to wind technology's introduction.[12]

The United States is not without solutions, some of which have already been proposed in both the House of Representatives and the Senate.[13] These proposals encompass the notion that by developing a cohesive federal framework that can keep up with quickly developing wind technology, the country can create electricity from wind exponentially faster and in greater quantities.[14] Federal and state governments can begin this process by analyzing, consolidating, and stream-lining the current regulatory framework.[15] In addition, the federal government should analyze the approaches taken by various states with successful systems.[16] Finally, the United States would be wise to learn a lesson from other nations developing large-scale wind power worldwide.[17]

This Note analyzes the dynamic changes taking place in the United States wind-power industry.[18] Part II.A begins with an overview and description of wind technology in the United States, including its expanding utilization and technological progressions.[19] Next, Part II.B-D will analyze the current regulatory foundation that controls wind power, including project development, environmental impact, and tax structure.[20] Part II.E-F will discuss various successful regulatory frameworks from around the United States as well as around the world.[21] Lastly, Part III will discuss potential solutions the United States could pursue based on ideas not yet enacted into law, reformulation of current laws, and a general refocusing on alternative-energy goals and policies.[22]

12. *See* Dinnell & Russ, *supra* note 5, at 565-78 (describing how countries with established wind frameworks thrive despite differences); *see also infra* Part II.E (analyzing different, successful wind-power-development approaches taken by countries globally). The United States only produced 22.1% of total wind power in the world by the end of 2009. *See Wind Power*, THINK GLOBAL GREEN, http://www.thinkglobalgreen.org/WINDPOWER.html (last visited Feb. 6, 2013) (comparing global wind-energy figures).

13. *See infra* Part II.D (analyzing proposed and enacted alternative-energy regulations).

14. *See* Dinnell & Russ, *supra* note 5, at 579-81 (opining benefits resulting from "National Wind Power Act").

15. *See infra* Part III.A.1 (recommending consolidation of current regulatory authority into "National Wind Agency").

16. *See infra* Part II.F (addressing strong policies to potentially develop efficient, central wind regulation).

17. *See infra* Part II.E (expressing global views on wind development).

18. *See infra* Part II.A (describing emergence of wind power as feasible and efficient possibility for energy).

19. *See infra* Part II.A (analyzing wind-capacity increases and concurrent technological progression).

20. *See infra* Part II.B (observing various federal regulations concerning wind development).

21. *See infra* Part II.E-F (considering numerous state and global approaches to wind development).

22. *See infra* Part III (arguing for "National Wind Agency" based on benefits of centralized authority and national wind support).

II. HISTORY

A. The Emergence of Wind Power in the United States

Wind power has emerged as the leader in the alternative-energy market both for its efficiency and for its feasibility.[23] Based on the most current estimates available, the United States generated 4100.656 million megawatt-hours (mWh) of total electricity in 2011, which was a 0.6% decline from the 4125.060 million mWh produced in 2010.[24] While total United States energy production declined, the generation of wind energy increased twenty-seven percent over that same period: 120.177 million mWh in 2011 versus 94.652 million mWh in 2010.[25] In fact, the National Renewable Energy Laboratory (NREL) has increased its earlier estimates for possible wind-power generation by 26,223,000 gigawatt-hours (gWh) because of tremendous improvements in wind technology.[26] Wind energy accounted for thirty-five percent of newly installed electrical capacity in the United States since 2007—more than twice the amount installed by the coal and nuclear industries combined.[27]

A primary reason for the surge in wind-energy production is the dramatic increase in efficiency and cost-effectiveness the market has undergone.[28] For

23. *See* SALKIN, *supra* note 4, § 37:9 (detailing technological progress wind industry has undergone); *see also* Jeremy Firestone et al., *Regulating Offshore Wind Power and Aquaculture: Messages from Land and Sea*, 14 CORNELL J.L. & PUB. POL'Y 71, 75-76 (2004) ("Wind power is the fastest growing source of energy in the world today.").

24. ELECTRIC POWER ANNUAL 2011, *supra* note 2, at 9 tbl.1.1. *See generally* Erica Schroeder, Comment, *Turning Offshore Wind On*, 98 CALIF. L. REV. 1631, 1636 (2010) (providing conversion factors between mW and mWh). A megawatt-hour is the amount of megawatts produced over one hour. *See id.* (describing conversion in terms of kilowatt-hours).

25. ELECTRIC POWER ANNUAL 2011, *supra* note 2, at 9 tbl.1.1. The increase resulted in wind power contributing a 2.9% share of total electrical generation in the United States. *See id.*

26. *See* Madrigal, *supra* note 3 (explaining estimates for potential wind generation rose from 10,777,000 gWh to 37,000,000 gWh in seventeen years); *infra* notes 28-32 and accompanying text (describing breakthroughs in wind technology leading to greater capacity estimates). *But see infra* note 55 (describing how ESA limits number of adequate siting locations if endangered species involved).

27. Press Release, Am. Wind Energy Ass'n, *Wind Rebounds in 2Q, But Continued Growth Depends on Consistent Tax Policy*, RENEWABLE ENERGY WORLD (Aug. 4, 2011), http://www.renewableenergyworld.com/rea/partner/american-wind-energy-association/news/article/2011/08/wind-rebounds-in-2q-but-continued-growth-depends-on-consistent-tax-policy [hereinafter *Wind Rebounds in 2Q*] (illustrating modern popularity of wind energy). In 2009 alone, wind power accounted for 63.3% of all capacity gains. *See* U.S. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ELECTRIC POWER ANNUAL 2009, at 4 (2011) [hereinafter ELECTRIC POWER ANNUAL 2009], http://www.eia.gov/electricity/annual/archive/03482009.pdf (providing statistics regarding newly added wind capacity). Capacity is being installed at such a high rate that 1044 mW of capacity were installed in the second quarter of 2011 alone, a full forty-six percent more than the same quarter of 2010. *See Wind Rebounds in 2Q*, *supra*.

28. *See* Brown & Escobar, *supra* note 2, at 489 (stating wind-technology advancements have made wind more cost competitive with other energy sources); Dinnell & Russ, *supra* note 5, at 540 (noting efficiency of wind turbines increases on yearly basis); Firestone et al., *supra* note 23, at 76 (articulating how turbines have become more efficient and therefore cheaper). From 1974-2004, the cost of producing wind power was reduced over eighty percent. NAT'L COMM'N ON ENERGY POLICY, ENDING THE ENERGY STALEMATE 63 (2004), *available at* http://www.bipartisanpolicy.org/sites/default/files/endi_en_stlmate.pdf (displaying

instance, current wind turbines stand at an average height of eighty meters, whereas previous technologies were limited to heights averaging fifty meters.[29] Access to stronger winds is a tremendous benefit considering developable wind sites have average wind speeds between 6.5 and 10 meters per second.[30] Further, the development of affordable computer programming has allowed experts to estimate wind speeds in a given area within .35 meters per second, allowing for increasingly accurate turbine siting.[31] Finally, modern wind developers now have the ability to develop complex siting maps, allowing them to pinpoint optimal locations to install new turbines.[32]

The emergence of wind as a feasible source of energy has also bolstered its nationwide usage.[33] Today's wind turbines, though large and complex, are both quiet and reliable.[34] These developments have lead to diverse siting opportunities—from ridges to cities.[35] In the first half of 2011 alone, the

reduction in cost of wind power due to technological improvements). For instance, at the turn of the millennium, a 1.65-mW turbine could generate 120 times the energy of the 25-kW machines built in the 1980s. Dinnell & Russ, *supra* note 5, at 540-41. A turbine of roughly equivalent size can supply over 400 homes with power for one year. *See* PATRICIA E. SALKIN, 1 AMERICAN LAW OF ZONING § 9:51 (5th ed. 2011) (calculating power output for 1.5 mW turbine).

29. *See* Madrigal, *supra* note 3 (describing differences between current turbines and older, less efficient models). The importance of taller turbines is paramount because "[w]ind speed generally increases with height." *Id.* Therefore, the simple fact that turbines can now reach greater heights dramatically expands overall wind capacity. *See* Dinnell & Russ, *supra* note 5, at 540 (describing heights of modern turbines and their ability to capture wind at greater heights). Michael Brower, chief technology officer with AWS Truewind, compares the modern development of wind turbines with the increased efficiency of oil extraction: Oil reserves "go up not because there is more oil in the ground but because the technology for accessing the oil gets better." Madrigal, *supra* note 3.

30. *See* Madrigal, *supra* note 3 (examining optimal wind speeds for turbine operation); *see also* SALKIN, *supra* note 28, § 9:51 (analyzing efficiency of modern turbines not previously attainable).

31. *See* Madrigal, *supra* note 3 (discussing computational-technology surge in 1990s and resulting effect on wind industry). In addition, modern computer equipment can produce turbine output figures in a given location with accuracy to within ten percent. *Id.* In light of these developments, Brower claims that "'[y]ou might see 10 or 15 towers over an area that would have had 50 or 100 towers before.'" *Id.* (quoting Michael Brower).

32. *See id.* (describing ability to plan more effectively based on data from new maps and forecasting models). *See generally* U.S. Dep't of Energy, *Utility-Scale Land-Based 80-Meter Wind Maps*, WIND POWERING AM., http://www.windpoweringamerica.gov/wind_maps.asp (last updated Sept. 12, 2012) (providing example of advancement in modern wind-site mapping).

33. *See* Christine Real de Azua, *The Future of Wind Energy*, 14 TUL. ENVTL. L.J. 485, 493 (2001) (explaining wind energy potential in various parts of United States).

34. *See id.* at 489 (chronicling versatility of modern turbines). Modern turbines generally cannot be heard over the sound of the wind powering them. *See id.* In addition, because wind turbines are individual entities, they are reliable energy sources because if one malfunctions, the rest will continue producing electricity. *See id.* (analyzing turbine reliability). *But see id.* at 497 (articulating troubles associated with wind's inherent intermittency); Stephen Harland Butler, Comment, *Headwinds to a Clean Energy Future: Nuisance Suits Against Wind Energy Projects in the United States*, 97 CALIF. L. REV. 1337, 1339 (2009) ("The erratic nature and variable speeds of wind at any particular location often make wind a risky choice as a dominant power source.").

35. *See* Butler, *supra* note 34, at 489-90 (discussing diverse possibilities in modern wind-turbine siting). The siting possibilities that modern turbine technology unlocked have resulted in an explosion of installed capacity: By 2009, wind accounted for 3.3% of all United States electrical generating capacity, rising from

country installed 2151 mW of wind power, an astonishing seventy-two-percent increase from the first half of 2010.[36] In addition, the NREL estimates that the United States could generate twenty percent of its total electrical output from wind by 2024.[37] This reality is bolstered by the fact that a wind farm generally needs fifteen to thirty acres per mW to be operational, but leaves a total footprint of only three to five percent of that acreage.[38] Finally, in order to create more versatile turbines that can produce electricity consistently at different wind speeds, the Department of Energy's Wind and Hydropower Technologies Program is researching low-speed technology.[39]

B. Federal Wind Regulations: Purposes and Aims

Although alternative-energy development—lead by wind power—is now vital to the future of United States energy needs, Congress has not yet developed a cohesive framework for the development or implementation of wind farms.[40] Instead, the country has relied upon a conglomeration of federal and state statutes, none of which encompasses the totality of wind-project development.[41] The most pertinent federal regulations to the onshore-wind

0.3% a mere ten years earlier. *See* ELECTRIC POWER ANNUAL 2009, *supra* note 27, at 4 (comparing 2009 wind capacity to previous years); *see also supra* note 26 and accompanying text (commenting on estimates for capacity and therefore feasibility).

36. *Wind Rebounds in 2Q*, *supra* note 27. In addition, the United States had 7354 mW of capacity under construction as of July 1, 2011, which is more than at any time since the 2008 economic collapse. *Id.*

37. Tom Kenworthy, *NREL: US Has Three Times More Wind Electricity Potential Than Previously Thought*, THINK PROGRESS (Feb. 22, 2010, 4:48 PM), http://thinkprogress.org/romm/2010/02/22/205533/nrel-us-three-times-more-wind-electrictiy-potential/. In order to achieve this lofty goal, however, wind production would have to reach 300,000 mW, or 239,993 mW greater than currently installed capacity. *See id.*

38. SALKIN, *supra* note 28, § 9:51.

39. *See* Dinnell & Russ, *supra* note 5, at 541 (discussing wind-speed levels necessary to produce consistent power). Wind is currently organized into seven power classes, and modern technology limits turbine siting to areas that have attained a rating of four or greater. *See id.* However, advances have opened up the possibility that class-three winds could be sustainable, though winds falling within classes one and two will remain unsuitable. *See id.*

40. *See* Firestone et al., *supra* note 23, at 72 ("At present in the United States, any attempt to develop the promise of [wind power] requires the government to spin together a hodgepodge of laws enacted prior to the development of [current] technolog[y] . . . without the benefit of having them in mind."); Real de Azua, *supra* note 33, at 497 (arguing wind development largely policy based due to lack of cohesive framework); *see also* Dinnell & Russ, *supra* note 5, at 578 (implying Energy Policy Act of 2005 constitutes "first step" toward developing process dedicated to offshore-wind development); Jacqueline S. Rolleri, Notes & Comments, *Offshore Wind Energy in the United States: Regulations, Recommendations, and Rhode Island*, 15 ROGER WILLIAMS U. L. REV. 217, 219 (2010) (claiming federal government responds to alternative energy reactively, and continually deflects to states). Until the United States installs its first offshore wind farm, the permitting process and regulatory foundation of offshore wind power will remain nonexistent. *See* Firestone et al., *supra* note 23, at 86 ("No consolidated regulatory regime exists for . . . offshore wind [development] . . . ."). Some scholars have gone as far as proposing a "National Wind Power Act" in order to consolidate and streamline wind-development regulation. *See* Dinnell & Russ, *supra* note 5, at 578 (arguing in favor of centralization of federal offshore-wind regulation).

41. *See* Firestone et al., *supra* note 23, at 87-88 (discussing how permitting generally requires agencies at local, state, and federal levels). *But see id.* at 88 (describing Bureau of Land Management's (BLM) interim,

industry include the Public Utilities Regulatory Policies Act (PURPA), the Endangered Species Act (ESA), and the Energy Policy Acts of 1992 (EPACT92) and 2005 (EPACT05).[42] Setting the foundation for renewable energy to break into mainstream electricity markets, PURPA's goals included increasing the efficiency of existing electric utilities, providing equitable rates for consumers, and developing renewable energy.[43]

1. PURPA's Effect on the Wind Industry

PURPA was the first set of laws affording independent power producers the ability to sell their electricity competitively by requiring public utilities to buy it at state-determined rates.[44] Before PURPA, electric utilities generally enjoyed monopoly status; the utility provider had a protected geographic region where it alone sold power, and it controlled the generation, transmission, and distribution of its power.[45] Under PURPA, a "qualifying facility"—including many producers that generate electricity from wind, among other sources—is entitled to a range of exemptions that are not available to other independent power producers.[46] Most importantly, electric utilities must purchase *all* energy offered to them by qualifying facilities at a price equivalent to the utility's "avoided cost": a price determined by the costs of electric capacity or

expedited permitting process). As of 2002, the BLM had authorized 500 mW of installed wind capacity by issuing twenty-five permits. *Id.* In addition, the BLM has developed a three-stage process to authorize wind projects by granting temporary easements on land it controls. *See id.* at 88-90. The stages include easements allowing for site testing, monitoring, and eventual development. *See id.* at 89-90.

42. *See infra* Part II.B.1-5 (discussing pertinence of federal regulations to onshore wind power).

43. *See* 16 U.S.C. § 2611 (2006) (codifying PURPA); Real de Azua, *supra* note 33, at 503 (explaining PURPA designed to encourage development of independent electrical production); *What Is a Qualifying Facility?*, FED. ENERGY REGULATORY COMM'N, http://www.ferc.gov/industries/electric/gen-info/qual-fac/what-is.asp (last updated Feb. 3, 2012) (displaying five goals of PURPA); *see also* STEVEN FERREY, THE NEW RULES: A GUIDE TO ELECTRIC MARKET REGULATION 79 (2000) (deciphering legislative intent of PURPA at time of enactment).

44. *See* FERREY, *supra* note 43, at 78-79 (asserting PURPA ensures viability and marketability of new forms of energy). Along with encouraging the vitality of independent power producers, PURPA was designed to reduce dependence on foreign sources of energy as well as protect the current energy markets of the United States by diversifying the types of electricity that utilities purchase. *See* Real de Azua, *supra* note 33, at 503-04 (describing purposes and aims of PURPA).

45. *See* FERREY, *supra* note 43, at 78-79 (describing makeup of pre-PURPA regulations); *see also* Real de Azua, *supra* note 33, at 504 (articulating how PURPA broke utility monopoly over power generation). Transmission systems include the generally recognized high-voltage wires that move power, while distribution systems include the lower-voltage wires that branch from the utility to the individual user. *See* Real de Azua, *supra* note 33, at 504. It should be noted that before PURPA, the utility alone had discretion to decide from which power producers it chose to purchase energy. *See id.* at 503-04.

46. *See* FERREY, *supra* note 43, at 92 (stating qualified facilities receive privileges other energy producers may not). There are two recognized types of qualifying facilities: cogenerators, which are not relevant to this Note; and small power producers, which generate electricity from alternative-energy resources such as wind. *See* § 796(17)(A) (defining small power-production facility under PURPA in language identical to Federal Power Act); *see also* Real de Azua, *supra* note 33, at 504 (defining qualifying facilities). Small power producers are generally limited in size to less than 80 mW of electrical output. *See* FERREY, *supra* note 43, at 89.

energy that the utility itself would generate or buy elsewhere but for the purchase from the qualifying facility.[47] In addition, qualifying facilities are exempt from the Federal Power Act and most state regulations, which could have potentially treated them as if they were public utilities or corporate organizations.[48]

2. The Implementation of PURPA and the Challenges Created

By implementing these theoretically helpful incentives for the alternative-energy industry, PURPA aimed to guarantee a market for renewable electricity which may not have had competitive access otherwise.[49] In practice, however, PURPA has been an efficient tool for opponents of wind production to delay wind-farm development by arguing over the rates of avoided cost, as well as filing complaints concerning the inherently intermittent nature of wind energy.[50] In response, the Federal Energy Regulatory Commission (FERC) added a provision to PURPA to allow utilities to stop purchasing energy from small qualifying facilities if the FERC finds that the facility has "nondiscriminatory access" to wholesale electric markets.[51] Opponents have

47. FERREY, *supra* note 43, at 91-92 (explaining purchase regulations for utilities); *see* FRED SISSINE, CONG. RESEARCH SERV., IB 10041, RENEWABLE ENERGY: TAX CREDIT, BUDGET, AND ELECTRICITY PRODUCTION ISSUES, at CRS-4 (2006), *available at* http://fpc.state.gov/documents/organization/60712.pdf (defining avoided cost); *see also* Real de Azua, *supra* note 33, at 504-05 (commenting upon intent behind avoided cost idea). Utilities are required to purchase all power offered to them by qualifying facilities regardless of transmission or location. *See* FERREY, *supra* note 43, at 92. However, PURPA does not require a utility to pay more than its avoided cost. *See id.* at 93.

48. *See* FERREY, *supra* note 43, at 98 (describing exemptions awarded to qualifying facilities); Real de Azua, *supra* note 33, at 505 (analyzing exemptions to qualifying facilities and commenting upon their purpose).

49. *See* FERREY, *supra* note 43, at 79 (stating PURPA provides qualifying facilities with sustainable market for their power); Real de Azua, *supra* note 33, at 505 (stating exemptions for qualifying facilities intended to offer them guaranteed markets). Congress further bolstered the emerging markets for wind energy by codifying the Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989, which declared national goals for wind research. *See* 42 U.S.C. § 12003 (2006) (establishing Wind Energy Research Program). The Wind Energy Research Program aimed to increase wind-turbine output, reduce maintenance cost, increase structural and aerodynamic knowledge that may be applied to wind technology, and improve the interconnections between wind farms and conventional utilities. *See id.* § 12003(1)(A). Specific goals for wind research included reducing the average wind cost to between three and five cents per kilowatt hour by 1995, reduce operation and maintenance costs to less than one cent per kilowatt hour by 1995, reduce capital costs dramatically, and increase capacity to twenty-five to thirty-five percent by 1995. *Id.* § 12003(1)(B).

50. *See* Real de Azua, *supra* note 33, at 506 (describing unforeseen wind-power issues arising from implementation of PURPA). The main problem concerning avoided-cost calculations arises from the fact that different jurisdictions use different calculations to decipher avoided costs, and these figures vary greatly. *See id.* In addition, many states have challenged PURPA's absolute power-purchasing requirement because intermittent wind power may produce issues traditional forms of power do not, ultimately raising prices for consumers. *See* Concerned Citizens of Cattaraugus Cnty., Inc., CONCERNED CITIZENS, http://concerned citizens.homestead.com/files/windfarms/PURPA.html (last visited Feb. 6, 2013) [hereinafter Cattaraugus].

51. *See* 16 U.S.C. § 824a-3(m)(1) (2006) (explaining exception to usual mandatory-purchase rules); Cattaraugus, *supra* note 50 (analyzing market-competition exception to PURPA); *see also* SISSINE, *supra* note 47, at CRS-4 (noting utilities need not purchase from qualifying facilities with adequate market access). If a wind farm's capacity is under 20 mW, however, the presumption under PURPA is that the producer will not be

even pushed for penalties to be imposed on qualifying wind facilities if actual output strays substantially from projected estimates.[52] Fortunately for wind developers, the FERC disagreed and issued Order 890, which exempted intermittent energy sources from imbalance penalties.[53]

3. Animal Protection Policies and Wind Development

Another federal statute crucial to the development of the wind industry is the ESA, which has the power to stop a federal project if it is impossible to mitigate negative effects on an endangered species.[54] The ESA makes it illegal to "take" any endangered species within the United States, a regulation particularly important for wind developers during the siting and construction of wind turbines.[55] If wind developers want to shield themselves from development problems, they may apply for an incidental-take permit so long as any taking that occurs is incidental to the project.[56] However, incidental-take

able to survive on the open market, and is therefore exempt from § 210(m). *See* Revised Regulations Governing Small Power Production and Cogeneration Facilities, 114 FERC ¶¶ 61,128, 61,435 n.5 (2006) (examining FERC Order No. 671 and extrapolating exemption for wind farms smaller than 20 mW); *see also* Cattaraugus, *supra* note 50 (determining small wind farms exempt from PURPA § 210(m)).

52. *See* Cattaraugus, *supra* note 50 (outlining attempted penalty pursuit by those unhappy with incorrect output forecasts).

53. *See* Preventing Undue Discrimination and Preference in Transmission Service, 118 FERC ¶ 61,119, at para. 71-72 (2007) (exempting intermittent resources from any imbalance penalties). Order No. 890 also stated that the then-existing framework for penalizing energy providers for differences between expected and actual output was "excessive, too varied, and otherwise unrelated to the cost of providing the service." *Id.* at para. 85.

54. *See* Victoria Sutton, *Wind and Wisdom*, 1 ENVTL. & ENERGY L. & POL'Y J. 345, 363 (2007) (describing ESA's power to halt projects in light of mitigation concerns); *see also* Tennessee Valley Auth. v. Hill, 437 U.S. 153, 173 (1978) (halting progress of million-dollar dam because it threatened survival of snail darter). One of the most important pieces of the ESA is the notion that every federal department and agency must abide by the policies of the ESA, and their authorities must be utilized in furtherance of, and not in contrast with, the ESA. *See* 16 U.S.C. § 1531(c)(1)-(2). The ESA is primarily concerned with species considered endangered or threatened, and categorizes species according to five factors: present threat to habitat; overuse; disease or predation; inadequacy of existing regulatory mechanisms; or other factors affecting the animals' continued existence. *See id.* § 1533(a)(1).

55. *See* § 1538 (codifying prohibited acts under ESA). The ESA intends the term "take" to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Id.* § 1532(19). It is also prohibited to "take any such species within . . . the territorial sea of the United States." *See id.* § 1538(a)(1)(B). Finally, the ESA protects endangered species' habitats. *See* Sutton, *supra* note 54, at 362. Wind developers must be cognizant of the ESA at all times, as any activity related to developing, installing, maintaining, or decommissioning wind turbines that takes an endangered species could expose the party to liability. *See* Dinnell & Russ, *supra* note 5, at 560 (warning wind developers to remain aware of ESA any time turbine work underway). Therefore, wind developers must site carefully. *See id.* (discussing limitation on turbine siting based on ESA parameters).

56. *See* § 1539(a)(1)(B) ("The Secretary may permit . . . any taking otherwise prohibited . . . if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."); *see also* Dinnell & Russ, *supra* note 5, at 560 (describing history and process of obtaining incidental-take permits). The Secretary of the Interior issues incidental-take permits, and can only do so if the applicant submits a conservation plan, including the impacts of the taking, mitigation procedures, alternative actions that may be taken, or other measures the Secretary may deem appropriate. *See* § 1539(a)(2)(A)(i)-(iv). If a nonfederal

permits do not give wind developers carte blanche to develop lands inhabited by certain animals; the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) provide additional protection for certain species.[57] Therefore, wind developers must be extremely cognizant of the environments on which they plan to build in order to avoid litigation over environmental damage.[58]

4. The Introduction and Development of the Production Tax Credit

The United States reached a landmark in the development of alternative energy with the EPACT92.[59] Perhaps the most important feature of EPACT92 for wind developers was the milestone incentive known as the Production Tax Credit (PTC).[60] The PTC provides a 1.5-cent-per-kilowatt-hour tax credit for electricity created by wind at qualifying facilities.[61] Consequently, the PTC "is

activity seeks an incidental-take permit, the project must also submit a habitat-conservation plan with the application, which helps ensure that there are adequate mitigation steps taken before a permit will be granted. *See* Dinnell & Russ, *supra* note 5, at 561 (explaining necessity of habitat-conservation plan to provide further safeguard from nonfederal actors); Engelman, *supra* note 2, at 10,555 (noting additional discussion required with Fish and Wildlife Service for nonfederal incidental-take permits).

57. *See* Dinnell & Russ, *supra* note 5, at 555-58. Under the MBTA, birds that migrate through the United States, and are native to the United States or its territories, are protected from a bevy of potential harms. *See* 16 U.S.C. § 703 (declaring strict liability for killing, taking, or harming migratory birds). If one should violate § 703, he or she would be exposed to penalties including a maximum fine of $15,000 or up to six months in prison. *See id.* § 707(a). The penalties become even more severe if one had knowledge that his or her actions would harm migratory birds. *See id.* § 707(b). Additionally, under the BGEPA, if one acts knowingly or recklessly in regard to taking, possessing, or selling certain breeds of eagle, he or she may be subject to fines reaching $5000 or imprisonment of up to one year. *See id.* § 668(a) (codifying punishment for taking protected eagles).

58. *See* Dinnell & Russ, *supra* note 5, at 555 (summarizing how unmitigated environmental damage can destroy potential wind projects).

59. *See* 42 U.S.C. § 13311 (2006) (identifying renewable energy aims for EPACT92). Title XII of EPACT92, designed to address renewable energy, aims to promote: increases in the production of renewable energy; advances in renewable-energy technology; and renewable-energy technology and service exports. *See id.* The Secretary of Energy is also authorized to provide Renewable Energy Advancement Awards to recognize development in wind technology. *See id.* § 13313.

60. *See* 26 U.S.C. § 45(a) (2006) (defining structure of renewable-electricity-production credit). The purpose behind development of a PTC was to stimulate use of wind technology by reducing the cost of wind power, making the power more attractive to investors and driving diversity among electrical markets. *See Wind Power and the Production Tax Credit: An Overview of Research Results: Hearing on Clean Energy: From the Margins to the Mainstream Before the S. Fin. Comm.*, 110th Cong. 5 (2007) (statement of Dr. Ryan Wiser, Scientist, Lawrence Berkeley National Laboratory) [hereinafter Wiser], *available at* http://eetd.lbl.gov/ea/emp/reports/wiser-senate-test-4-07.pdf (describing impact of PTC on wind industry); *The American Wind Industry Urges Congress to Take Immediate Action to Pass an Extension of the PTC*, AM. WIND ENERGY ASS'N, http://www.awea.org/issues/federal_policy/upload/PTC-Fact-Sheet.pdf (last visited Feb. 6, 2013) (arguing on behalf of wind industry for PTC extension).

61. *See* § 45(a). The 1.5¢ amount is subject to inflation on a yearly basis. *See id.* § 45(b)(2). By the end of 2011, the PTC was worth 2.2¢ per kilowatt hour. *See Production Tax Credit for Renewable Energy*, UNION OF CONCERNED SCIENTISTS (Jan. 4, 2013), http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/production-tax-credit-for.html [hereinafter CONCERNED SCIENTISTS] (mentioning 2011 price of PTC). The PTC is considered a business credit, and can be utilized by "a taxpaying business that owns and operates

increasing the American manufacturing base, and the jobs that go with it," according to Dennis Bode, CEO of the American Wind Energy Association (AWEA).[62]

5. Functionality of the Production Tax Credit

The PTC has been vital to the exponential growth of wind energy over the past twenty years, and has been extended multiple times.[63] However, because the PTC has not been implemented continuously, and instead undergoes periods of lapse and renewal, the wind industry is faced with a recurring "boom-and-bust cycle."[64] This lack of stability scares investors from making long-term investments in wind energy, thereby creating dramatic lapses in wind implementation during the uncertain six to eight months before the expiration date.[65] In addition, the "bust" periods have cost thousands of Americans their

an eligible wind turbine and sells the power to an unrelated party." Real de Azua, *supra* note 33, at 500. The credit can be claimed starting on the date the facility was put in service, and for up to ten years thereafter. *See id.*

62. *Wind Rebounds in 2Q*, *supra* note 27; *see* Press Release, Am. Wind Energy Ass'n, *New Study: Wind Energy Success Story at Risk with 54,000 American Jobs in the Balance* (Dec. 12, 2011), http://awea.org/newsroom/pressreleases/Navigant_study.cfm [hereinafter *Wind Energy Success Story*] (examining effects of PTC on American jobs). If the PTC were extended for another four years, it has the potential to develop 46,000 American manufacturing jobs. *See Wind Energy Success Story*, *supra*.

63. *See* CONCERNED SCIENTISTS, *supra* note 61 (discussing how PTC has driven wind industry). The PTC has been extended seven times, and has been allowed to lapse three times. *See* Wiser, *supra* note 60, at 5 tbl.1 (portraying lapses and renewals of PTC from its inception through 2007); *see also* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 1101(a), 123 Stat. 115. The current version of the PTC was recently extended during the fiscal cliff deal of 2013, but only until January 1, 2014. *See* American Taxpayer Relief Act of 2012, Pub. L. No. 112-240, 126 Stat. 2340 (to be codified at 26 U.S.C. § 45(d)(1)); Scott Sklar, *PTC Extension: Another Squeaker for Clean Energy*, RENEWABLE ENERGY WORLD (Jan. 3, 2013), http://www.renewableenergyworld.com/rea/news/article/2013/01/ptc-extension-another-squeaker-for-clean-energy.

64. *See* Wiser, *supra* note 60, at 7 (presenting evidence behind boom-and-bust cycle of wind development). Due to the short life of each PTC cycle, wind development is crunched into short periods of time, dramatically undercutting potential wind development and potency of the industry as a whole. *See id.* (analyzing boom-and-bust cycle results). During times when the PTC has lapsed or is nearing a lapse, the wind industry has routinely plunged in capacity installation. *See id.* at 6 & fig.3 (displaying drastic changes in wind capacity installation between boom-and-bust years). Dr. Wiser of the Lawrence Berkeley National Laboratory has studied five ways in which a lapse in the PTC has been detrimental to the wind industry: slowed development, higher costs, greater reliance on foreign manufacturing, stagnation of transmission projects, and reduced private research and development. *See id.* at 7-8; *see also* Christopher Riti, Comment, *Three Sheets to the Wind: The Renewable Energy Production Tax Credit, Congressional Political Posturing, and an Unsustainable Energy Policy*, 27 PACE ENVTL. L. REV. 783, 791 (2010) (opining reasons behind investment stagnation of lapsing PTC).

65. *See* Am. Wind Energy Ass'n, *Wind Energy Production Tax Credit (PTC)*, GREEN ENERGY COUNCIL, http://www.greenenergycouncil.com/pdfs/PTC_Factsheet.pdf (last visited Feb. 6, 2013) (articulating and graphing reasons why financing becomes strained during PTC renewal periods); *see also* CONCERNED SCIENTISTS, *supra* note 61 (explaining how PTC lapse cuts short lengthy development time necessary for wind development). Development of a wind farm often takes more than two years; interruption of the PTC can be disastrous to this process. *See* CONCERNED SCIENTISTS, *supra* note 61. In addition, PTC expiration causes wind developers to rush into finishing, leading to added costs, smaller projects, and ultimately higher electricity

jobs while the industry's technological-advancement capabilities stagnate.[66] The wind industry consistently lobbies for a stable PTC because it makes wind much more attractive to electric utilities and investors alike, fostering additional growth and efficiency in a market rendered volatile without it.[67]

C. The Unique Task of Regulating Offshore Wind Development: A Work in Progress

1. Background on Federal Offshore Wind Regulation

The United States has yet to develop a comprehensive framework dedicated solely to developing its copious offshore-wind-energy potential.[68] Rather, it appears that proposed wind farms will have to navigate a number of different regulations, none of which were authored with the development of offshore-wind energy in mind.[69] Originally, the Rivers and Harbors Act of 1899 governed construction in federal waters, and gave the Army Corps of Engineers authority to decide where private entities could build.[70] However, Congress shifted authority to the Minerals Management Service under EPACT05 in order to increase alternative-energy production.[71] In addition to the regulations in

prices. *See* Am. Wind Energy Ass'n, *supra* (describing consequences of PTC expiration on wind-project development).

66. *See* CONCERNED SCIENTISTS, *supra* note 61 (analyzing impacts of irregular PTC cycles and damage caused by "busts").

67. *See* Wiser, *supra* note 60, at 7 (examining policy considerations surrounding PTC); *see also* 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, 182-85 (2004) (discussing efforts to renew PTC); CONCERNED SCIENTISTS, *supra* note 61 (lobbying Congress to renew PTC).

68. *See* Firestone et al., *supra* note 23, at 72. Without a comprehensive, working foundation, offshore production will perpetually lack legitimacy and individual projects will face a multitude of obstacles with each proposal. *See id.* at 74 (opining on difficulties offshore-wind development faces without established infrastructure). Although difficult, the various challenges facing wind power—political, social, environmental, doctrinal, and otherwise—are not insurmountable if given the proper support and dedication. *See* STEVEN CLARKE ET AL., U.S. OFFSHORE WIND COLLABORATIVE, U.S. OFFSHORE WIND ENERGY: A PATH FORWARD 7 (2009), http://www.usoffshorewind.org/wp-content/uploads/2012/06/PathForward.pdf (proposing ability to develop regulations for offshore wind power if adequate support given).

69. *See* Firestone et al., *supra* note 23, at 78-81 tbl.1 (listing variety of potential statutes governing offshore-wind development). Pertinent federal regulations outside the scope of this Note include the Clean Water Act, the Clean Air Act, the Marine Mammal Protection Act, the National Historic Preservation Act, the Coastal Zone Management Act, and the Federal Aviation Act. *See id.*

70. *See* 33 U.S.C. § 403 (2006) (authorizing obstruction of federal navigable waters only when Army Corps of Engineers grants permission). The Outer Continental Shelf Lands Act extended this jurisdiction in 2000. *See* 43 U.S.C. § 1337 (2006).

71. *See Cape Wind*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/Renewable-Energy-Program/Studies/Cape-Wind.aspx (last visited Feb. 13, 2013). After this initial redistribution of responsibility, the Minerals Management Service was reconfigured into the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) at Secretary of the Interior Ken Salazar's direction. *See The Reorganization of the Former MMS*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/About-BOEM/Reorganization/Reorganization.aspx (last visited Feb. 6, 2013) [hereinafter *Reorganization*] (describing split of Minerals Management Service into three separate agencies). However, the Department of the Interior once again

place for onshore wind farms, offshore-wind developers are faced with the burden of complying with additional regulations, such as the National Environmental Policy Act (NEPA).[72]

2. The Effects of NEPA on Offshore-Wind Development

NEPA was developed in response to the drastic environmental damage incurred from human development, including "high-density urbanization, industrial expansion [and] resource exploitation."[73] The NEPA process requires that agencies determine whether their proposed action will have a significant effect on the environment and, if so, to consider the social and economic impacts while developing mitigation strategies.[74] In terms of offshore-wind development, NEPA's role is substantial because a request for a navigable-water permit will first require a NEPA evaluation.[75] Agencies may choose from three routes during their NEPA evaluation: creating an Environmental Impact Statement (EIS), undertaking an Environmental Assessment, or arguing that the action is a Categorical Exclusion.[76] Considering wind turbine preparation and installation will likely always have a significant impact on the site of placement, wind developers should routinely be prepared for an EIS; the other two avenues deal with less intrusive

changed the structuring of this agency in 2010, creating the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) to replace BOEMRE per Order No. 3299. *See id.*; DEP'T OF INTERIOR, ORDER NO. 3299, ESTABLISHMENT OF THE BUREAU OF OCEAN ENERGY MANAGEMENT, THE BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT, AND THE OFFICE OF NATURAL RESOURCES REVENUE (2010), http://www.doi.gov/deepwaterhorizon/loader.cfm?csModule=security/getfile &PageID=32475 (ordering restructuring of BOEMRE). The BOEM is now responsible for leasing areas of the Outer Continental Shelf and studying potential effects of projects before construction begins, while the BSEE is responsible for oversight, safety, and environmental protection of all offshore energy activities. *See Reorganization*, *supra* (explaining differences between BOEM and BSEE). Particularly important to the wind industry is that the BOEM will have exclusive control over NEPA analyses. *See id.*; *see also infra* Part II.C.2 (discussing NEPA's control over offshore wind farms).

72. *See Engelman*, *supra* note 2, at 10,553 (stating large-scale wind farms must undergo detailed analyses of potential environmental impacts under NEPA).

73. 42 U.S.C. § 4331(a) (2006) (codifying purpose behind NEPA).

74. *See* COUNCIL ON ENVTL. QUALITY, EXEC. OFFICE OF THE PRESIDENT, A CITIZEN'S GUIDE TO THE NEPA: HAVING YOUR VOICE HEARD 4 (2007) [hereinafter CITIZEN'S GUIDE], http://ceq.hss.doe.gov/ nepa/Citizens_Guide_Dec07.pdf (analyzing NEPA process). NEPA alone does not have codified penalties; therefore one's only chance of recourse is to pursue the court system. *See generally* Alliance to Protect Nantucket Sound v. Energy Facilities Siting Bd., 858 N.E.2d 294 (Mass. 2006) (highlighting interplay between state and federal environmental regulation); Town of Barnstable v. Cape Wind Assocs., LLC, 27 Mass. L. Rptr. 111 (Mass. Super. Ct. 2010) (exampling litigation brought under Massachusetts's NEPA equivalent).

75. *See* CITIZEN'S GUIDE, *supra* note 74, at 4 (discussing NEPA triggering from permit applications); *see also* 33 U.S.C. § 403 (2006) (concerning navigable-water permitting). A navigable-water permit is crucial to any construction taking place in waters used by humans for transportation or other commerce. *See* § 403.

76. *See* Fed. Highway Admin., *Improving the Quality of Environmental Documents*, U.S. DEP'T OF TRANSP., http://environment.fhwa.dot.gov/projdev/pd4document.asp (last visited Feb. 6, 2013) (breaking down NEPA "classes of action"); *see also* 42 U.S.C. § 4332 (codifying EIS criteria).

environmental proposals.[77] Although an EIS requires a multitude of steps, it is the most comprehensive evaluation an agency can undertake when determining potential environmental effects a project will create, and consequently alerts the public to the progress of a project in order to allow for public comment.[78]

3. Cape Wind: A Case Study

a. The Origins of Cape Wind

The $900-million, 130-turbine Cape Wind project is aiming to be the nation's first offshore wind farm.[79] The project, which began in 2001, would occupy approximately twenty-four square miles of Horseshoe Shoal, 13.8 miles off the coast of Nantucket, Massachusetts.[80] Although opponents have criticized the project due to turbine visibility from otherwise undisrupted shorelines, the project has the potential to provide seventy-five percent of the total electrical need for Cape Cod and the Massachusetts islands.[81] Even though Cape Wind will be built more than three miles from shore, thus placing it within federal jurisdiction, the transmission lines required to carry electricity to the mainland are under Massachusetts jurisdiction, an idiosyncrasy of offshore-wind development that will occur in nearly every project that delivers

77. *See* CITIZEN'S GUIDE, *supra* note 74, at 10-14 (discussing occasions appropriate for each class of action). Typically, a Categorical Exclusion is used when a project does not have significant impact on the human environment, such as "minor facility renovations." *Id.* at 10. In contrast, an Environmental Assessment can be viewed as a pre-EIS; it determines whether the magnitude of the project is large enough to warrant a full-scale EIS. *See id.* at 11 (describing Environmental Assessment nature and process). The Environmental Assessment process finishes with either a "Finding of No Significant Impact," or the decision to pursue an EIS. *See id.* at 12.

78. *See id.* at 13-14 (portraying EIS features). To begin the EIS process, an agency must file a Notice of Intent and provide preliminary information in order to alert the public of the project. *See id.* at 13. The goal of this stage is to determine preliminary issues, develop schedules, and identify the scope of the project. *See id.* Next, the agency will continue gathering information and eventually produce a draft EIS, which is a disclosure of all known information as well as descriptions of known alternatives to the project. *See id.* at 16. The draft EIS is published in the Federal Register and made available for public comment. *See id.* Third, the agency will synthesize the draft EIS, public commentary, and other available information and issue a final EIS. *See id.* at 18 (analyzing final EIS requirements). Finally, the agency will administer a Record of Decision disclosing its final decision. *See id.* at 19.

79. *See* Brown & Escobar, *supra* note 2, at 502 (stating size and scope of Cape Wind project); *see also* Kaplan, *supra* note 67, at 191-92 (describing initiation of Cape Wind project). Another potential offshore project—the Long Island-New York City Offshore Wind Project—aims to generate forty-five percent of the state's electricity needs, up to 700 mW of wind power. *See About the Offshore Wind Farm Partnership*, LONG ISLAND-N.Y.C. OFFSHORE WIND PROJECT, http://www.linycoffshorewind.com/about.html (last visited Feb. 6, 2013) (describing potential offshore project in Long Island, New York). Texas has positioned itself to take the lead in national, offshore-wind production. *Cf.* Kaplan, *supra* note 67, at 502 (naming two potential wind farms off coast of Texas).

80. Kaplan, *supra* note 67, at 192.

81. *See, e.g.*, Brown & Escobar, *supra* note 2, at 503-05 (describing challenges to Cape Wind project); Dinnell & Russ, *supra* note 5, at 547 (describing Cape Wind background and challenges); Kaplan, *supra* note 67, at 192-93 (describing siting challenges by opponents of Cape Wind project).

power from federal waters to state utilities.[82] Therefore, the Cape Wind project has had to fulfill both state and federal permitting regulations, oftentimes causing unnecessary delay due to the redundancy of meeting two sets of similar requirements.[83]

b. Regulatory Uncertainty

The first step taken by the project's developers, Cape Wind Associates (CWA), was to file an Environmental Notification Form (ENF) under the Massachusetts Environmental Policy Act (MEPA), a state statute similar in structure to NEPA.[84] Three years later, CWA filed both a draft Environmental Impact Report and draft EIS, which the Secretary of the Office of Energy and Environmental Affairs in Massachusetts found adequate and in compliance with MEPA.[85] Although the Secretary encouraged efficiency by recommending that CWA align their final EIS and EIR with federal filings under NEPA, EPACT05 made this impossible.[86] After the Secretary found a

82. *See* Schroeder, *supra* note 24, at 1650 (mentioning confusion between state and federal jurisdiction of Cape Wind project); *cf.* Town of Barnstable v. Cape Wind Assocs., LLC, 27 Mass. L. Rptr. 111, at *2 (Mass. Super. Ct. 2010) (demonstrating crossover from federal to state jurisdiction concerning transmission lines); Timothy L. McMahan, *Siting and Permitting Challenges*, STOEL RIVES LLP (Aug. 9, 2007), http://www.stoel.com/showarticle.aspx?Show=2540 (commenting upon interplay between state and federal wind siting).

83. *See Town of Barnstable*, 27 Mass. L. Rptr. at *2 (determining NEPA and Massachusetts equivalent must be submitted separately). The Massachusetts Secretary of the Executive Office of Energy and Environmental Affairs determined that the Massachusetts Environmental Protection Act's (MEPA) jurisdiction extends to all portions of the project inside Massachusetts. *See id.* Cape Wind made numerous attempts to expedite the Massachusetts permitting process by offering the environmental-impact scoping of the wind farm to the Secretary, as well as agreeing to coordinated commitment by both MEPA and NEPA. *See id.* Ultimately, Cape Wind Associates (CWA) was still required to prepare separate documentation for both agencies. *See id.* (discussing CWA's failed attempts to coordinate state and federal environmental-review processes).

84. *See id.* at *1-2 (detailing Cape Wind's MEPA ENF); *see also* 301 MASS. CODE REGS. 11.05 (LexisNexis 2013) (codifying requirements to prepare and file ENF). The purpose of filing a MEPA ENF was to determine which permits would be required for construction, and to get a preliminary understanding of the environmental impacts that could result. *See Town of Barnstable*, 27 Mass. L. Rptr. at *1-2. The Massachusetts Secretary of the Executive Office of Energy and Environmental Affairs determined that the MEPA's jurisdiction extends to all portions of the project inside Massachusetts, but that the wind array itself—located outside of Massachusetts—does not fall under its jurisdiction. *See id.* The Secretary at the time believed that jurisdiction for the pieces of the project in federal waters fell under the Coastal Zone Management Act. *See id.* at *2.

85. *See Town of Barnstable*, 27 Mass. L. Rptr. at *2 (evaluating draft EIR and draft EIS results). Although both the draft EIS and draft EIR were considered to comply with MEPA, the Secretary still recommended a number of additions before a final EIS and final EIR would be approved: discussion of potential alternatives to a wind farm, such as a coal or natural gas refinery; review of current renewable energy projects in the state of Massachusetts; alternative configurations; mitigation of the cables' potential environmental impacts in Massachusetts waters; concise review of the project's benefits; thorough discussion of fish, avian, shellfish, and eelgrass impacts; water quality impact assessment; and marine resource impact assessment due to the discharge of over 40,000 gallons of transformer fluid. *See id.*

86. *See id.* at *3 (indicating federal regulatory changes overthrew consolidation efforts of CWA). Because EPACT05 changed authority over such a project from the Army Corps of Engineers to the United States Department of Interior Minerals Management Service, the federal government demanded that a new

subsequent MEPA Final EIR adequate, the Energy Facilities Siting Board (EFSB) of Massachusetts approved CWA's application to construct the requisite electricity transmission cables within Massachusetts waters as well as to connect them to the mainland electrical infrastructure.[87] However, the Cape Cod Commission (CCC), designed to protect the interests of the Cape Cod region, denied Cape Wind's application for the cable project for lack of information, a move that threatened to further prolong the project.[88] Rather than appealing this decision, CWA applied for an EFSB Composite Certificate—which overrides local authorities in order to expedite certain construction projects—and was approved on May 27, 2009.[89] In addition, United States Secretary of the Interior Ken Salazar released a final Record of Decision and Lease to CWA in 2010, but challenges still plague the project, including opposition by Native American tribes and private citizens or companies.[90]

D. Attempting to Create a Unified Voice on Wind Regulation

1. Proposed Regulations for Renewable Energy Development

Lawmakers have not completely balked at attempting to introduce federal regulations designed to develop the nation's wind industry.[91] United States

draft EIS was required under NEPA and restarted the federal permitting process. *See id.* This tremendous setback splintered the federal and state permitting processes. *See id.* (commenting upon differing federal and state schedules after EPACT05).

87. *See id.* at *3-4. The Secretary's approval came in light of the Alliance to Protect Nantucket Sound's claims that the final EIR did not adequately address alternatives, mitigation efforts, and environmental impacts. *See id.* at *3. In granting the MEPA Compliance, the Secretary commented upon the importance of the program:

> I believe that an ambitious program of renewable energy development is in the interests of the citizens of Massachusetts . . . . While new technologies are not without impacts themselves, these pale in comparison to the scale of impacts that continued fossil fuel emissions will have on the environment of Massachusetts.

Id. at *4. He also noted that CWA provided the Secretary with information related to its entire project, including the portions governed exclusively by federal law, in an effort to mitigate any additional issues with MEPA or the EFSB. *See id*. *See generally* MASS. GEN. LAWS ANN. ch. 164, §§ 69K-69O (West 2013) (codifying way in which EFSB not bound by MEPA or local permitting decisions before taking action).

88. *See* Town of Barnstable v. Cape Wind Assocs., LLC, 27 Mass. L. Rptr. 111, at *9 (Mass. Super. Ct. 2010) (prohibiting CWA's permit for transmission cables). If the CCC fails to approve a project, it may halt a project completely. *See* Act of Jan. 12, 1990, ch. 716, § 13(e), 1989 MASS. ACTS 1195, 1219 (asserting CCC's authority over projects under its jurisdiction).

89. *See Town of Barnstable*, 27 Mass. L. Rptr. at *9 (discussing EFSB Composite Certificate); *see also* ch. 164 § 69K. The Town of Barnstable challenged EFSB's authority to override decisions by CCC, but the case was dismissed because "the issue of EFSB's jurisdiction vis à vis the Cape Cod Commission Act should be resolved by EFSB in the first instance, subject to a direct appeal to the SJC." *Town of Barnstable*, 27 Mass. L. Rptr. at *9.

90. *See* Schroeder, *supra* note 24, at 1653 (describing road ahead for Cape Wind).

91. *See infra* notes 92-100 and accompanying text (discussing both proposed and enacted legislation

Representatives Edward Markey and Todd Platts attempted to introduce a comprehensive plan to reach President Obama's goal of creating twenty-five percent of our energy from renewable means by 2025.[92] The bill, nicknamed the American Renewable Energy Act (AREA), could have also created approximately 350,000 jobs in the renewable energy sector.[93] In addition, the American Clean Energy and Security Act of 2009, which passed in the House but was defeated in the Senate, would have offered billions of dollars in subsidies for the development of renewable energy as well as the codification of a twenty percent renewable-energy standard.[94] Further, the proposed Program for Offshore Wind Energy Research and Development Act of 2010 (POWERED) would have provided research grants and an expanded list of incentives for offshore-wind development if it had become law in 2010.[95] The summer of 2011 saw the Incentivizing Offshore Wind Power Act, which aimed to increase investment tax credits relating to offshore wind, but the bill never made it out of the House of Representatives.[96]

2. Federal Programs Designed to Foster Wind Development

In an effort to spur the growth of wind farms along the Outer Continental

emboldening wind industry).

92. American Renewable Energy Act of 2009, H.R. 890, 111th Cong. (2009). An amendment to title VI of PURPA, the American Renewable Energy Act of 2009 intended to further renewable-electricity programs by facilitating coordination between state and federal renewable programs while adhering to a strict, required annual percentage of renewable energy production. *See id.* (adopting purpose and goals of AREA). The Union of Concerned Scientists reported that if the law were passed, it could "increase clean energy generation by 135 percent over what current . . . policies would produce." *See* Barbara Kessler, *The American Renewable Energy Act, an AREA with Promise*, GREEN RIGHT NOW (Feb. 6, 2009), http://www.greenrightnow.com/kgo/2009/02/06/the-american-renewable-energy-act-an-area-with-promise/.

93. *See* Press Release, House Select Comm. on Energy Independence & Global Warming, *Markey, Platts Introduce Renewable Energy Legislation to Create Jobs, Build Clean Power and Fight Global Warning* (Feb. 4, 2009), http://globalwarming.markey.house.gov/mediacenter/pressreleases_2008_id=0086.html (projecting job increases from passing AREA); Kessler, *supra* note 92 (describing potential job increases resulting from AREA). Such a dramatic increase in job growth could also revitalize the stagnant manufacturing market in the United States. *See* Kessler, *supra* note 92. In addition, the legislation—had it become law—would have had the power to save consumers two billion dollars in electrical and natural gas costs between 2009 and 2030, as well as reducing pollution by twenty-two percent over the same time frame. *See id.*

94. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009) (summarizing goals of clean-energy legislation).

95. Press Release, Sherrod Brown, *Bipartisan Group of Senators Introduces Bill to Support Domestic Clean Energy Production, Create Clean Energy Jobs* (Apr. 19, 2010), http://brown.senate.gov/newsroom/press_releases/release/?id=029cda22-c6b5-4c94-a68c-76ba967ba4e7 (detailing POWERED's aims and abilities). Perhaps most importantly, POWERED would have required that the Department of Energy develop a roadmap for handling offshore wind power by assessing domestic manufacturing and requisite technological advancement while recommending ideas for policies that would promote offshore wind power. *See id.*

96. *See* Incentivizing Offshore Wind Power Act, H.R. 3238, 112th Cong. (2011). The Incentivizing Offshore Wind Power Act would have modified the Internal Revenue Code to allow a thirty-percent tax credit for investments in certain wind projects as well as offered a credit to offshore-wind sponsors. *See id.*

Shelf, Secretary Salazar has launched the "Smart from the Start" initiative.[97] A focal point of the initiative is the identification of Wind Energy Areas (WEAs), offshore locations that are most favorable for wind-energy development in the Atlantic Ocean.[98] While the leasing and siting processes are underway, the former Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) plans to track applications required for offshore transmission lines contemporaneously, reducing overall permitting time and allowing developers to set more aggressive completion deadlines.[99] The Atlantic Offshore Wind Energy Consortium was also established, allowing eleven coastal states to collaborate on offshore-wind goals.[100]

Perhaps the most controversial piece of legislation to address the need for wind development is the 2009 American Recovery and Reinvestment Act (Stimulus).[101] Along with extending the PTC through 2012, the Stimulus granted qualifying parties the ability to choose among different tax credits in order to optimize the performance of their specific project.[102] The Stimulus

97. *See* Press Release, U.S. Dep't of the Interior, *Salazar Launches 'Smart from the Start' Initiative to Speed Offshore Wind Energy Development off the Atlantic Coast* (Nov. 23, 2010), http://www.doi.gov/news/pressreleases/Salazar-Launches-Smart-from-the-Start-Initiative-to-Speed-Offshore-Wind-Energy-Development-off-the-Atlantic-Coast.cfm [hereinafter *Salazar*] (describing history and creation of "Smart from the Start" initiative). The purpose of "Smart from the Start" is to expedite the siting and leasing processes wind developers must undergo by minimizing redundancies and increasing communication between the federal and state agencies involved. *See id*. Michael Bromwich, Director of the former BOEMRE, posits that "[t]his accelerated and focused approach to developing the nation's Atlantic wind resources will encourage investment while ensuring projects are built in the right way and in the right place." *Id.*

98. *See id.* By continually collecting data and information on WEAs, the Interior Department believes it will be better prepared to permit and site these areas. *See id.* BOEM and BSEE will also help collect site-assessment data by initiating NEPA Environmental Assessments while working with relevant federal agencies that may require permitting. *See id.* Finally, if building a wind farm on a given WEA would not significantly impact the environment, BOEM would offer leases starting at the end of 2011. *See id.*

99. *See id.* (addressing delay between siting wind farms and permitting corresponding transmission lines).

100. *See* Greg Watson, *Atlantic States Offshore Wind Consortium*, COMMONWEALTH CONVERSATIONS: ENERGY SMARTS (June 14, 2010), http://energy.blog.state.ma.us/blog/2010/06/gregs-offshore-wind-post-draft.html (focusing on creation of Atlantic Offshore Wind Energy Consortium). According to Greg Watson, Senior Advisor to the Secretary for Clean Energy Technology, "[t]he mission of the Consortium is to promote a coordinated approach to the development of wind resources on the Outer Continental Shelf." *Id.* The Consortium will also be instrumental in the identification and research of WEAs. *See Salazar*, *supra* note 97 (identifying Consortium's work with federal government to identify and permit WEAs).

101. *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115.

102. *See id.* §§ 1102, 1603 (codified at 26 U.S.C. § 48 (2006 & Supp. V 2011)) (stating credit options for developers qualifying for PTC). Two alternatives to the PTC were codified: the thirty-percent Investment Tax Credit, and the Treasury Grant Program. *See id.* (describing each tax credit respectively). Under section 1102, a facility that could otherwise claim the PTC may instead elect to claim a thirty-percent Investment Tax Credit, allowing wind facilities to be leased without a loss of credit. *See id.* § 1102 (amending 26 U.S.C. § 48 (2006 & Supp. V 2011) to include qualified energy facilities). In addition, small wind investors—who could not previously claim a full thirty-percent Investment Tax Credit—have had that cost cap removed, allowing them to enjoy the full refund. *See id.* § 1103 (codified at 26 U.S.C. § 48 (2006 & Supp. V 2011)). Additionally, the Treasury Grant Program, which can be claimed in lieu of the Investment Tax Credit, does not constitute income and reduces the owner's basis in the property by fifty percent. *See id.* § 1603 (codifying Treasury Grant

also authorized $1.6 billion of new, clean renewable-energy bonds for renewable-energy producers, including wind projects, coupled with a $1.25-billion research-and-development grant.[103] Further, the manufacturing tax credit creates a thirty-percent credit for investment in qualifying manufacturing projects, up $2.3 billion in allocations.[104] Other pertinent provisions include a $305-million grant to the BLM and $500 million for renewable-energy job-training programs.[105]

E. Wind Power Abroad

Outside the United States, particularly in Europe, wind power has become an extremely important and lucrative form of electricity.[106] In fact, at 84,278 mW, wind power accounts for a full 9.6% of the European Union's overall electrical needs.[107] By the end of 2010, seven European countries had installed 3000 mW or more of wind power: Denmark, France, Germany, Italy, Portugal, Spain, and the United Kingdom.[108] In fact, twenty-four percent of Denmark's total electrical need is met by wind power.[109] Europe's emergence as a leader in wind power stems from many factors, particularly its regulatory focus on making wind development simple, as well as its commitment to installing renewable electrical generation, rather than traditional means.[110] Due to the

Program parameters).

103. *See id.* § 1111 (codified at 26 U.S.C. § 54C (2006 & Supp. V 2011)) (codifying issuance of energy bonds and Energy Efficiency and Renewable Energy funding).

104. *See id.* § 1302 (codified at 26 U.S.C. §§ 46, 48C, 49 (2006 & Supp. V 2011) (providing manufacturing tax credit for certain qualified projects). A qualified project is one that "re-equips, expands, or establishes a manufacturing facility for the production of . . . property designed to be used to produce energy from the sun, wind, geothermal deposits . . . or other renewable resources." *Id.*

105. *See* Pub. L. No. 111-5, §§ 604, 703, 123 Stat. 115 (codifying BLM grant and workforce training funding).

106. *See* Dinnell & Russ, *supra* note 5, at 565-67 (analyzing statistics of European wind-power production through first half of 2000s). In 2010 alone, 9925 mW of wind-power capacity was installed in the European Union, accounting for a full 16.8% of total 2010 power capacity installations. *Wind in Power: 2010 European Statistics*, EUROPEAN WIND ENERGY ASS'N 3 (Feb. 2011) [hereinafter *European Statistics*], http://www.ewea.org/fileadmin/ewea_documents/documents/statistics/EWEA_Annual_Statistics_2010.pdf (summarizing Europe's wind production in 2010). Wind-farm investment in the European Union totaled €12.7 billion: €10.1 billion for onshore power and €2.6 billion for offshore. *Id.* at 5.

107. *European Statistics*, *supra* note 106, at 3. The rise in wind-power use in Europe has been steady; the annual average market growth is roughly 17.6%. *See id.*

108. *Id.* at 4. Sweden and the Netherlands also both have installed capacities greater than 2000 mW. *Id.* Notably, the United Kingdom has recently installed the world's largest offshore wind farm, Walney Farm. *See* Zachary Shahan, *World's Largest Offshore Wind Farm Opening Today*, CLEANTECHNICA (Feb. 9, 2012), http://cleantechnica.com/2012/02/09/worlds-largest-offshore-wind-farm-opening-today/ (announcing completion of 367.2-mW Walney Farm). Walney Farm has the capability of powering 320,000 homes in the United Kingdom. *Id.*

109. *See European Statistics*, *supra* note 106, at 11. Denmark's closest competitors in terms of total electrical consumption from wind power are Portugal and Spain, with 14.8% and 14.4%, respectively. *See id.*

110. *See* Dinnell & Russ, *supra* note 5, at 567-69 (analyzing European energy dominance); *cf. European Statistics*, *supra* note 106, at 9 fig.3.1 (graphing increases in European Union wind installation). Europe has been influential in supporting alternative-energy development, particularly by welcoming infrastructure

ease with which wind energy can be utilized, the markets for European wind-energy investment, production, and distribution have skyrocketed.[111]

1. Germany: A Model in Size

No two countries have had greater success with wind power than Denmark and Germany.[112] Germany is considered the global leader in wind energy with 27,214 mW of installed wind energy at the end of 2010—nearly ten percent of the country's entire energy consumption.[113] Germany's success stems largely from interplay between 1990s governmental commitments to renewable energy, coupled with an insurance industry that provided coverage to wind investors during the early years of wind-technology development.[114] In addition, Germany has become a world leader in repowering—or early replacement of—less efficient turbines with modern machines capable of producing far larger outputs.[115] As investment flourished and efficiency became streamlined, German states saw drastic increases in utility revenue, radical job creation, and an explosion in wind-energy export markets.[116] Finally, Germany is a pioneer in offshore wind; the country's first offshore wind farm, Alpha Ventus in the North Sea, is already operational.[117]

projects. *See* Dinnell & Russ, *supra* note 5, at 567. Coupled with this positive attitude, Europe has imposed mandatory pollution caps upon its member nations and provided public subsidies for renewable alternatives. *See id.* at 568.

111. *See* Dinnell & Russ, *supra* note 5, at 568 (portraying how favorable political action has benefited European alternative energy markets).

112. *See id.* at 569-71 (examining German and Danish success with wind power).

113. *European Statistics*, *supra* note 106, at 11 fig.3.7.

114. *See* Dinnell & Russ, *supra* note 5, at 569 (opining on factors pertinent in German wind policy). In order to make the wind industry competitive, the German government created a number of tax breaks and incentives to boost electrical production. *See id.* (discussing governmental action taken to boost "nascent wind sector"). In addition, Germany's growth was aided by its insurance industry that provided coverage for wind turbines, which, at the time, were a particularly risky investment. *See id.* The insurance industry "effectively redistributed the risk associated with undertaking a wind power development, thereby increasing investment potential." *Id.*

115. *See* Peter Fairley, *Europe Replaces Old Wind Farms*, IEEE SPECTRUM (Jan. 2009), http://spectrum.ieee.org/green-tech/wind/europe-replaces-old-wind-farms (highlighting European "repowering" efforts). Germany's wind-energy association aims to add 15,000 mW of repowered capacity by 2020, fifty percent more than expected to be added at new sites both on- and offshore. *Id.* Placing more efficient turbines in areas that have double the power capacity as an original wind farm can produce four times more energy. *See id.* Further, because upcoming German regulation will require that wind farm operators compensate residents whose property values were reduced by turbines, less efficient turbines will be dismantled and likely shipped to developing nations, another potential wind export on which Germany could capitalize. *See id.* (opining potential effects of dismantling inefficient turbines in light of modern technology).

116. *See* Dinnell & Russ, *supra* note 5, at 569-70 (analyzing effects of wind development on German economy). Of particular mention is that in 2005 alone, German wind export revenues ballooned sixty-five percent, increasing by €1.2 billion. *Id.* at 570.

117. Press Release, Alpha Ventus, *Alpha Ventus Achieves Positive Interim Results—Offshore Power Yield Higher Than Expected* (June 30, 2011), http://www.alpha-ventus.de/index.php?id=80. The Alpha Ventus wind farm contains twelve, five-megawatt turbines in thirty-meter-deep water. *Id.* Between November 2010 and July 2011, the farm produced 190,000 mWh of electricity, five percent higher than expected. *See id.* In

2. Denmark: A Model in Percentages

Denmark has also made an impact in the renewable-energy field with its dedication to weaning off of traditional forms of energy.[118] Denmark is a frontrunner in turbine manufacturing; the Vestas turbine produced in Lem, Denmark is considered one of the best in the world.[119] Manufacturing and export of wind technology has become so lucrative in Denmark that, as of spring 2009, Denmark controlled one-third of the global wind market, earning the country billions of dollars.[120] In addition, Denmark's government developed a subsidy program beginning in 1979 that helped create a market for wind energy.[121] The United States could learn a valuable lesson from Denmark's shift in energy policy; Denmark decided to make the shift from oil to wind after its 1973 oil crisis, a time when ninety percent of Denmark's energy was born from petroleum.[122]

F. Progressive State Policies That Foster Wind-Energy Development

Many states, municipalities, cities, and towns have taken different approaches to regulation and development of wind power, while many have yet to develop any regulations at all.[123] Because state and local governments are

addition, the farm has been remarkably consistent, remaining operational throughout ninety-eight percent of that span. *See id.*

118. *See* Bryan Walsh, *Denmark's Wind of Change*, TIME MAG., Mar. 16, 2009, http://www.time.com/time/magazine/article/0,9171,1883373,00.html (focusing on Denmark's shift from classic to renewable energy). Unlike many other nations, Denmark has been able to reduce its carbon emissions 13.3% since 1990 while consumption has hardly changed. *See id.* Denmark's dedication to wind-energy development has also resulted in energy efficiency influencing the entire nation. *See id.* (describing collateral efficiency changes brought on by Danish wind revolution). For instance, Danish power plants can now recycle their waste to heat their operations, and Denmark has become a leading European nation in electric-car promotion. *See id.* Collectively, Danish power companies are working toward developing a presence in markets abroad. *See* Dinnell & Russ, *supra* note 5, at 570-71 (stating Danish power companies currently expanding abroad).

119. *See* Walsh, *supra* note 118 (examining Danish manufacturing markets). A Vestas executive claims that its turbine blades and components are in such high demand that, "'if we can make [a turbine], it's sold.'" *Id.* (quoting Erik Therkelsen, Vestas executive).

120. *See id.* (commenting upon Danish influence in global wind markets).

121. *See id.*; Schroeder, *supra* note 24, at 1659-60 (describing Danish government programs designed to incentivize wind development). The Danish government mandated that utilities buy wind power at a preferential price, while directing energy taxes immediately into research. *See* Walsh, *supra* note 118. The Danes have also created an Energy Authority, which centralizes wind development and is particularly useful for planning offshore projects. *See* Schroeder, *supra* note 24, at 1659 (commenting upon wind-energy centrality within Denmark's government).

122. *See* Walsh, *supra* note 118. Denmark had very few oil reserves, so they imported the vast majority of their petroleum. *See id.* Denmark refuses to let governmental benefits to create wind power lapse, as in America, instead choosing to install long-term plans that ensure stability. *See id.* (surveying Danish long-term energy goals).

123. *See* Engelman, *supra* note 2, at 10,561 (noting states have taken different stances on wind regulation). Although local governments presumably would be most equipped to make local decisions, the environmental and wildlife impacts of turbines often require state and federal intervention as well. *See id.* at 10,562 (analyzing local government power structure for wind farms). The freedom states have in developing their own

given so much authority to choose how to develop wind power, a logical first step is to develop an "Energy Advisory Committee," which ideally involves citizens in siting, goal setting, implementation, and development.[124] In addition, most states have had success implementing Renewable Portfolio Standards (RPS), which require utilities to obtain a percentage of power from renewable-energy resources such as wind.[125] Ultimately, the state and local utilization of an RPS system intends to stimulate technological development and open up renewable-energy markets to allow new forms of energy to become competitive with conventional forms of electricity.[126] Although each state has a different RPS with diverse incentives and goals, successful elements include: garnering support from the governor and legislature in a particular state, developing and maintaining a credible noncompliance mechanism, conducting performance reviews, and analyzing the energy potential in different locations.[127] Two states in particular have developed systems that have made them leaders in wind-energy development: Texas and Minnesota.[128]

agendas for wind energy, coupled with the pressure they feel from their local governments and federal policy, often creates regulatory turmoil. *See id.* As an attempt to encourage compatibility, the AWEA and New York State Energy Research Development Authority have both developed model zoning ordinances that local governments may consider adopting. *See* SALKIN, *supra* note 28, § 9:51; *see also* SALKIN, *supra* note 4, § 37:9 (discussing various state regulatory schemes both voluntary and mandatory).

124. *See* SALKIN, *supra* note 28, § 9:51 (suggesting energy-advisory-committee frameworks). By creating an organization to discuss wind development, citizens can express issues individual to their own communities, a luxury that blanket regulations cannot provide. *See id.* (discussing purpose behind energy advisory counsels). In addition, these groups can create areas specifically designated for turbines in order to streamline development and minimize community disdain over a project. *See* SALKIN, *supra* note 4, § 37:9 (commenting upon community involvement in turbine zoning).

125. *Most States Have Renewable Portfolio Standards*, U.S. ENERGY INFO. ADMIN. (Feb. 3, 2012), http://www.eia.gov/todayinenergy/detail.cfm?id=4850. According to the United States Department of Energy, thirty states plus the District of Columbia have an RPS system in place. *See id.* The goals of each state range from the aggressive—Maine strives to attain forty-percent renewable output by 2017—to the more modest—Wisconsin aims for ten-percent output by 2015. *See* Matt Zonis, *Interactive Map Compares States' Renewable Energy Goals*, CLIMATE CENTRAL (July 22, 2011), http://www.climatecentral.org/blogs/interactive-map-to-compare-states-renewable-energy-goals. Only wind, biofuels, biomass, hydro, and photovoltaics are universally considered renewable resources; a number of other alternative methods exist though they are not yet recognized by each state. *Cf.* U.S. ENVTL. PROTECTION AGENCY, RENEWABLE PORTFOLIO STANDARDS: AN EFFECTIVE POLICY TO SUPPORT CLEAN ENERGY SUPPLY 3 fig.3 (2009) [hereinafter EFFECTIVE POLICY], *available at* www.mitenergyclub.org/assets/2011/4/24/EPA_on_RPS.pdf (providing chart of "Eligible Technologies under State RPS Requirements").

126. EFFECTIVE POLICY, *supra* note 125, at 1. A number of benefits have been realized from the RPS system: increased diversity within energy markets, reduction of energy-price volatility, and local economic growth. *See id.* at 1. *But see* SISSINE, *supra* note 47, at CRS-5 (stating areas with limited availability to renewable resources struggle to comply with RPS).

127. *See* EFFECTIVE POLICY, *supra* note 125, at 4 (outlining elements of successful RPS projects). In addition, a stable, well-developed RPS can attract long-term investment and increase developer confidence in the projects. *See id.* at 1.

128. *See infra* notes 129-37 and accompanying text (analyzing approaches to wind regulation in Minnesota and Texas).

1. Texas

Texas has created the Competitive Renewable Energy Zone (CREZ) system, which allows electricity produced by wind turbines in more remote parts of Texas to be moved to more densely populated areas.[129] The coupling of the CREZ with an aggressive RPS has resulted in Texas producing 10,135 mW of installed wind-generation capacity—three times more than any other state.[130] Texas also takes an extremely relaxed stance on turbine siting; developers need not address wildlife concerns or obtain environmental certification before beginning to build.[131] This combination has allowed Texas's wind-energy development to flourish even when facing a number of problems, namely a lack of public input concerning turbine installation, diminishing wind strength with soaring temperatures, and rising electrical prices.[132]

2. Minnesota

As opposed to Texas's laissez-faire approach, Minnesota's approach is highly centralized around its state Public Utilities Commission.[133] Centralizing the power to grant or revoke permits in one office allows Minnesota to make development decisions quickly and efficiently.[134] Minnesota has also passed a

129. *See* Am. Wind Energy Ass'n, *CREZ Project Powers Ahead, Aiming to Boost Texas Wind by 83 Percent*, THE AWEA BLOG: INTO THE WIND (May 17, 2011), http://www.awea.org/blog/index.cfm?customel_dataPageID_1699=8060 (commenting upon development of CREZ in Texas). The five- to six-billion-dollar project would deliver enough energy to power approximately 4.5 million homes in densely populated areas of Texas. *See id.*

130. *See* Lauren Glickman, *Stetsons off to Gov. Perry on Wind Power*, RENEWABLE ENERGY WORLD (Aug. 25, 2011), http://www.renewableenergyworld.com/rea/blog/post/2011/08/stetsons-off-to-gov-perry-on-wind-power?cmpid=WNL-Friday-August26-2011 (crediting interplay of CREZ and RPS for Texas's wind success); *see also Wind Rebounds in 2Q*, *supra* note 27 (labeling Texas as frontrunner in United States wind development). *But see* Robert Bryce, *Texas Wind Energy Fails, Again*, NAT'L REV. ONLINE, Aug. 29, 2011, http://www.nationalreview.com/articles/275673/texas-wind-energy-fails-again-robert-bryce (expressing disdain over reduced wind-electricity output during warmer temperatures).

131. *See* Engelman, *supra* note 2, at 10,563 (characterizing Texas's approach to wind regulation as "laissez faire"). In fact, developers need not even conduct a local permitting review in order to begin construction. *See id.* In addition, Texas's jurisdiction extends 10.36 miles offshore, giving the state much more leeway to build offshore than nearly any other state. *See* Brown & Escobar, *supra* note 2, at 508. Texas has responded accordingly, giving the Texas Land Office "complete autonomy with respect to leasing within the offshore Texas jurisdiction and approving the construction of offshore structures, such as offshore wind farms." *Id.*

132. *See* Engelman, *supra* note 2, at 10,563; *see also* Bryce, *supra* note 130 (arguing wind unreliable and expensive during hot summer months in Texas). Additionally, Texas's laissez-faire approach allows for very little public commentary on where turbines are sited, creating resentment for the market as a whole. *See* Engelman, *supra* note 2, at 10,563 (describing lack of public involvement throughout Texas system).

133. *See* Engelman, *supra* note 2, at 10,562 (commenting upon centralized nature of Minnesota's regulatory approach). Handling wind permitting in one office has been described as "one-stop shopping" because developers neither contact a handful of separate state agencies nor search for permitting regulations. *See id.* (describing benefits of centralized regulatory system).

134. *See id.* (demonstrating efficiency behind centralizing wind regulation). The Public Utilities Commission's board has five members who are considered experts in the field. *See id.* By having them make

community-based energy development (C-BED) statute in order to foster wind development in smaller communities.[135] Further, Minnesota has exempted wind energy from property and sales taxes, as well as providing tax incentives for businesses.[136] However, Minnesota must also address various issues, including the feasibility of turbines in cold temperatures as well as limited public input in a system where a centralized authority has final decision-making power.[137]

III. ANALYSIS

Wind power in the United States will never reach its true potential until the United States creates a comprehensive, centralized framework specialized for its development.[138] First and foremost, the United States must develop a voice for renewable energy, one that proclaims the benefits of wind power, maintains government integrity by following through with its proposals, and adheres to the environmental preservation inherent in the endorsement of renewable energy.[139] In addition to solidifying the nation's stance on renewable energy, dedication to the wind industry could have a number of potential economic benefits: increasing turbine and transmission manufacturing sectors, fostering suburban bylaw creation consistent with both national and local objectives, and weaning the United States off foreign sources of energy.[140] Finally—and of utmost importance—centralization would likely have the benefit of minimizing unnecessary bureaucratic delays that currently stifle the wind industry.[141]

siting decisions, the state need not be concerned about them understanding the infrastructure. *See id.* (commenting upon benefits conferred by Public Utilities Commission Board).

135. *See Minnesota Wind Data*, NAT'L WIND, http://www.nationalwind.com/minnesota-wind-data/ (last visited Feb. 6, 2013) [hereinafter *Minnesota*] (examining C-BED statute). One exceptional provision of the C-BED statute provides information to communities that can empower them to negotiate directly with electrical utilities. *See id.* As long as a person or organization meets the criteria set forth in the statute, he or she has the ability to negotiate community wind projects with utilities, including costs of the energy produced. *See id.*

136. *Minnesota*, *supra* note 135. It should be noted, however, that large-scale wind projects are subject to a production tax, which gets progressively larger as the size of the project increases. *See id.* (displaying tax prices for various wind-farm sizes).

137. *See* Engelman, *supra* note 2, at 10,562 (commenting upon issues Minnesota's wind system still faces); Tom Slater, *Minnesota's Frozen Turbines Raise New Doubts About Wind Power*, VENTUREBEAT (Feb. 8, 2010), http://venturebeat.com/2010/02/08/minnesotas-frozen-turbines-raise-new-doubts-about-wind-power/ (declaring wind energy inadequate in frigid temperatures).

138. *See supra* notes 7-12 and accompanying text (articulating lack of developed policy for wind regulation in United States). Of particular importance in this regard is the burgeoning offshore-wind market that is governed by statutes developed without any thought towards wind farms. *See supra* text accompanying note 69 (mentioning how offshore-wind regulation fails to address unique, accompanying issues).

139. *See supra* notes 118-22 and accompanying text (analyzing benefits of consistent approach to wind development in Denmark).

140. *Cf.* Dinnell & Russ, *supra* note 5, at 581 (examining potential effects of "National Wind Power Act" on energy industries); Engelman, *supra* note 2, at 10,565 (suggesting centralization could offer local communities better opportunities to draft wind bylaws); Firestone et al., *supra* note 23, at 107 (extolling importance of regulatory scheme to direct turbine decommission).

141. *Cf. supra* Part II.B-C (examining bureaucratic delays created by current regulatory scheme).

A. Consolidation of Federal Jurisdiction over Onshore and Offshore Wind Development: A "National Wind Agency"

By consolidating the power shared by a plethora of statutes over wind development, the federal government would be able to minimize unnecessary delays and expedite leasing and siting procedures.[142] As Attorneys Adam Dinnell and Adam Russ have noted, the passage of an act specifically for wind power could have similar benefits for wind as was done for the nuclear industry under the creation of the National Nuclear Safety Administration.[143] The benefits of a "National Wind Agency" could ease burdens on existing agencies, centralize a number of requisite administrative functions, collapse all information necessary for development into one location, and reignite the nation's interest in renewable-energy production.[144]

1. Centralization and the Easing of Burdens on Distinct Federal Agencies

The current pseudostructure governing wind energy is not just a burden on the industry and individual projects, but on numerous agencies involved in various facets of a wind project's life.[145] Continual government restructuring is inefficient and costly while simultaneously burdensome to wind developers who rely on government stability to create long-term projects.[146] By forming a condensed "National Wind Agency," the government could compress control

142. *See* Dinnell & Russ, *supra* note 5, at 580 (arguing for "National Wind Power Act" to consolidate federal control); *supra* notes 133-34 and accompanying text (justifying Minnesota's centralized approach to wind regulation).

143. *See* Dinnell & Russ, *supra* note 5, at 580 (comparing wind industry to nuclear industry and its centralization). Ideally, a "National Wind Power Act" would "serve as the nation's definitive authority and lone voice on wind power development, replacing the piecemeal fabric that currently exists." *Id.* at 581.

144. *See infra* Part III.A; *see also* Firestone et al., *supra* note 23, at pt. VI.E (suggesting consolidation of ocean management and planning functions). Consolidation of federal-offshore-permitting authority could begin the process of creating a unified "National Wind Agency." *See* Firestone et al., *supra* note 23, at 108 (advocating for unified, offshore water-management entity). Professor Jeremy Firestone has advocated for a new cabinet-level department—the Department of Oceans—which could lead to substantial restructuring, planning, and management clarification over federal waters. *See id.* at 109-10. Professor Firestone advances that site planning and management for offshore wind farms could be improved under a Department of Oceans, and believes the industry could benefit from "one-stop regulation." *Id.* at 110-11. However, Professor Firestone stops short of advocating for a full-scale National Wind Association considering his premise focuses on offshore wind and aquaculture. *See id.* at 74.

145. *See supra* Part II.B-C (analyzing various agencies and statutes that overlap control of various pieces of wind-energy development). The idea of a large government dispersing authority among a number of agencies and statutes to govern one market is hardly unique to the wind industry. *Cf.* President Barack Obama, Remarks by the President in State of Union Address (Jan. 25, 2011) (transcript available at http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address) (expressing disdain over lack of organization for agency jurisdiction). During his 2011 State of the Union address, President Obama joked: "The Interior Department is in charge of salmon while they're in fresh water, but the Commerce Department handles them when they're in saltwater. I hear it gets even more complicated once they're smoked." *Id.*

146. *See supra* notes 64-66 and accompanying text (demonstrating dangers behind long-term government instability); *see also supra* Part II.C.3 (applying regulatory uncertainty issues to Cape Wind example).

of the entirety of a wind project's life while avoiding problems that arise from dispersed authority and temporary, haphazard restructurings.[147] While the development of the Bureau of Ocean Energy Management and the Bureau of Safety and Environmental Enforcement has begun wind centralization, a refurbished focus on renewable development in the United States is crucial to the continued evolution of a "National Wind Agency."[148]

2. Creation of an Information Portal

A crucial benefit of centralizing wind regulation into one agency is consolidation of information necessary to undertake a wind project.[149] For instance, if information required to site turbines were condensed into one agency, opponents would be discouraged from filing lawsuits under different authorities to unreasonably delay a project.[150] In addition, developers would have access to a reliable information resource, which may encourage projects that would otherwise never begin due to lack of such an information hub.[151] Finally, regional and local communities would gain the ability to view common permitting and zoning ordinances—as well as other bylaws drafted by other communities—all in one location.[152]

3. The Importance of Garnering National Support for Wind Power

Creation of a "National Wind Agency" could garner positive publicity for an industry that has taken a back seat while the federal government's focus has shifted to the 2008 economic collapse, President Obama's healthcare reform, and energy disasters such as the Deepwater Horizon oil spill.[153] Shining a national spotlight on renewable wind energy would be the ideal platform for

147. *See supra* Part II.F.2 (exemplifying Minnesota's wind structure as ideal for minimizing inefficiency and waste).

148. *See infra* Part III.A.3 (examining advantages to centralization based on support for wind energy versus traditional electrical generation).

149. *See supra* Parts II.B.1-3, II.C.1-2 (alluding to lack of information available in one central place); *supra* note 135 and accompanying text (describing C-BED statute and effect of information on negotiations between communities and utilities).

150. *See* Brown & Escobar, *supra* note 2, at pt. III (discussing numerous authorities under which wind opponents may file suit against proposed developers); Engelman, *supra* note 2, at pt. III (explaining civil lawsuits challenging review processes).

151. *Cf. supra* note 65 (noting wind farms take two years to plan).

152. *See* Engelman, *supra* note 2, at 10,566 (examining community issues existing in light of federal wind centralization). Gaining access to wind information without having to search through a number of authorities will allow localities to determine how best to handle wind energy without having to resort to moratoriums based more on fear of the unknown than on informative discourse. *See id.* at 10,565 (encouraging local communities to gain copious information on wind development to develop land-use approach).

153. *Cf.* Julia Komitova, *Analysis—Renewables Take a Back Seat in US Climate Bill*, SEENEWS ENERGY (May 13, 2010), http://energy.seenews.com/news/analysis-renewables-take-a-back-seat-in-us-climate-bill-67978 (positing reasons why renewable energy has dropped out of public consciousness).

advocates to extol the benefits of clean energy.[154] In Denmark, a national focus on wind energy not only revolutionized the country's use of energy, but also created auxiliary benefits such as an enhanced manufacturing base and breakthroughs in electric-car production.[155] The attention could also reignite Congress to pass additional energy legislation that creates tax benefits and research incentives for wind going forward.[156]

A supportive, nationalized voice for wind power could have the effect of halting the continuing boom-and-bust cycle that plagues the wind industry when faced with an expiring PTC.[157] Long-term extensions of the PTC are crucial to the continued vitality and development of wind energy; without policy restructuring—including passage of a PTC extension—the renewable goals set by the United States will not be attained.[158] In turn, the benefits resulting from a long-term PTC extension reach well beyond eradicating the wax and wane of wind investment.[159] For instance, if the nation prepares to invest significant resources in wind development, it could immediately capitalize on growth in turbine manufacturing.[160] However, without a nationally supportive voice—and with a continually lapsing PTC—"wind project developers [will continue to be] hesitant to plan future U.S. projects and American manufacturers [will continue to see] a marked decrease in orders."[161]

Continuing research into the development of wind technology will play a crucial role in progression of the industry and can be fostered by national support for wind power.[162] While technological achievement is currently impressive, the existing regulatory framework does not extend far enough to incentivize in-depth public research into novel wind-production design.[163] In

154. *See* Firestone et al., *supra* note 23, at 98 (displaying European commitment to renewable energy and subsequent benefits accrued).

155. *See supra* note 118 (analyzing auxiliary benefits Denmark received from creating national focus on wind development).

156. *See supra* Part II.D.1 (discussing proposed energy regulations and corresponding results).

157. *See* Wiser, *supra* note 60, at 8 (describing advantages stemming from support for, and long-term extensions of, PTC).

158. *See id.* at 4 (extolling imperatives of support for long-term renewable-energy policy).

159. *See id.* at 8-11. Some significant, auxiliary benefits resulting from a long-term PTC could include refined transmission planning, reductions in installation costs, and enhanced research and development of the industry. *See id.* at 9 fig.4 (graphically displaying PTC extension benefits).

160. *See id.* at 10 fig.5 (displaying forty-percent potential increase in US turbine manufacturing brought on by long-term PTC extension). Further, PTC extensions could save thousands of jobs in danger of being eradicated along with thousands of newly created positions. *See Wind Energy Success Story*, *supra* note 62 (examining job consequences to wind industry of not continuing PTC).

161. *See Wind Energy Success Story*, *supra* note 62 (relying on market stability in order to realize full extent of future incentives).

162. *See* Brown & Escobar, *supra* note 2, at 513 (arguing as offshore development continues expansion, research and development demand will also rise); Real de Azua, *supra* note 33, at 502 (demonstrating how wind energy provides swift returns on taxes used for its development); *cf.* Walsh, *supra* note 118 (addressing proactive approaches to fund wind research through collection of energy taxes in Denmark).

163. *See* 42 U.S.C. § 12003(c) (2006) (only awarding public-research funds through 1992).

contrast, German public support coupled with strong insurance incentives drove research and technological enlightenment to the forefront of international wind utilization.[164] In order to remain competitive, the United States must continue to ride the wave of the American Recovery and Reinvestment Act by setting national, long-term goals bundled with research incentives.[165]

B. Goals and Direction for a "National Wind Agency"

1. Goals for the Future of Wind Development

Ideally, a "National Wind Agency" would combine the authorities of various agencies controlling jurisdiction over some facet of wind energy.[166] In addition to promoting development of wind and other renewable energies, the "National Wind Agency" must also maintain environmental-protection controls that have been integral in wind permitting.[167] The "National Wind Agency" could therefore administer NEPA reviews and enforce sanctions under the EPA, MBTA, and BGEPA all while allowing states and localities the ability to follow the progress of each project through one agency.[168]

2. The Necessity of Public Involvement in Wind Siting

Considering wind turbines are often located within close proximity to communities, public input and local involvement will always be a factor in determining whether turbines can be installed.[169] Of particular importance is the public's ability to comment on a project and make recommendations for the project's design, structure, electrical output, and overall future.[170] Therefore, an increase in public involvement could not only have the effect of addressing public issues surrounding the development and timeline of a project, it could also increase transparency and foster support for proposed wind farms.[171]

164. *See supra* notes 114, 116 (portraying German policies favorably in light of success).

165. *See supra* notes 101-05 and accompanying text (analyzing impact of American Recovery and Reinvestment Act of 2009 on wind industry).

166. *See supra* Parts II.B.1-3, II.C.1-2, II.D (summarizing statutory authority over wind energy). In other words, one central agency would control the various stages of wind-energy creation: zoning, siting, permitting, environmental-impact analyses, construction, transmission, distribution, and decommission. *Cf. supra* Part II.F.2 (describing centralized wind procedures in Minnesota).

167. *See supra* Parts II.B.1-2, II.C.1-2 (integrating stringent environmental standards before permitting wind-turbine construction).

168. *Cf. supra* note 71 (granting BOEM NEPA analysis during small agency reorganization as example of authority consolidation).

169. *See supra* note 11 and accompanying text (highlighting importance of local involvement in wind development).

170. *See supra* note 38 and accompanying text (noting public commentary necessary under NEPA review); *see also* Firestone et al., *supra* note 23, at 86-87 (noting public commentary important factor in differences among state regulatory systems).

171. *See* Brown & Escobar, *supra* note 2, at 514-15 (addressing popular public concerns about wind power, including "not in my backyard" attitude); *see also* Engelman, *supra* note 2, at 10,560 ("Without zoning

Allowing for enhanced public involvement in light of a large federal restructuring will likely be welcome to communities fearing lack of control over turbines in their own neighborhoods.[172]

3. Creating a System for Offshore Wind Development

The progress realized from the "Smart from the Start" initiative and the incentives created from the Stimulus shape the future of American wind energy markets.[173] "Smart from the Start" has already fostered speedy planning of a number of offshore wind farms off the coasts of Delaware, New Jersey, Maryland, and Virginia, all states without comprehensive offshore plans before the initiative's passing.[174] Additionally, the project has garnered extensive support for Outer Continental Shelf construction because of the streamlined licensing parameters.[175] The Stimulus has also been extraordinarily deferential to renewable-energy providers by funding research and development, recognizing the need for a growing manufacturing base, and rewarding developers with numerous tax and insurance incentives.[176] The Stimulus has been effective in extolling many requirements for a more efficient wind industry, from portraying renewable energy in the national spotlight to providing a proper infrastructure for long-term wind investment.[177] In order for the renewable-energy industry to continue growing in the United States, future legislation must be not only financially sound, but also spread out over time, because wind development benefits exponentially from long-term stability.[178]

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or with inadequate zoning, impacts from industrial developments can encroach on existing residential settlements, a central issue in the conflict over siting wind turbines . . . ."). A critical problem that wind siting faces on a local scale is the reality that benefits become disbursed over a great area, while the costs associated with turbines are concentrated locally. *See* Engelman, *supra* note 2, at 10,560. This phenomenon is known as "not in my backyard," and can often be remedied by redistributing some of the benefits created by wind power to the local community. *See id.* at 10,564-65 (explaining how to prepare communities for wind power by providing adequate information and community benefits). *See generally* Walsh, *supra* note 118 (examining self-sufficient, community-run Samso Island wind farm).

172. *See* Engelman, *supra* note 2, at 10,565 (examining comprehensive planning in smaller communities and positive outcomes achieved).

173. *See supra* Part II.D.2 (analyzing progressive wind regulations and their effects).

174. *See* Charis Michelsen, *Obama Administration Approves Mid-Atlantic Offshore Wind Farm*, CLEANTECHNICA (Feb. 6, 2012), http://cleantechnica.com/2012/02/06/obama-administration-approves-mid-atlantic-offshore-wind-farm/ (highlighting pertinence of "Smart from the Start" for states that did not have offshore-wind programs underway).

175. *See Morning Roundup: Salazar Vows to Expedite Federal Deep-Water Leases in Maine*, OFFSHORE WIND WIRE (Aug. 22, 2011), http://offshorewindwire.com/2011/08/22/morning-roundup-salazar-vows-to-expedite-federal-deep-water-leases-in-maine/ (describing expedited siting procedures crucial to turbine construction on Outer Continental Shelf).

176. *See supra* Part II.D.2 (outlining pertinent Stimulus wind regulations and corresponding benefits accrued in the short-term).

177. *See supra* notes 103-05 and accompanying text (examining manufacturing, research, and development criteria reinforced in 2009 Stimulus).

178. *See supra* note 64 and accompanying text (focusing on necessity of long-term versus short-term legislation).

The federal government does not have to develop an offshore-wind system entirely on its own; the successes achieved abroad could have tremendous influence on the ultimate construction of United States policy.[179] For instance, Germany has recognized that construction of large-scale wind projects rests on the stability of a project's future and therefore maintains close cooperation with appropriate regulatory and environmental authorities.[180] Consistent with the recommendations of this Note, the EWEA also "recommends utilizing a 'one-stop shop' for leasing, permitting, and environmental assessment to streamline the approval process for offshore wind energy development."[181] Concomitant with wind-jurisdiction centralization, the United States could consider Denmark's approach to manufacturing and exportation of electricity, contemporaneously creating demand for clean American energy and American-made wind products, while further garnering local support for the industry.[182]

As the first offshore-wind project undertaken in the United States, the ultimate outcome of Cape Wind will be a yardstick to measure progress of future offshore-wind endeavors.[183] Cape Wind has continued to gain steam in recent years, obtaining federal permitting approval from Secretary Salazar on April 28, 2010 and gaining support from prominent Massachusetts legislators.[184] Additionally, Cape Wind received a final permit from the Environmental Protection Agency to construct and operate the wind farm on the Outer Continental Shelf.[185] A third obstacle has recently been overcome by the Massachusetts merger of NSTAR and Northeast Utilities.[186] Under the agreed-upon merger, Cape Wind has secured financing for nearly one hundred percent of its power output, preparing the project to begin construction in

179. *See* Brown & Escobar, *supra* note 2, at 512 ("In fact, U.S. offshore wind developers will likely rely on much of Europe's offshore wind technology and experience in constructing and operating . . . proposed U.S. offshore wind farms.").

180. *See* Press Release, Alpha Ventus, *supra* note 117 (detailing reasons behind German wind stability and ultimate success). The German model represents the benefits of teamwork when attempting to develop a market in uncharted waters. *See id.* The German government places strict guidelines on how it wants its projects to be developed, and the speed at which they must be completed, in order to develop the industry as thoroughly as possible. *See id.*

181. Firestone et al., *supra* note 23, at 97 (introducing "best practices" developed in European offshore wind markets). Denmark has made use of this recommended system, resulting in greater clarity concerning the facets of developing a wind project. *See id.*

182. *See supra* Part II.E.2 (exemplifying benefits achieved by Danish regulatory system and hypothesizing similar results in United States).

183. *See* Brown & Escobar, *supra* note 2, at 512 (stating pace of American offshore-wind development will depend on Cape Wind).

184. Erin Ailworth, *NStar, Northeast Utilities Deal Would Aid Consumers, Cape Wind*, BOS. GLOBE, Feb. 15, 2012, http://www.bostonglobe.com/metro/2012/02/15/nstar-agrees-buy-cape-wind-power-win-state-okay-merger/jkk6wIQysPdUznnLQWGQ0K/story.html (reporting merger between NStar and Northeast Utilities, and its effects on Cape Wind).

185. Approval of Outer Continental Shelf (OCS) Permit Issued to Cape Wind Associates, LLC, 76 Fed. Reg. 40,725 (July 11, 2011), *available at* https://www.federalregister.gov/articles/2011/07/11/2011-17260/approval-of-outer-continental-shelf-ocs-permit-issued-to-cape-wind-associates-llc-epa-permit-number#p-3.

186. *See* Ailworth, *supra* note 184 (examining details of major utility merger in Massachusetts).

2013.[187]

IV. CONCLUSION

The future of American wind energy lies in the realization that change will not occur overnight. An industry as complex as wind-energy production will not spring to life like the wind that powers it. Undoubtedly, careful attention must be paid to the way wind electricity is created, manufactured, transmitted, and regulated. Yet developing a centralized, federal regulation system for wind—and wind alone—will unlock the keys to the next chapter in American pioneering and set us on course for energy independence in the future. Considering the amount of time, money, and political posturing spent to extract and import fuel from abroad, the United States must shift its focus to a future where it controls its own electrical destiny.

Creation of a "National Wind Agency" would not only alleviate a bevy of existing problems for the federal government—thereby reducing costs—it has the potential to capture the nation's attention. Only capturing the attention of the American public will transform its electricity infrastructure. American energy consumption is at a crossroads; the demand will not shrink to accommodate the rapidly dwindling supply of importable fuel, and the market will not be able to sustain sharp price increases indefinitely. By investing in wind-energy production in its infancy, the United States can set out on a course for energy independence, embodied in nature's truly unlimited power source: wind.

Anthony V. Bova

187. *See id.* (detailing construction timetable for Cape Wind after utility merger).