More Than Tilting At Windmills

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I. INTRODUCTION

The beginning of the Obama Administration has given high visibility to renewable energy. Even in the face of the most troubling economic downturn since the Great Depression, candidate, and now President Obama, has kept energy at the top of his agenda. The modern emphasis on renewable sources of energy reflects worries over fossil fuel shortages, likely demand increases, political risk of overdependence on fossil fuel producing nations, and hazards of climate change caused by fossil fuel consumption.[1]

One of the most prominent renewable energy sources is wind power. This article provides three perspectives on wind power and the legal issues that it raises. Part II provides an overview of the legal issues facing wind power development in the United States. Part III provides a case study of one modest-sized community wind project in northern Maine. Part IV provides a perspective from Spain—fictional home of the legendary windmill tilter, Don Quixote—and the European Union, home to some of the most significant wind power development in the world and a realm in which law has served as an incentive to major wind power development.

Through this article, we look at wind energy's potential role in moving the United States away from its addiction to foreign oil,[2] as well

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1. *See generally* BEYOND THE CARBON ECONOMY: ENERGY LAW IN TRANSITION (Donald N. Zillman et al. eds., 2008).

2. It is estimated that in one year a three megawatt wind turbine produces as much energy as 12,000 barrels of imported oil. Samantha Rose, *Financier Pickens Pitches World's Largest Wind Farm*, TG DAILY, July 9, 2008, http://www.tgdaily.com/content/view/38326/113/. In this regard, it must be noted that wind turbines produce electricity. And in order for wind power to play a major role in curtailing U.S. dependency on foreign oil and gas, significant changes must occur in order to substitute electricity as the power source to fuel our vehicles and farm equipment, heat our homes and businesses, and run our industrial plants and factories. To these ends, wind power development is better viewed as fostering part of an overall policy of energy security and independence rather than a direct response to foreign oil dependency.

as its rightful place in the long-standing debate over environmental issues related to use of fossil fuels. Our review of some, but by no means all, existing policies and laws that potentially impact the U.S. wind industry provides insight into what appears to be an obvious need for a more uniform and coordinated national approach to wind power production, if it is to become a viable alternative energy source.[3] We examine, through our case study of one small wind project in Maine, the complexities that wind projects, both large and small, are likely to face.[4] Last of all, we examine key European policies and laws related to wind energy and what lessons the United States might learn from them in short-cutting the road to successful wind production.[5]

II. U.S. POLICY AND LEGAL ISSUES RELATED TO WIND ENERGY DEVELOPMENT

For years, a debate has raged in the United States and throughout the world over adverse environmental impacts from the use of fossil fuels as the primary source of energy production. The "environmental" focus on fossil fuels has been addressed by the U. S. government and, to a lesser extent, state governments, through the adoption of air-quality driven policies, legislation imposing more stringent emission and fuel-efficiency standards, and efforts to encourage "cleaner" methods of energy production. Environmental concerns have also curtailed the production of fossil fuels in U.S. coastal waters and in various onshore areas deemed too pristine for such production activities. The environmentalists on one side and the energy and automotive industries on the other have for years been the primary participants in an ongoing war of words over the use and production of fossil fuels in the United States. Their respective causes have waxed and waned over time depending on the prevailing political environment and which view of scientific data is deemed most credible.

In 2008, new players and a new reality in the fossil fuel debate arrived on the scene with breathtaking speed and alarming economic impact. The new players were unregulated oil and natural gas speculators whose only real interest in fossil fuels was to manipulate commodities trading markets for extreme profiteering purposes.[6] In what seemed to U.S. consumers like lightning-speed, commodities market speculators

3. *See* discussion *infra* Part II.
4. *See* discussion *infra* Part III.
5. *See* discussion *infra* Part IV.
6. The full story as to the identity and motives of these oil and gas speculators remains unknown at this time. Furthermore, it is likely that the perpetrators behind the manipulation of the commodities markets in 2008 may never be known. Along with these speculators, there can be no question that oil and natural gas producers and others in the distribution chain profited enormously from the market manipulation as well, all at the expense of consumers.

sent the price of oil skyrocketing to $147.27 a barrel.[7] Likewise, the price of natural gas and natural gas liquids tied to oil prices also escalated.[8] U.S. consumers learned a quick and sobering lesson about the great extent to which products and services in this country depend on oil and gas. Meanwhile, although the real facts had been there all along, and we had chosen to ignore them, the "new reality" proved that the United States did not produce nearly enough oil and gas to meet its consumptive needs and had become hopelessly addicted to foreign oil. This addiction has made the U.S. economy and way of life extremely vulnerable to the malicious whims of those who control world oil supplies and its prices.

Although oil prices have now dropped due to the worldwide economic recession, industry analysts forecast a $200 per barrel pricing in the medium to long term.[9] The Organization of Petroleum Exporting Countries (OPEC) and other oil producing nations have made clear their intent to maintain high prices through double-digit cutbacks on supplies. Meanwhile, international production companies have announced delays in their plans to expand research and development of non-conventional hydrocarbon sources, such as oil-sands and coal-sands.[10]

World oil production peaked in 2005, and despite growing demand, production has declined ever since. As a result, when the supply of cheap and easy-to-find oil is gone, new supplies will be harder to discover, more expensive to produce, and more costly to buy. The option for the United States to continue flowing staggering amounts of its wealth to untrustworthy foreign nations to support its oil addiction is an unpalatable choice. Given the new reality of foreign oil addiction, will "pocket-book" issues now finally move the United States away from its dependency on fossil fuels as the primary source of energy production in this country? If so, will wind energy become a viable alternative energy source, and what constraints will wind developers face?

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7. *See* Asjylyn Loder & Tina Seeley, *Nymex Ignores Market Speculation Warning Signs, Gensler Says*, BLOOMBERG, July 29, 2009, http://www.bloomberg.com/apps/news?pid=newsarchive &sid=aO0BMJL7o_Mo. This was the Brent crude spot price on July 11, 2008. *Id.*

8. In July 2008, the price of natural gas rose to a record $12.48/mcf (City Gate), and the price of imported natural gas (Liquefied Natural Gas) rose to $13.00/mcf. ENERGY INFORMATION ADMINISTRATION, U.S. DEP'T OF ENERGY, NATURAL GAS PRICES (2009), http://www.eia.doe.gov/ emeu/mer/pdf/pages/sec9_17.pdf. On July 11, 2008, the spot price FOB for propane (a natural gas liquid) at Mont Belvieu, TX hit a record 198 cents per gallon. ENERGY INFORMATION ADMINISTRATION, PETROLEUM NAVIGATOR: U.S. DEP'T OF ENERGY, DAILY MONT BELVIEU, TX PROPANE SPOT PRICE FOB, http://tonto.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rprou sg&f=d (last visited Sept. 30, 2009).

9. *See* Windpower Monthly, *Focus This Month: Rock Solid Costs of Wind Power in an Uncertain World*, WINDPOWER MONTHLY, Jan. 2009, *available at* http://www.windpower-monthly.com/jan 09/focus.htm (citing International Energy Agency sources).

10. Grant Smith & Mark Shenk, *Oil Set for Rebound as Record Drop Spurs OPEC Cuts (Update3)*, BLOOMBERG NEWS, Dec. 30, 2008, *available at* http://www.bloomberg.com/apps/news?pid= 20670001&sid=af57HoPUuvJk.

With their usual aplomb, Americans have generally agreed that the answer to foreign oil dependence is simple enough: Replace foreign oil and gas imports with either our own production or, better yet, develop alternative energy sources that we can not only produce ourselves but which will be renewable and, thus, always available.

Great interest in the development of renewable alternative energy sources is now on the minds of many Americans. In a speech delivered on January 8, 2009, then President-elect Barack Obama pledged to double U.S. production of alternative energy in three years, as part of a raft of stimulus proposals to drag the economy out of recession.[11] Included in the package Obama promised is the creation of thousands of American jobs "building solar panels and wind turbines."[12] Likewise, in his inaugural address, Obama promised to "harness the sun and the winds."[13] Why not? Recent studies show that the central United States is home to the greatest wind energy potential in the world.[14] The potential for wind is so great that the Department of Energy (DOE) reports that 20% of America's electricity could be produced from wind by 2030.[15]

A. Wind Industry Challenges

In 2006, the DOE and the wind power industry began a collaborative effort to explore a modeled energy scenario in which 20% of U.S. energy needs would be met by 2030 using wind power.[16] In July 2008, the DOE issued the results of this collaboration in a report, which identifies the challenges of achieving the 20% scenario.[17] The report notes that to reach the 20% level, wind power will have to provide 300 giga-

11. President elect Obama remarked: "To finally spark the creation of a clean energy economy, we will double the production of alternative energy in the next three years." President-elect Barack Obama, Speech delivered at George Mason University (Jan. 8, 2009), *available at* http://www.cnn.com/2009/POLITICS/01/08/obama.conference.transcript/index.html?iref=newssearch.

12. *Id.*

13. *Obama's Words: Inaugural Address*, USA TODAY, Jan. 21, 2009 at 11A, *available at* http://www.usatoday.com/news/washington/2009-01-20-obama-speech-text_N.htm.

14. Stanford University researchers funded by NASA have developed a global wind power map that quantifies the potential of global wind power to help planners put wind turbines in locations that could maximize power from the winds and provide widely available low-cost energy. This mapping indicates that North America has the greatest potential for wind energy development. *See* Bureau of Int'l Info. Programs, U.S. Dep't of State, Global Wind Map Might Help Maximize Use of Energy Source, May 17, 2005, http://www.america.gov/st/washfile-english/2005/May/20050517124103lcnirellep0.379162.html.

15. The projection by industry experts and advocates is for wind to contribute up to 20% of U.S. energy supply by the year 2030. U.S. DEP'T OF ENERGY, EXECUTIVE SUMMARY, 20% WIND ENERGY BY 2030: INCREASING WIND ENERGY'S CONTRIBUTION TO U.S. ELECTRICITY SUPPLY 1 (2008), *available at* http://www1.eere.energy.gov/windandhydro/pdfs/42864.pdf. Europe's Parliament and national governments have recently passed a clean energy law committing Europe to getting one third of its energy from renewable sources by 2020, setting a new benchmark for the world. *See* Windpower Monthly, *supra* note 9.

16. U.S. DEP'T OF ENERGY, EXECUTIVE SUMMARY, *supra* note 15, at 1.

17. *Id.*

watts (GW) or 300,000 megawatts (MW) of electricity.[18] Given that in 2006, wind power in the United States produced only 11.6 GW (11,575 MW), significant changes will have to occur in order to reach the 300 GW goal in twenty-one years.[19] Currently, the production gap in the United States—how much electricity wind farms are predicted to produce and their actual output—is running at 10% on average.[20] The report concludes: "[R]eaching 20 percent wind energy will require enhanced transmission infrastructure, streamlined siting and permitting regimes, improved reliability and operability of wind systems, and increased U.S. wind manufacturing capacity."[21] Specific highlights of the report indicate that:

> 1. **Annual installations need to increase more than threefold.** Achieving 20 percent wind will require the number of annual turbine installations to increase from approximately 2000 in 2006 to almost 7000 in 2017.
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> 2. **Costs of integrating intermittent wind power into the grid are modest.** 20 percent wind can be reliably integrated into the grid for less than 0.5 cents per kWh.
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> 3. **No material constraints currently exists.** Although demand for copper, fiberglass and other raw materials will increase, achieving 20 percent wind energy is not limited by the availability of raw materials.
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> 4. **Transmission challenges need to be addressed.** Issues related to siting and cost allocation of new transmission lines to access the Nation's best wind resources will need to be resolved in order to achieve 20 percent wind.[22]

At present, the United States leads the world in new wind installations, and the State of Texas has become the home to the largest wind farm in the world, the Horse Hollow Wind Energy Center, which has a total capacity of 735 MW annually.[23] Today, wind power supplies less than 1% of the current U.S. demand, despite its much greater potential as a power source.[24] Potential for future development remains optimistic, however. For instance, the American Wind Energy Association estimates that at least five states have the potential to produce more than

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18. *Id.* at 1-2.

19. U.S. DEP'T OF ENERGY, ANNUAL REPORT OF U.S. WIND POWER, INSTALLATION COST AND PERFORMANCE TRENDS: 2006 4 (2007), *available at* https://apps3.eere.energy.gov/ba/pba/analysis_database/docs/pdf/2007/41435.pdf.

20. Windpower Monthly, *Selected News Stories Summaries*, WINDPOWER MONTHLY, Jan. 2009, *available at* http://www.windpower-monthly.com/jan09/abs.htm. Improvements are needed in both the prediction methodology and wind technology. *Id.*

21. Press Release, Dep't of Energy, Wind Energy Could Produce 20 Percent of U.S. Elec. by 2030 (May 12, 2008), *available at* http://www.energy.gov/news/6253.htm.

22. *Id.*

23. "The Horse Hollow Wind Energy Center is comprised of 291 GE 1.5 megawatt wind turbines and 130 Siemens 2.3 megawatt wind turbines spread over nearly 47,000 acres." *Horse Hollow Center is World's Largest Wind Farm*, SWEETWATER REP., Sept. 9, 2008, *available at* http://www.sweetwaterreporter.com/content/view/140/60/; *see also* SUSAN COMBS, TEX. COMPTROLLER OF PUB. ACCOUNTS, THE ENERGY REPORT 160 (2008), *available at* http://www.window.state.tx.us/specialrpt/energy/pdf/11-WindEnergy.pdf.

24. AMERICAN WIND ENERGY ASS'N, WIND POWER TODAY 2 (2007), *available at* http://www.awea.org/pubs/factsheets/WindPowerToday_2007.pdf.

one billion kilowatt-hours (kWh) of electricity from wind.[25] Will the U.S. wind industry be able to turn this tremendous potential into reality? The answer is "not unless things change."

B. Policies Providing Incentives for Wind Energy Development

1. Tax Credits and Renewable Portfolio Standards

Turning wind into a significant power source will require enormous capital expenditures. Some industry analysts estimate the cost of using wind to produce 20% of America's electricity at $1 trillion.[26] Those projected costs are for wind power structures alone. There would be another estimated $200 billion needed to build the capacity to transmit that energy to the cities and towns that need it.[27] While wind power proponents argue that the $1.2 trillion cost[28] is still less than the $10 trillion projected cost of purchasing foreign oil in the next ten years,[29] it is nonetheless a staggering sum which must either be raised from private investors, underwritten by state and federal governments, or some combination of both.

Apart from climate change concerns, development of U.S. wind energy to date has been driven by two policy incentives: the federal production tax credit and renewable portfolio standards. Companies that generate utility-scale wind (or certain other forms of renewable energy) are eligible for the federal production tax credit (PTC) which currently provides a 2.1 cent per kWh benefit for the first ten years of a renewable-energy facility's operation.[30] The PTC incentives were set to expire on December 31, 2008. However, the tax incentives were extended in the final days of the 110th Congress as part of the Emergency Economic Stabilization Act of 2008 (2008 Act) signed by President Bush on October 3, 2008.[31] The PTC for wind was extended for only one year until

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25. AMERICAN WIND ENERGY ASS'N, TOP 20 STATES WITH WIND ENERGY RESOURCE POTENTIAL, *available at* http://www.awea.org/newsroom/pdf/Top_20_States_with_Wind_Energy_Potential.pdf (last visited Sept. 30, 2009). Despite Texas's wind power development, North Dakota is considered the state with the greatest wind energy resource potential. *Id.*

26. *See* Fiona Smith, *America Flies on Leading Zephyr of Global Wind Power*, ENERGY CURRENT, Oct. 7, 2008, *available at* http://www.voiceyourself.com/site/the_big_issues/article.php?article_id=5852&prev_id= (noting that long-time oilman and wind power advocate T. Boone Pickens "believes that 20 percent of U.S. electricity could be produced onshore at a cost of US $1 trillion"). For more information about T. Boone Pickens and his wind energy plans, see http://www.pickensplan.com/theplan/ (last visited Sept. 30, 2009).

27. *Wind Power in West Texas*, THE ECONOMIST, July 17, 2008 (reporting on the Pickens Energy Plan).

28. *Id.*

29. Smith, *supra* note 26.

30. The economic stimulus bill, signed into law by President Obama on February 17, 2009, extended and repaired the production tax credit (PTC). The American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115, 319 (2009). The PTC is now available through December 31, 2012. *See id.* at § 1101.

31. The Emergency Economic Stabilization Act of 2008, Pub L. No. 110-343 § 102, 122 Stat.

the end of 2009.[32] Previously, the PTC was only applicable to utility-scale wind turbines and not smaller turbines used to power individual homes or businesses. However, an investment tax credit (ITC) for small wind turbines was also written into the 2008 Act.[33] The ITC is available to help consumers purchase small wind turbines for home, farm, or business use.[34] Owners of small wind systems with 100 kilowatts (kW) of capacity or less can receive a tax credit for 30% of the total installation cost of the system, not to exceed $4,000.[35] For turbines used for homes, the credit is additionally limited to the lesser of $4,000 or $1,000 per kW of capacity.[36] The ITC is available for equipment installed from October 3, 2008, through December 31, 2016.[37] The PTC has now been extended by passage of the American Recovery and Reinvestment Act of 2009 (2009 Act).[38] Additionally, the 2009 Act provides wind producers with the option to forego the PTC to secure a grant from the U.S. Department of Treasury equal to a 30% ITC.[39]

The PTC has been a major driver of wind power development in past years. However, the historical "on-again/off-again" status associated with the PTC has contributed to a boom-bust cycle of development that will continue to plague the wind industry if not changed. When the PTC last lapsed in 2004, U.S. wind development decreased dramatically to less than 400 MW, a five-year low.[40] But, when the PTC was reinstated in 2005, U.S. wind energy development grew to 2,431 MW of capacity installed—a 43% increase over the previous record established in 2001.[41] Wind power capacity has been growing and breaking records in every year since.[42] With the Obama Administration and the DOE aspirations to achieve 20% renewable energy by 2030, it would be counter-

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3765, 3808 (2008).

32. *Id.* § 101. The short-term extension for wind relates to the fact that it is the largest producer of renewable energy and, therefore, has the greatest impact on the federal budget.

33. *Id.* § 104.

34. *See id.* (defining "qualified small wind energy property").

35. *Id.*

36. *Id.*

37. *Id.*

38. *See* American Recovery and Reinvestment Act of 2009 § 1101.

39. *Id.* §§ 1102, 1104(d). The 2009 Act may be a possible game-changer for wind energy and other renewables. Of the $787 billion in funding provided under the 2009 Act, $43 billion is allocated for clean energy stimulus with direct federal funding opportunities through both the Department of Energy (DOE) and the Department of Defense (DOD), as well as through various state programs. *See* WILLIAM D. HEWITT, FINANCING CLEAN ENERGY PROJECTS UNDER THE REINVESTMENT ACT OF 2009 4 (2009), *available at* http://ebcne.org/fileadmin/pres/Hewitt.pdf.

40. AMERICAN WIND ENERGY ASS'N, 2008: ANOTHER RECORD YEAR FOR WIND ENERGY INSTALLATIONS 1 (2008), *available at* http://www.awea.org/pubs/factsheets/Market_Update_4Q08.pdf.

41. *See id.*

42. The PTC will probably not be enough to save renewable energy development from slowing considerably in 2009. If wind profits slump, renewable developers will have less appetite for tax credits and investments in renewable energy facilities will slow. Renewable energy developers and others may press Congress to revise the PTC to make the tax credits refundable, thereby assuring funds for non-profitable wind ventures.

productive to allow the PTC for wind energy to lapse. Considering the planning and permitting process for new wind facilities can take years to complete, it appears that long-term extensions of the PTC are needed if wind developers are going to feel secure about the availability of a tax credit when starting new projects.

The Renewable Electricity Standard(s) (RES), also known as Renewable Portfolio Standard(s) (RPS), have likewise driven wind power development. The RPS use market mechanisms and financial incentives to ensure that a growing percentage of electricity is produced from renewable sources such as wind power.[43] "The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country . . . ."[44] By increasing the required amount of renewable energy over time, the ultimate goal of the RPS is to increase sustainability of the electricity industry.[45] Electric utilities are permitted to recover RPS compliance costs, including interconnect and transmission costs, through the ratemaking process.[46] Performance-based financial and other incentives may also be available under the RPS.[47]

Multiple policy purposes are served by the RPS. RPS aim to keep electricity bills low by diversifying the power supply, shielding customers from spikes in energy prices, and allowing competition among renewable energy technologies. RPS can also spur economic development, particularly in rural areas, and help achieve cleaner air by reducing the use of air polluting fuel sources. Currently, twenty-four states and the District of Columbia have adopted mandatory RPS requirements.[48] Five other states have enacted voluntary goals for adopting renewable energy.[49] However, there is no uniformity in these requirements among the states. The individual states are left to promote their own policies and interests. For example, the RPS for New Mexico is 20% by 2020 with 20% of that amount carved out for wind energy.[50] California has a 33% RPS by 2020,[51] and Nevada's RPS is 20% by

43. AMERICAN WIND ENERGY ASS'N, THE RENEWABLES PORTFOLIO STANDARD: HOW IT WORKS AND WHY IT'S NEEDED 1 (2005), *available at* http://www.awea.org/pubs/factsheets/rpshow why.pdf.

44. *Id; see, e.g.*, Renewable Energy Act, N.M. STAT. §§ 62-16-1 to 62-16-10 (2003 & Supp. 2008).

45. AMERICAN WIND ENERGY ASS'N, *supra* note 43, at 1.

46. *See, e.g.*, N.M. STAT. § 62-16-6.

47. *Id.*

48. U.S. Dep't of Energy, States with Renewable Portfolio Standards (June 16, 2009), *available at* http://apps1.eere.energy.gov/states/maps/renewable_portfolio_states.

49. *See id.* (listing North Dakota, South Dakota, Utah, Vermont, and Virginia as states that have established voluntary goals for adopting renewable energy instead of portfolio standards with binding targets).

50. N.M. STAT. § 62-16-4; Dep't of Energy, *supra* note 48.

51. Cal. Exec. Order No. S-14-08 (Dec. 15, 2008), *available at* http://gov.ca.gov/index.php?/executive-order/11072/.

2015.[52] The Texas RPS establishes a credit trading program through which the RPS can be met.[53] To date, the U.S. Congress has been unable to move various proposed national RPS beyond the House of Representatives. Perhaps the new Congress may be more receptive to national RPS legislation. A national RPS should provide a minimum standard without preempting states from establishing more aggressive RPS standards.

2. Job Creation and Rural Economic Development

The potential for job growth appears to be an important feature of the Obama Administration's interest in aggressively pressing forward with the development of alternative energy. Apart from the financial incentives to promote wind as a source of energy, there may be a corresponding potential for economic development through the creation of new wind energy jobs. In a time when millions of Americans are facing unemployment, policies aimed at solving energy dependency issues that go hand-in-hand with significant numbers of new employment opportunities in the wind industry are bound to have great appeal. Whether wind farms and manufacturing will create significant numbers of new jobs is yet to be determined. However, no one will disagree that the prospect of keeping U.S. dollars at home, using wind energy to create new construction and maintenance jobs, and employing thousands of Americans to manufacture wind turbines and other equipment is compelling. Yet, skeptics have pointed out that currently most equipment for wind farms is imported from outside the United States, most new jobs created will be short-term construction work, and any long-term jobs will be too specialized and technical to be filled by local workers.[54] Additionally, the higher costs of wind-produced electricity could raise consumers' electric and tax bills and, thereby, reduce spending and hinder job creation overall.[55]

C. Deconstructing the Planning and Permitting Maze

1. Land Use

There are a litany of reasons why the average citizen might object to a wind farm installation in her neighborhood. Constant noise and the visual impact of spinning turbines have been cited as the cause for im-

52. U.S. Dep't of Energy, *supra* note 48.
53. 16 TEX. ADMIN. CODE § 25.173 (2009).
54. *See, e.g.,* Glenn R. Schleede, *Wind Energy Will Be Early Test for Obama's White House Staff,* AMERICAN THINKER, Dec. 20, 2008, *available at* http://www.americanthinker.com/2008/12/wind_energy_will_be_an_early_t.html.
55. *Id.*

pairment to ranching and farming activities, danger for migrating birds, disturbance of sleep and solitude, depreciation of land values, and dust pollution, to name a few.[56] State common law theories may not provide remedies to adjacent landowners for alleged damages caused by the unwelcome sight of a neighbor's wind installation.[57] For instance, in a recent Texas case, the plaintiff was unsuccessful in his claims for public and private nuisance raised by his neighbor's wind project.[58] The plaintiff was unable to establish that his nuisance claims were based on any objectionable activities other than "aesthetic" issues, which the law did not protect.[59]

In the United States, wind siting could be subject to an array of local policies and regulations, such as zoning, noise, and other land use considerations. Another likely scenario is that wind farms will be located in rural areas where zoning, noise, and land-use ordinances are not in place. Unless there are state or federal regulation considerations,[60] the consequence could be a virtually unregulated siting process. Reasonable land-use regulations aimed at particular concerns raised by wind projects will need to be promulgated to bring certainty to the process for both wind developers and concerned citizens.

In some towns and counties, ordinances are now being enacted to provide comprehensive regulations related to the development of commercial wind farms.[61] The major themes typically included in these local ordinances are access, appearance, clearance, electrical equipment, height, lighting, noise standards, permits, restoration requirements, setbacks, shadow flicker, signal interference standards, spacing and density, and zoning area.[62]

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56. *See, e.g.,* Thomas Korosec, *Fight Over Wind Farms*, HOUSTON CHRONICLE, Feb. 5, 2007, at A1, *available at* http://www.chron.com/CDA/archives/archive.mpl?id=2007_4279671; *see also* NAT'L RESEARCH COUNCIL, ENVIRONMENTAL IMPACTS OF WIND ENERGY PROJECTS 67-179 (2007) (discussing the ecological effects of wind energy development and the impacts of wind-energy development on humans).

57. State and federal regulation is not necessarily a panacea for unhappy land owners. Land owners seeking to enforce federal or state laws and regulations controlling wind farm development may not be afforded protection unless they can establish the requisite "standing."

58. Rankin v. FPL Energy, LLC, 266 S.W.3d 506, 508 (Tex. App. 2008).

59. *Id.* at 513.

60. In Western states in particular, the federal and state governments own vast land resources, which could be available for siting of wind farms through the leasing of such lands. In those circumstances, federal and state governments will impose regulatory constraints and requirements for development on public lands. In New Mexico, for instance, the policy of the State Land Office is to highly favor the co-existence of agricultural and wind uses, and wind users will be required to implement procedures to protect nearby agricultural users from displacement. On public lands, wind users will also have to conduct due diligence in conducting archeological surveys and environmental impact statements. On federal lands, there could also be clean air and water requirements.

61. *See* F. Oteri, *An Overview of Existing Wind Energy Ordinances*, NATIONAL RENEWABLE ENERGY POLICY TECHNICAL REPORT 500-44439, at 2 (2008), *available at* http://www.nrel.gov/docs/fy09osti/44439.pdf. The report summarizes the existing wind energy ordinances for counties in nine states. This listing was prepared to assist towns and counties in developing ordinances regulating utility-scale wind projects.

62. *Id.* at 3-4. Some concerned Wyoming ranchers recently formed the Northern Laramie Range Alliance to fight commercial wind development in the Laramie Mountain Range. The Alli-

A wind turbine in the neighborhood may not be the only potential disturbance to the rights of private property owners in the wind project area. Wind energy development also requires transmission lines to transport the generated electricity to consumers. To the extent that public utility companies extend transmission lines to new wind power projects, state utility commissions will regulate them. However, because public utility companies hold the status of quasi-public entities, they also possess eminent domain powers. Thus, a land owner whose property stands in the path of proposed transmission lines may find that her only remedy lies in receiving fair market value for the property taken for transmission uses, as determined in a condemnation proceeding.[63]

2. Energy Corridors and Rights of Way for Transmission

One major obstacle to the 20% wind energy goal is the inadequacy of the transmission system as it currently exists. Unfortunately, where transmission generally is, the wind is not.[64] Most wind power development on federal lands to date has occurred on lands managed by the Bureau of Land Management (BLM). The BLM administers authorization for both wind energy development and site testing on public lands in each of the eleven Western States.[65] The BLM has issued a series of policy statements in recent years covering energy development on BLM-administered lands. In October 2002, the BLM issued its Interim Wind Energy Development Policy.[66] After comments in August 2006, the BLM published its Wind Energy Development Policy, which stressed the importance of timely and consistent processing of wind energy right-of-way applications by BLM field offices.[67] The BLM, in cooperation with the DOE, has also issued a final Programmatic Envi-

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ance halted one company's proposed alignment across the Range for an interstate wind power transmission line. Its intent now is to derail plans for industrial scale wind farms in the Range. *See* Matt Joyce, *Turbines Stir Ranchers: Wind-farm Debate Concerns Mount Over Leasing of Private Property*, SEATTLE TIMES, Aug. 24, 2009, at B3.

63. *See, e.g.,* Transwestern Pipeline Co. v. 17.19 Acres of Property Located in Maricopa County, 550 F.3d 770, 777-78 (9th Cir. 2008).

64. The fact that those who must bear the noise, environmental, and visual impacts of wind energy production will not be the beneficial consumers of such energy serves to fuel the debate over where wind projects should be located, the rights of property owners, and the need for greater regulation of wind power facilities. *See, e.g.,* Stacy Matlock, *Wind Chill: Rural Residents Worry About Impact of Lightly Regulated Industry*, SANTA FE NEW MEXICAN, Jan. 10, 2009, *available at* http://www.santafenewmexican.com/Local%20News/Wind-chill--Rural-residents-worry-about-impact-of-lightly-regulated-industry-.

65. The eleven Western states are: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. *See* West-wide Energy Corridor Programmatic EIS, A Guide to the West-wide Energy Corridor Programmatic EIS (PEIS) Document, the PEIS Process, Scope, and Schedule, http://www.corridoreis.anl.gov/ (last visited Sept. 30, 2009).

66. Instruction Memorandum No. 2003-020 from Kathleen Clarke, Director, Bureau of Land Mgmt., to All Field Officials (Oct. 16, 2002), *available at* http://windeis.anl.gov/documents/docs/IM2003-020,InterimWindEnergyDevelopmentPolicy.htm.

67. Instruction Memorandum No. 2008-216 from Lawrence E. Benna, Acting Director, Bureau of Land Mgmt., to All Field Officials (Aug. 24, 2006), *available at* http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2006/2006-216__.html.

ronmental Impact Statement (PEIS) to evaluate environmental issues associated with wind energy development on western public lands.[68] The proposed action analyzed in the final PEIS would implement a Wind Energy Development Program, establish policies and best management practices for wind energy right-of-way authorizations, and amend fifty-two BLM land use plans.[69] On December 22, 2008, the BLM issued Instruction Memorandum (IM) No. 2009-043 to provide updated guidance on processing right-of-way applications for wind energy projects on public lands that the agency administers.[70] The 2008 IM updates and replaces the Wind Energy Development Policy (IM 2006-216), issued August 24, 2006, and the Interim Wind Energy Development Policy (IM 2003-020), issued October 16, 2002.[71] In addition, the 2008 "IM further clarifies the BLM Wind Energy Development policies and best management practices . . . provided" in the 2005 PEIS.[72]

In July 2008, the Department of the Interior (DOI), Department of Defense (DOD), and the BLM signed the Wind Energy Protocol (Protocol) to facilitate compatible land use through cooperative planning of wind energy projects on BLM-administered lands.[73] The DOD uses an extensive system of military airspace and land assets in order to equip and train combat-ready forces and operate radar systems designed to detect threats to national security. Many of these activities and systems are located on or near BLM-administered public lands. The purpose of the Protocol is to improve the communication and coordination process between the BLM and DOD in the review of proposed wind energy applications on BLM-administered public lands.[74] The Protocol promotes long-term wind energy development on BLM-administered public lands in a manner compatible with military activities.[75] While the BLM re-

68. *See* Notice of Availability of the Final Programmatic Environmental Impact Statement on Wind Energy, 70 Fed. Reg. 36,651, 36,652 (June 24, 2005).

69. U.S. DEP'T OF THE INTERIOR, BUREAU OF LAND MGMT., FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON WIND ENERGY DEVELOPMENT ON BLM-ADMINISTERED LANDS IN THE WESTERN UNITED STATES ES-3 (2005), *available at* http://windeis.anl.gov/documents/fpeis/maintext/Vol1/Vol1ExecSum.pdf.

70. Instruction Memorandum No. 2009-043 from Henry R. Bisson, Acting Director, Bureau of Land Mgmt., to All Field Officials (Dec. 19, 2008). The instruction memorandum emphasizes the need for Visual Resources Management in preparation of Environmental Impact Statement (EIS) for wind projects on public lands. *Id.*

71. *Id.*

72. *Id.*

73. U.S. DEP'T OF INTERIOR, BUREAU OF LAND MGMT.,WIND ENERGY PROTOCOL BETWEEN THE DEPARTMENT OF DEFENSE AND THE BUREAU OF LAND MANAGEMENT CONCERNING CONSULTATION OF DEVELOPMENT OF WIND ENERGY PROJECTS AND TURBINE SITING ON PUBLIC LANDS ADMINISTERED BY THE BUREAU OF LAND MANAGEMENT TO ENSURE COMPATIBILITY WITH MILITARY ACTIVITIES 6 (2008), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/solar_and_wind.Par.75725.File.dat/Final_DOD_BLM_Protocol_080708.pdf.

74. *Id.* at 1.

75. *Id.*

tains decisional authority regarding applications for the use of public lands, the Protocol provides the DOD with the opportunity to evaluate those applications for adverse effects on military activities, decide whether those effects can be mitigated, and if so, recommend mitigation measures.[76]

Typically, energy corridors and rights-of-way across federal lands are not designated until specific projects are proposed. Pipelines and transmission lines often cross lands under the management of two or more governmental agencies. This requires multiple permits or rights-of-way from separate agencies, each with its own set of requirements and procedures. The federal government has now acted to speed up and to give more uniformity to the process for siting energy infrastructures on federal lands.[77] Section 368 of the Energy Policy Act of 2005, directs the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior to designate, under their respective authorities, corridors for oil, gas, hydrogen pipelines, and electricity transmission and distribution facilities on federal lands in the eleven Western States.[78]

On November 26, 2008, the involved federal agencies released a West-Wide Energy Corridor Final Programmatic Environmental Impact Statement (WWEC PEIS) that evaluated the issues associated with the designation of these corridors and identified more than 6,000 miles of section 368 proposed energy corridors.[79] The energy transport corridors are agency-preferred locations where pipelines and transmission lines may be sited and built in the future.[80] The policy behind designating these energy corridors using a PEIS allows the participating agencies to mitigate environmental effects and reduces conflicts with other uses of federal lands.[81] A network of corridors that can accommodate transportation systems for multiple energy types could potentially minimize the proliferation of energy utility rights-of-way on the federal landscape. Eighty-two percent of the corridors analyzed in the final PEIS are located on BLM-managed lands, while 16% are on U.S. Forest Service lands.[82] The remaining 2% of the land is managed by either the DOI or the DOD.[83] These federal agencies can now amend their respective land use plans to incorporate one or more of the proposed corridors.[84]

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76. *Id.* at 3.
77. Energy Policy Act of 2005, Pub. L. No. 109-58 § 368, 119 Stat. 594, 727 (2005).
78. *Id.* § 368(a)(1)-(3).
79. U.S. DEP'T OF ENERGY & U.S. DEP'T OF INTERIOR, BUREAU OF LAND MGMT., PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT, DESIGNATION OF ENERGY CORRIDORS ON FEDERAL LAND IN THE 11 WESTERN STATES, DOE/EIS-0386, at S-10 (2008) (summary), *available at* http://www.corridoreis.anl.gov/documents/fpeis/ (follow "Summary" hyperlink for summary citations or the corresponding chapter under Volume 1).
80. *Id.* at S-10 to S-11.
81. *Id.* at S-12.
82. *See id.* at ch. 3, p. 5.
83. *See id.*
84. *Id.* at S-23.

When individual projects are proposed for these corridors, project-specific environmental analyses will be undertaken before permits or rights-of-way are granted.[85]

Use of the designated energy transport corridors may now be in jeopardy, however. On July 7, 2009, more than a dozen conservation groups filed a lawsuit against the DOI, the DOE, the BLM, and other federal land management agencies in the United States District Court for the Northern District of California seeking to invalidate the WWEC PEIS.[86] The lawsuit alleges violations of the National Environmental Policy Act, Federal Land and Policy Management Act, and Administrative Procedure Act, based upon, among other things, the federal government's purported failure to properly assess the environmental impacts in designating the corridors and the claim that existing power plants fueled by oil and other fossil fuels should not have been included in the alignment of the designated corridors.[87]

State policy initiatives are also either in place or underway to address the transmission system limitations. Some states are moving forward on a collaborative basis to deal with electrical transmission needs in advance of additional capacity generated by wind power. In 2006, the Western Governors' Association (WGA) identified the availability of electricity transmission as the most critical obstacle that renewable energy faces.[88] Since 2006, the WGA, in collaboration with key players from the renewable, regulatory, environmental, and utility sectors, have been addressing the issue of transmission availability to accommodate renewable energy development. That effort has resulted in the WGA and its affiliate organization, the Western Interstate Energy Board, launching the Western Renewable Energy Zones (WREZ) project to promote regional transmission planning and to encourage the development of renewable energy sources.[89] In May 2008, the DOE announced its plan to contribute up to $2.3 million over three years to the WREZ project.[90] The first phases of the WREZ project are identification of renewable energy zones in the Western Electricity Interconnection[91]

85. *Id.* at S-2.

86. Complaint at 3, Wilderness Society v. U.S. Dept. of Interior, No. 3:2009cv03048, (N.D. Cal. July 7, 2009), *available at* http://www.earthjustice.org/library/legal_docs/final-complaint-energy-corridors.pdf.

87. *Id.* at 3–4.

88. *Transmission for Renewable Electricity Res.: Challenges and Solutions: Hearing Before the S. Comm. on Energy and Natural Res.*, 110th Cong. (2008) (testimony of Richard Halvey, Energy Program's Director, Western Governors' Association), *available at* http://energy.senate.gov/public/_files/HalveyTestimony061708.doc.

89. *See generally* Western Governor's Ass'n, Western Renewable Energy Zones, http://www.westgov.org/wga/initiatives/wrez/index.htm (last visited Sept. 30, 2009).

90. Facilities.net, Initiative Aims to Identify Renewable Energy Zones in Western States, http://www.facilitiesnet.com/energyefficiency/article.asp?id=8921 (last visited Sept. 30, 2009).

91. *Id.* The Western Interconnection runs from Western Canada south to Baja California in Mexico and reaches eastward over the Rockies to the foothills of the Great Plains. Western Governor's Ass'n, Western Interconnection ISO, http://www.westgov.org/wieb/meetings/crep1099/wiiso.

(WEI) and development of regional transmission plans that will enhance access to renewable resources located in these zones.[92] Participating in the project are "11 states, two Canadian provinces and areas in Mexico" that are part of the WEI.[93] The objectives of the WREZ project are to blunt the potential balkanization of renewables markets while respecting each state's primary jurisdiction in siting generation and transmission facilities, to pave the way for interstate collaboration on the permitting of multi-state transmission lines, and to allocate more equitably and recover the costs of new transmission.[94] The WGA's goal is to add 30,000 MW of clean and diversified energy by 2015.[95]

Individual states are also moving forward. The Wyoming Infrastructure Authority is already identifying, siting, and building transmission to carry energy from areas where wind is plentiful.[96] In Texas, the legislature called for the designation of "Competitive Renewable Energy Zones" as a concept to plan ahead for transmission and to assure that new wind generation can readily be connected to the power grid.[97] In 2007, the New Mexico Legislature created the New Mexico Renewable Energy Transmission Authority (RETA) as a "one stop shop" to serve both New Mexico's and the Western Interconnection's electrical transmission needs while meeting the needs mandated by RPS in neighboring states.[98] New Mexico's RETA is the nation's first state-level financing authority whose primary focus is on developing renewable energy-related transmission infrastructure.[99] In addition to its financing authority, RETA also has the contracting and eminent domain powers necessary to develop its projects.[100] The legislation implementing RETA requires that a transmission project's energy draw at least 30% of its energy from renewable-derived sources.[101] Currently, RETA is engaged in a project that will provide $35 million in revenue bonds to

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htm (last visited Sept. 30, 2009).

92. Facilities.net, *supra* note 90. Later phases will involve "development of a transparent process for bringing together buyers and sellers of electricity generated from renewable energy sources and building interstate cooperation to address permitting and multi-state cost allocation issues." *Id.*

93. Jasen Lee, *Western States Team Up for Renewable Energy*, DESERET NEWS, May 29, 2008, *available at* http://www.deseretnews.com/article/1,5143,700229867,00.html.

94. *See Transmission for Renewable Electricity Res.*, *supra* note 88.

95. *See* Western Governors' Ass'n, *supra* note 89.

96. *See generally* Wyoming Infrastructure Authority, Projects, http://wyia.org/projects/ (last visited Sept. 30, 2009).

97. Sandy Smith, Wind on the Wires: Can Transmission Infrastructure Adapt?, http://www.elp.com/index/display/article-display/328729/s-articles/s-utility-automation-engineering-td/s-volume-13/s-issue-5/s-features/s-wind-on-the-wires-can-transmission-infrastructure-adapt.html (last visited Sept. 30, 2009).

98. *See* New Mexico Renewable Energy Transmission Authority Act (RETA), N.M. STAT. §§ 62-16A-1 to 62-16A-15 (2007).

99. RETA will also promote technologies that convert, store, and return electricity.

100. N.M. STAT. § 62-16A-4(A)-(B)(8).

101. Press Release, N.M. Energy, Minerals, and Natural Res. Dep't, N.M. Renewable Energy Transmission Auth. Holds First Meeting (Sept. 12, 2007), *available at* http://www.emnrd.state.nm.us/MAIN/documents/PR-RETA.Meeting.9.12.pdf.

finance the transmission line upgrades necessary to carry renewable wind energy to market from a 100 MW wind farm in Torrance County, New Mexico, known as the High Lonesome Wind Ranch, LLC.[102] Even though the revenue bonds are payable solely from the wind project, RETA also has facilitated the negotiation of a long-term power purchase agreement with Arizona Public Service that provides wind purchase obligations for the life of the bonds.[103]

3. Wildlife and Other Environmental Protection Policies

"The federal role in regulating wind power development is limited to projects occurring on federal lands or those that have some form of federal involvement, such as projects that receive federal funding . . . ."[104] Those "projects must comply with federal laws as well as any relevant state and local laws."[105] The DOI maintains some responsibility for wind development on federal lands both onshore and offshore and for protecting endangered species and migratory birds through the Fish and Wildlife Service, the BLM, and the Minerals Management Service.[106] Each of these DOI elements has or is soon to have guidelines related to wind development. The U.S. Forest Service has similar responsibilities for wind energy development on federal lands under its control and is working to craft siting practices.[107] The National Oceanic and Atmospheric Administration, under the auspices of the Department of Commerce, "has responsibility for operations of weather stations across the U.S. and [is] interested in ensuring [that] proposed development near or around weather stations does not unreasonably impact their radar operations."[108]

In September 2005, the Government Accountability Office (GAO) released a report to address concerns raised over the killing of migratory birds and bats.[109] The GAO report concluded that most wind power development has occurred on non-federal land, and regulation of wind power facilities on non-federal lands is largely the responsibility of state

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102. Joanna Prukop, Cabinet Sec'y, N.M. Energy, Minerals, and Natural Res. Dep't, Speech at the Western States State Energy Program Conference: Approaches for Responsible Energy Development (Apr. 15, 2009).

103. *See* N.M. SCORC, RENEWABLE ENERGY TRANSMISSION PROJECT BONDS, H.B. 563, 1st Sess., at 2-3 (2009) (Draft Fiscal Impact Report), *available at* http://legis.state.nm.us/Sessions/09%20Regular/firs/HB0563.pdf.

104. U.S. GOV'T ACCOUNTABILITY OFF., GAO-05-906, WIND POWER: IMPACTS ON WILDLIFE AND GOVERNMENT RESPONSIBILITIES FOR REGULATING DEVELOPMENT AND PROTECTING WILDLIFE 31 (2005), *available at* http://www.gao.gov/new.items/d05906.pdf.

105. *Id.* at 21.

106. U.S. Dep't of Energy, Federal Wind Siting Information Center, Frequently Asked Questions About Wind and Radar (Dec. 17, 2008), http://www1.eere.energy.gov/windandhydro/federalwindsiting/radar_faqs.html.

107. *Id.*

108. *Id.*

109. *See* U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 104, at 2.

and local governments.[110] Those agencies will look to local planning and zoning ordinances and possibly state environmental laws applicable to wind projects.[111] The GAO report also notes that a wind power developer must comply with the Federal Energy Regulatory Commission's regulation of interstate electric generation transmission, the Federal Aviation Administration (FAA) standards applying to wind power facilities, the National Environmental Policy Act, the Endangered Species Act, the Migratory Bird Treaty Act, the Golden Eagle Protection Act, and the Federal Land Policy and Management Act.[112] The U.S. Fish and Wildlife Service (FWS) would be primarily responsible for ensuring the implementation and enforcement of laws protecting wildlife.[113] In July 2003, the FWS issued interim voluntary guidelines for industries to use in developing new renewable energy projects on public lands—to avoid or minimize impacts to wildlife and their habitats—and then in October 2007 formed the Wind Turbine Guidelines Advisory Committee.[114]

4. National Defense Policies

The National Defense Authorization Act for Fiscal Year 2006 required the DOD to study and report on the effects of wind projects on military readiness, "including an assessment of the effects on the operations of military radar installations of the proximity of windmill farms to such installations and of technologies that could mitigate any adverse effects on military operations identified."[115] The DOD report completed on September 27, 2006, found that depending on the number and location of the wind turbines, they can impede radar systems and operations and that more needs to be done to understand this interaction and develop ways of mitigating the impacts.[116] Pending completion of a DOD report on mitigation technologies, it released an "Interim Policy on Proposed Windmill Farm Locations" in March 2006, which called for its office to contest any establishment of windmill farms "within radar

110. *Id.* at 21.
111. *Id.*
112. *Id.* at 31-33.
113. The U.S. Fish and Wildlife Service (FWS) has been working with the electric power industry since "the early 1980s to reduce significant avian mortality due to collisions with and electrocutions at power lines." *Id.* at 38.
114. U.S. Dep't of Interior, U.S. Fish & Wildlife Serv., The Fish and Wildlife Service and Wind Energy Development (Sept. 9, 2009), http://www.fws.gov/U.S. Fish and Wildlife Service habitatconservation/wind.html. *See generally* U.S. DEP'T OF INTERIOR, WIND TURBINE GUIDELINES ADVISORY COMMITTEE CHARTER (2007), *available at* http://www.fws.gov/habitatconservation/wind power/Commitee_Charter.pdf.
115. National Defense Authorization Act for Fiscal Year 2006, Pub. L. No. 109-163 § 358, 119 Stat. 3136, 3208 (Jan. 6, 2006).
116. U.S. DEP'T OF DEF., REPORT TO CONGRESSIONAL DEFENSE COMMITTEES, THE EFFECT OF WINDMILL FARMS ON MILITARY READINESS 3-4 (2006), *available at* http://www.defenselink.mil/pubs/pdfs/WindFarmReport.pdf.

line of site of the National Air Defense and Homeland Security Radars."[117]

Under this policy, before construction of a wind energy project can begin, the project proponent must submit a "Notice of Proposed Construction or Alteration" to the FAA.[118] Once the FAA receives notice of a proposed wind energy project, it will evaluate the project's effect on its operational procedures, determine whether the project will have a hazardous effect on air navigation, and, if necessary, make recommendations to ensure that the project accords with safe air navigation.[119] The Long Range Radar Joint Program Office has also established an optional informal consultation service to assist wind farm developers "in identifying locations where radar line of sight concerns could exist."[120] In addition to the Interim Policy's proven radar interference mitigation techniques, the report emphasizes that given the unique characteristics of wind turbines, each proposed project must be evaluated on a case-by-case basis.[121]

The FAA has formal regulatory authority to review and evaluate the potential impact of proposed structures, including wind turbines, on civilian and military air use, safety, and obstructions.[122] "The FAA also has the responsibility to provide for and promote the safe and efficient use of U.S. airspace."[123] At the DOD's request, the FAA "began issuing notices of 'presumed hazard' to wind project contractors . . . for sites within 60 nautical miles of long-range radar installations."[124] These notices require developers to work with the FAA in efforts to identify

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117. Memorandum from Kenneth Kingsmore, Program Manager, Dep't of Def., and Russell Wright, Program Manager, Dep't of Homeland Sec., Interim Policy on Proposed Windmill Farm Locations (Mar. 21, 2006), *available at* http://www1.eere.energy.gov/windandhydro/federalwindsiting/pdfs/windmill_policy_letter_032106.pdf.

118. U.S. DEP'T OF DEF., *supra* note 116, at 50; *see also* FAA Objects Affecting Navigable Airspace, 14 C.F.R. §§ 77.11-13, 77.17 (2009). In the context of wind turbine projects, the FAA specifically requires that it be provided notice of "[a]ny construction or alteration of more than 200 feet in height above the ground level at its site." *Id.* § 77.13(a)(1).

119. *See* 14 C.F.R. § 77.11(b)(1)-(4).

120. U.S. DEP'T OF DEF., *supra* note 116, at 53-54.

121. *See id.* at 49; Memorandum from Kenneth Kingsmore, Dep't of Defense, and Russel Wright, Dep't of Homeland Security, to Howard Swancy (July 10, 2006). Currently, there are only three approved mitigation measures to eliminate wind turbine interference with air defense radar: (1) the "bald earth" approach achieved by increasing the distance between air defense radar and wind turbines; (2) "terrain masking" which occurs when elevated terrain is located between the radar and the turbines; and (3) "terrain relief" which is a variation of terrain masking that can be employed when the elevation of the radar is significantly greater than the elevation of the wind turbines. *See* U.S. DEP'T OF DEF., *supra note* 116, at 42-44.

122. *See* FAA Objects Affecting Navigable Airspace 14 C.F.R. § 77.11-19 (2009); *see also* Federal Wind Siting Information Center, *supra* note 106.

123. U.S. Dep't of Def., *supra* note 116, at 40-41; *see* 49 U.S.C. § 44718 (2006).

124. Andrea Frampton, *Study Pending at Wind-farm Site - But Project's Developer Says Construction Will Begin this Month*, JOURNAL STAR, June 10, 2006, http://www.windaction.org/news/3391. Senator Richard Durbin (Ill.) noted the effect of this policy: An "overwhelming percentage of land in this country is classified as within the 'radar line of sight' and possibly obstructive." Press Release, U.S. Senator Dick Durbin, Durbin and Other Midwestern Senators Object to Shutdown of Wind Farms (June 2, 2006), http://durbin.senate.gov/showRelease.cfm?releaseId=256426.

ways and means of eliminating hazards. The DOD participates in the FAA's applications for potential impact review and evaluation process, to the extent necessary to gauge its ability to defend the nation. However, the DOD defers to the FAA regarding possible impacts that wind farms may have on air traffic control radars used to manage the U.S. air traffic control system.

III. FROM CONCEPT TO INSTALLATION: A WIND POWER CASE STUDY

This study examines the actions of one small public university, the University of Maine at Presque Isle (UMPI), to install a 600 kW wind turbine on its campus. The campus's decision to install a wind turbine was motivated by a number of objectives—reduction of electric power costs, improvement of its carbon footprint, education for its students, service to its community and state, and defining the identity of the campus.

From the first exploration of wind on campus in 2004, to the present, the wind project has been a continuing adventure in public policy, economics, public relations, and law. While this section focuses on legal aspects of the project here, the text mixes legal, public policy, and economic analysis.

It is far too early to conclude whether objectives of the project will be met. That assessment lies a decade or more in the future. However, as of the time of this writing, the wind turbine is installed and operating. The participants in the project have learned a great deal that can be useful to others considering similar projects.

This section combines neutral legal scholarship with the personal reflections of one of the major participants in the wind turbine project. Author Zillman assumed the presidency of UMPI in September 2006. At the time, a study of the wind resource on campus was taking place, but no firm decisions as to implementation had been made. By coincidence, the author brought to the presidency thirty years of scholarship and teaching in the field of energy law and policy. A portion of that work involved renewable energy resources. He was thus able to play a number of roles, not always well and not always consistently. He was both lawyer and client. He was an academic policy maker. He was both leader and follower of a team assembled to direct the project (Team UMPI). Lastly, he was a cheerleader and a public relations focal point for the project.

This section includes citations to the ample e-mails, letters, and memoranda that the parties exchanged over two years. In these, project bidders who were not selected to undertake the project are identified by fictitious names. Throughout the project, President Zillman kept a personal diary. It often summarized lengthy phone conversations or face-

to-face meetings. It also recorded subjective reactions to developments of the day or week. Doubtless, other parties to these sessions may have different reactions.

The UMPI wind turbine project was assuredly not a smooth venture in which all steps were correctly identified early and then taken in coordinated fashion. The participants overestimated the importance of some matters and underestimated others. Conditions in the larger world changed in ways that influenced the project. A series of constraints on the project limited options that we might otherwise have exercised.

As the wind turbine began operation, a reflection of the prior five years illuminated the difficulties of operating in emerging markets and in uncertain regulatory environments. New technologies need pioneers. Pioneering can be difficult either because of direct opposition to the new technology or, more likely, due to the absence of familiar pathways to the implementation of a project involving the new technology. Such was the case with UMPI's wind turbine project.

A. The Setting

The University of Maine at Presque Isle is one of seven public universities in the University of Maine system, the umbrella organization that governs most public higher education in Maine. UMPI is located in the far north region of Maine, a dozen miles south of Caribou, the small city that is often the farthest northeast location on the national weather map. Canada is a mere twenty-minute drive away. UMPI is a 1,400-student campus that has grown in its 105 years from a former teachers' college to now include a liberal arts program and other professional programs. UMPI's home town of Presque Isle is a city of 9,500 people that serves as the hub of Aroostook County, the largest county east of the Mississippi River and commonly known simply as "The County." Presque Isle is 160 miles north of a major (for Maine) population center, the city of Bangor. To southern and central Mainers, the County is a long way away. Distance from other metropolitan areas shapes Aroostook County's identity and provides Presque Isle with amenities—a television station, a commercial airport, a shopping mall, a 150-employee white collar business, a world class winter sports facility, a university, and a community college—not usually found collectively in a small city.

Wind and winter are two features that also distinguish the County. The County's major business is agriculture, primarily potato growing. Unlike other parts of New England, Aroostook County is a land of sprawling vistas. The winds blow in Great Plains' fashion and often do so in weather that will reach negative twenty degrees Fahrenheit or

more in winter. The winter of 2007-08 set a record for recorded snowfall of 197.8 inches.[125]

The winds of northern and western Maine are among the best winds east of the Mississippi River.[126] Maine leads New England in wind potential and ranks a close fifth in all states east of the Mississippi.[127] While Maine's wind potential is trivial compared to the wind belt of the Great Plains, even northern Maine has the advantage of being relatively close to the electric-power-hungry population centers of the east coast.

A prior paper by the author examined the modern history of Maine wind projects.[128] The record as of 2009 has been mixed. A number of projects seeking to generate commercial quantities of wind were proposed for the scenic mountain areas of western Maine. Maine's statutes place land use decisions regarding these geographic areas under the jurisdiction of a statewide agency, the Land Use Regulatory Commission (LURC). The LURC's statutory mandate requires careful attention to developments that might intrude on the scenic attractions of Maine's unorganized territories. Large multiple-turbine wind projects were awkward intruders on natural areas. Several projects eventually died at the regulatory agency.

The one project that reached operational stage is the Mars Hill project, fifteen miles south of Presque Isle. This 42 kW, twenty-eight turbine commercial venture fell within the land use jurisdiction of the town of Mars Hill. The project site, Mars Hill Mountain, had already been partially developed by a ski resort among other ventures. The wind project developers promised considerable tax revenues to the town along with employment benefits during and after the project's construction. The town zoning authorities granted permission to construct the highly visible wind project, and it was operating by January 2007.

B. Early Planning—2004 to March 2007

Well before the Mars Hill project became operational, UMPI leadership began examining renewable energy projects for campus.[129] The

125. Nat'l Oceanic & Atmospheric Admin., Nat'l Weather Serv. Weather Forecast Off., Climatological Report for Caribou Maine (Aug. 26, 2008), http://www.crh.noaa.gov/product.php?site=LOT&product=CLM&issuedby=CAR.

126. *See* AMERICAN WIND ENERGY ASS'N, *supra* note 25.

127. *See id.*

128. *See* Donald N. Zillman, *Wind Power Development in a Small State: The Case of Maine, in* LEGAL SYSTEMS AND WIND ENERGY: A COMPARATIVE PERSPECTIVE 320-33 (Helle T. Anker, Brigitte Olsen, & Anita Ronne eds., 2008).

129. The campus was fortunate to have the Chief Financial Officer and the Director of its Physical Plant as two of the strongest advocates for renewable energy use. Both economics and engineering were well studied on campus. When the President's legal background was added to the mix, the campus had a useful team for negotiations with other members of University of Maine at Presque Isle's team (Team UMPI), prospective bidders, and various regulators.

first potential project considered was the use of geothermal energy for the newly constructed Gentile Hall classroom and recreational complex. This building, with a swimming pool, dressing and shower rooms, and large open spaces promised to be an energy hog. Geothermal energy looked like an attractive alternative to carbon-fueled energy sources. Considerable work and some money went into geothermal planning until a study of the actual heat resource provided bad news—the geothermal potential was too poor to justify even a "green-motivated" investment.

Thoughts then turned to wind, a highly observable resource at the "campus on the hill" overlooking Presque Isle City. Players and spectators who had watched decades of soccer matches and run dozens of cross country races on the campus playing fields would doubtless have deemed the wind potential of the site excellent. However, the geothermal experience cautioned a more careful study.

The University entered into a contract with the University of Massachusetts at Amherst Renewable Energy Research Laboratory (RERL). Funding was provided by the DOE. RERL agreed to collect twenty months of wind data on the campus. RERL installed a small tower and anemometer on the playing fields close to the anticipated site of the wind turbine. Anemometers and wind vanes were installed at heights of ten, thirty, and thirty-nine meters above the tower base. In addition, RERL gathered the lengthy studies of wind at the Caribou Municipal Airport, less than fifteen miles from campus. On-campus recording began in November 2004. The study was completed in July 2006.[130]

While the data was being gathered, UMPI and the University System hired a Bangor engineering consulting firm, Woodard and Curran (W&C), to serve as project consultants.[131] The RERL data was turned over to W&C at the completion of its wind assessment.

While campus leaders waited for W&C's report, they kept "thinking wind" in a variety of ways. Leaders met with local members of the Maine Legislature and the field representatives of Maine's federal congressional delegation. State legislators were enthusiastic but had little to offer in the way of dollars. Federal representatives could not identify specific federal agency grant programs that fit the needs of the campus. They did, however, agree to submit a congressional earmark to support the project.

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130. WOODARD & CURRAN, UMPI WIND POWER PROJECT: WIND RESOURCE ASSESSMENT, at ES-2 (2007); *see also* Univ. of Maine at Presque Isle, Project Timeline, http://www.umpi.edu/wind/timeline (last visited Sept. 30, 2009).

131. Letter from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Director of Facilities, UMPI (Oct. 30, 2006) (on file with author); WOODARD & CURRAN, STANDARD TERMS AND CONDITIONS 1 (2006) (on file with author).

Two winter wind events in 2007 also sharpened the campus's thinking. On a negative twenty degrees Fahrenheit bright February day, campus leaders took an up-close tour of the Mars Hill project. They returned frozen but energized by the site of twenty-eight 1.5 MW wind turbines generating electricity in the depths of the Maine winter. A week later, a howling winter storm discouraged attendance, but not the vigor of the fifteen participants at a "community wind" presentation on campus.

On February 16, 2007, UMPI signed as a charter member of the Presidents' Climate Commitment.[132] This nationwide effort sought to enlist public and private universities in the fight against global warming. UMPI felt that the wind turbine would be a significant pledge to the Climate Commitment.

W&C released the findings of its consulting firm Wind Resource Assessment to campus officials in March 2007.[133] The report dampened early enthusiasm that UMPI might replicate the Mars Hill commercial project. The campus wind was considerable, but not of Mars Hill investment quality. That finding ended plans to erect two 1.5 MW turbines at a suggested cost of $7.5 million. The "fair" quality of the campus wind resource also discouraged a project that might supply lower cost power to neighboring educational institutions, the Northern Maine Community College and the University of Maine at Fort Kent.

The W&C report did raise the prospect of a "for campus only" turbine that would make use of the estimated 1,700 annual hours of operational wind. The report cautiously suggested: "Nevertheless, a wind power project may be viable as a break-even venture if federal and state grants can be secured and the University System is willing to undertake the project without private investment partners."[134] That fact encouraged use of a turbine of approximately 500 kW in size.

Given that the life expectancy of a turbine is 20 years, this would make a smaller turbine system such as this or any up to 500 kW in size economically viable if UMPI could secure the funds necessary for the initial investment. Further analysis of the seasonal trends and demand data would likely show that a larger generating capacity may also be economical, provided that such systems were available.[135]

The total cost of planning, engineering, and installing a 500 kW

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132. The Climate Commitment is an agreement among college and university presidents to move their campuses towards carbon neutrality as part of the effort to retard global warming. For more information, see generally http://www.presidentsclimatecommitment.org.

133. WOODARD & CURRAN, *supra* note 130, at ES-2.

134. *Id.*

135. *Id.* at ES-3. W&C also noted "seasonal wind characteristics . . . allow peak energy production during high electrical consumption periods on campus." Memorandum from Jim Wilson, Vice-President, Woodard & Curran, to Charlie Bonin, Vice-President for Fin. & Admin., UMPI (Apr. 6, 2007) (on file with author).

project was estimated at $2.35 million or more.

The W&C report also concluded that permitting, a significant issue in view of the failure of other Maine wind projects, appeared manageable. The campus location appeared to cause limited wetland interference—a major concern of the Maine Department of Environmental Protection (DEP). Despite the Report's lengthy examination of potential harm to bird life, the turbine's location and design and the local areas of prime bird habitat appeared to offer minimal concerns.[136] General zoning and land use authority rested with the City of Presque Isle's Planning Board. The report noted that "many at Presque Isle City Hall have expressed excitement about the project, so local permitting is not anticipated to be a significant barrier."[137] Lastly, the turbine location within three miles of the Northern Maine Regional Airport and the likely use of a tower and turbine higher than 200 feet required FAA permitting. The major FAA requirement noted in the Executive Summary was the need for lighting on the tower to signal aircraft away.

The concluding paragraph of the W&C Executive Summary captured the decision facing the University. "This would be a sound economic strategy that would take advantage of the available wind, reduce energy costs, demonstrate the University's commitment to sustainable energy, and create a blue print for sharing this technology with other campuses."[138] A subsequent letter concluded: "[S]ite permitting of this project should be straightforward, but it should be in place before the turbine(s) are purchased."[139]

The president's diary reflected: "We are chastened but still interested." Formal and informal wind discussions with faculty, staff, and students on campus continued. They revealed highly positive attitudes about continuing the wind project, even at a reduced scale.

A further funding opportunity, beyond federal earmarks or direct state legislative subsidy, came in the form of legislative proposals for statewide votes on various bond projects in the November 2007 election. One bond project proposed to fund University System and Community College System construction projects. UMPI officials strongly urged that the wind turbine qualify as an acceptable bond project. Unfortunately, University System personnel and/or legislative sponsors felt the wind turbine might confuse or alienate the voters. Voters were seen as

136. *See* E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (June 27, 2007, 13:14:02 EST) (discussing noise and visual impact issues) (on file with author).

137. WOODARD & CURRAN, *supra* note 130, at ES-3; s*ee also* Memorandum from Jim Wilson, Vice-President, Woodard & Curran, to Dave St. Peter, Dir. of Facilities, UMPI (July 19, 2007) (on file with author) (stating that City procedures required only application for a building permit).

138. WOODARD & CURRAN, *supra* note 130, at ES-3.

139. Letter from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Apr. 5, 2007) (on file with author).

ready to back bricks and mortar classroom construction, but not renewable energy projects.[140]

C. The Commitment: April to September 2007

In early April, campus leaders met and informally committed to move ahead with the construction of a single mid-size turbine as recommended by the W&C study. Campus enthusiasm continued to be high. An informal meeting with the State Public Utility Commissioner in mid-month suggested some financial help might be available from a Public Utility Commission (PUC) renewable energy grant program.[141] A further meeting with Maine Public Service, the regional electric transmission and distribution company, resulted in promises to help make the venture happen.

The campus decided to go public with its plans. A May 3 press conference announced the University's plans to install a mid-size wind turbine on campus as soon as feasible.[142] The campus statements spoke of a minimum annual savings of $100,000 on electric bills. The statement also emphasized the project's important role in meeting the Climate Commitment, its significance to UMPI's educational programs, and its value in leading other community development in mid-size wind projects. The University promised to open its books and to share its experiences.

Campus and community excitement exceeded what everyone had anticipated. Campus personnel reported delight with UMPI's visibility in the statewide news media, a relatively rare thing for the far northern campus. Two weeks later, Maine Governor John Baldacci served as a UMPI graduation speaker and praised the project as part of his speech's focus on "green energy." The day after the news conference, the DEP called with a promise of support for the project. The DEP did note that the Mars Hill project had received complaints about excessive noise from the turbines. However, overall, at the start of Summer 2007, everyone felt well-launched. One of the president's most revealing moments came on a cab ride from the Presque Isle airport to campus. The cab driver identified his passenger from the television coverage and expressed his delight with the project. The president's diary noted: "I

140. Ironically, the "sure thing" bricks and mortar bond proposition proved to be anything but that. Despite no organized opposition to the campus construction bond proposal and an advertising campaign supporting the construction bonds, the proposition passed statewide by only 51-49% with the proposition failing in the home counties of four of the University System campuses. Aroostook County supported the bond by a 55-45% margin, and in the President's considerable campaigning for a "Yes" vote, he encountered high enthusiasm about the wind project.

141. Letter from Denis Bergeron, Dir. Energy Programs Div., Me. Pub. Util. Div., to Donald Zillman, President, UMPI (on file with author).

142. Kathy McCarty, *UMPI Turns to Wind Energy*, PRESQUE ISLE STAR-HERALD, May 9, 2007, at 1-2.

think we have certainly jumped off the high dive."

Summer and Fall of 2007 were spent in study and planning. Team UMPI's three objectives were to explore further prospects for outside financial support, to begin the permitting processes, and to determine how to select the team that would purchase and install the wind turbine.

The major prospects for dollars were from federal sources. Talks with both federal agency officials and federal legislative staff received generally discouraging responses. UMPI did not fit the profiles for existing federal grant programs. Proposed federal programs offered promise but were a considerable distance from being ready to provide funding.[143] Team UMPI tried to calculate the point at which the University might disqualify itself from grant support by commitments already made. Was it signing a contract for construction? Beginning construction? Completion and first generation of electricity? Writing the checks? No firm answers were forthcoming.

The congressional earmark process ended up to be no more successful. The 2006 national election and the change of congressional control from Republicans to Democrats had unsettled the earmark process. If renewable energy was now attractive, earmarks were not. UMPI's request in the present legislative cycle did not get out of committee—along with many other virtuous and less virtuous projects. Prospects for the next legislative cycle were uncertain.

The dollars were far smaller but the result more satisfactory at the state level. UMPI filed for a PUC grant in August.[144] In September, the campus was notified of a $50,000 grant, the largest statewide grant given under the renewable energy program.[145] A pleasant press conference saw a passing of the check from the Public Utility Commissioner to the president.

The overall result of the dollar search forced the campus to recognize that it might have to fund the project largely from its own resources. Happily, sensible economies over several decades had built sufficient campus reserves to absorb the cost and still leave some re-

143. E-mail from Philip Bosse, Field Rep., U.S. Sen. Susan Collins Off., to David St. Peter, Dir. of Facilities, UMPI (Jan. 23, 2008, 11:47:00 EST) (on file with author); E-mail from Peggy Markson, Comm. Coordinator, Univ. of Me. Sys., to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Dec. 21, 2007, 09:08:00 EST) (on file with author); E-mail from John Sheehan, Bus. & Cooperative Specialist, U.S. Dep't of Ag., to Philip Bosse, Field Rep., U.S. Sen. Susan Collins Off. (Jan. 25, 2008, 12:30:00 EST) (on file with author). Discussion of federal earmarks had been underway as early as November 2004. Letter from William Shields to Philip Bosse, Field Rep., U.S. Sen. Susan Collins Off. (Nov. 5, 2004) (exploring federal legislative interest in a campus wind power project) (on file with author).

144. *See* Request for Proposals, Grant Proposals for Demonstration Projects Under the Voluntary Renewable Resources Fund, Me. Pub. Utils. Comm'n: Energy Programs Div. (May 30, 2007) (on file with author); Letter from Donald Zillman, President, UMPI, to Denis Bergeron, Dir. Energy Programs Div., Me. Pub. Util. Div. (Aug. 28, 2007) (on file with author).

145. Letter from Kurt Adams, Chairman, Me. Pub. Utils. Comm'n, to Charles Bonin, Vice-President for Fin. & Admin., UMPI (Sept. 24, 2007) (on file with author).

serves on hand. Explorations for "free money" continued but project planning moved ahead on the premise that the University might be paying for this out of its own reserves.

Permitting research moved forward driven by the W&C report's conclusion that there were no serious permitting obstacles of the kind that had killed other Maine wind ventures. The University needed to go through the processes, but no killer obstacles showed themselves.

Team UMPI expressed a willingness to accept any reasonable suggestions on permitting to defuse possible objections to the project. One example was turbine noise impacts. The site originally proposed appeared to risk violation of City decibel limits for nearby housing. A relocation of the turbine site followed to remove that risk.[146]

Part of the permitting problems involved exactly what the University was seeking to permit. It knew the general location of the project—the 155 acres of University fields south of campus; but, the University was not sure of the exact spot. UMPI knew it wanted to install a 500 to 900 kW turbine on a several hundred-foot tower; but, it was not sure of exact dimensions. The University also could not identify the exact price it would be paying. Discussions with the various permitting agencies moved ahead in general terms but awaited specifics.

One vital "permitting" stop was the University of Maine System Board of Trustees, the single governing body for all seven statewide campuses. While UMPI could have argued that it was spending campus reserves and that the matter was internal to the campus, that hardly seemed sensible politics. The May press conference had made the wind project quite visible. The several million dollar cost was hardly a small routine campus expenditure. Frankly, if the governing authorities were not supportive, the wind project was less attractive and should likely be abandoned.

UMPI was encouraged by the specific support of the System Chancellor. He had recently proposed a five point Agenda for Action for the System.[147] The third of five agenda points was entitled "Environmental Stewardship."[148] Its goal was that the System "be recognized as one of the most environmentally responsible university systems in America."[149] Mentions of the Presidents' Climate Commitment and encouragement of curricular and outreach activities in the Agenda also played to

146. Letter from Sarah Nicholson, Vice-President/Project Manager, Woodard & Curran, to Jerry McAvaddy, Code Enforcement Officer, City of Presque Isle (Oct. 30, 2007) (examining noise, harm to birds and bats, and historical or natural area disruption) (on file with author); E-mail from Scott Bodwell to Jim Wilson, Vice-President, Woodard & Curran (Aug. 31, 2007, 09:59:00 EST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Sept. 4, 2007, 08:01:34 EST) (on file with author).

147. RICHARD L. PATTENAUDE, UNIV. OF ME. SYS., AGENDA FOR ACTION (2008), *available at* http://www.maine.edu/pdf/AgendaforAction.pdf (last visited Sept. 30, 2009).

148. *Id.*

149. *Id.*

UMPI's hand.

The University prepared carefully for a discussion of the wind project at the September meeting of the Trustees. It asked permission for a $2 million total cost project that would install a mid-size wind turbine on campus property. The president and CFO were armed with data and prepared for the wide variety of questions that the project could legitimately have raised, including the possibility of instinctive dislike of wind power or too bold a campus entrepreneurial activity. Instead of a grilling, UMPI encountered a love fest. The president followed the old lawyer's advice: "When the judge rules for you, shut up and sit down." UMPI had its emphatic "Yes" in five minutes.

The most difficult part of the venture now became finding the right sellers of the goods and services UMPI needed. Campus resources were limited. UMPI's small Physical Plant staff had no wind power or heavy construction expertise. The University also had no expertise in the purchase of million dollar mid-size wind turbines.

In several stages, Team UMPI came together to guide the University through the contracting and permitting processes. It eventually consisted of the consultants from W&C, two representatives of the University of Maine System facilities office with considerable major construction expertise, a consultant who had been a leader in the Mars Hill project,[150] and a Bangor attorney with expertise in major contracting. At times, this collection of experts may have been unwieldy and slowed decision-making, and it did increase the overall expense of the project. But, all of the expertise was needed at different points of the project's planning and bargaining. On the whole, Team UMPI's relations were very collaborative and only rarely were there serious disagreements about the decisions that should be made.

UMPI and most University System contracting experience involved a well-identified product and a number of well-identified potential suppliers. In a standard university procurement, requests for bids would go out. Responses would be evaluated. Contracts would be awarded.

However, the mid-size wind turbine market posed far different challenges. UMPI could not simply pop over to Wal-Mart and order a 600 kW wind turbine with tower—"Oh, by the way, you do install, don't you?" Even major general contractors in the State of Maine had limited experience with such a project. Part of the question was exactly what goods and services were needed and from whom. Multiple conference calls shaped Team UMPI's strategy. UMPI needed the materials for the installation of a substantial foundation to support multiple tons of tower, blades, and nacelle. Those three pieces of heavy equipment

150. Letter from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Apr. 5, 2007) (summarizing the phases of the project) (on file with author).

might or might not be manufactured by the same company. All of that equipment would then need to be shipped to Presque Isle, Maine, arriving at approximately the same time. The components then needed to be installed with the help of a massive crane, other equipment, and skilled assemblers. The University also needed a 300-meter road to connect a paved campus roadway—which connected directly with U.S. Highway 1—with the turbine site. Lastly, it needed appropriate electric connections to move the generated electric power from the turbine to the local grid. In short, Team UMPI faced many steps, many participants, and still evolving markets.

Team UMPI's educational tour began in early June 2007. Campus and University System officials and consultants visited an operating wind site in Hull, Massachusetts. The 660 kW turbine impressed everyone and put the long-established Danish Vestas technology high on the team's list.[151] The hard work of the summer then fell to W&C as it scouted out wind turbine markets. In an August conference call, W&C provided more bad news than good. The market for mid-size wind turbines—the size UMPI needed—was volatile. Major American and overseas turbine manufacturers were shifting their emphasis to commercial-sized turbines of 1.5 MW, 2.5 MW, or even more. That shift in the market helped to raise prices of mid-sized turbines. A $2 million project—the sum approved by the University Systems' trustees—appeared doubtful.

The president got confirmation of that report on a late September trip to Denmark, the pioneering modern wind-power nation. The official purpose of the visit was to deliver two academic law papers on wind and renewable energy. In addition to a stimulating academic experience, the president met with Danish government officials and field tripped around Denmark where he was rarely out of site of a wind turbine. One message of the visit was that much Danish wind development was moving offshore where steadier breezes encouraged 2.5 MW or larger turbines in large arrays. A second factor for the move offshore was that even in renewable energy friendly Denmark, NIMBY (Not in My Back Yard) problems reared their heads. Not even Danes liked to live next to a wind turbine. The president shared his observations in a statewide Op-Ed article and at a Presque Isle wind conference that drew 115 registrants, a healthy gain from the corporal's guard that attended the winter community wind session.

151. Vestas is the world's leading supplier of wind power solutions and has over 38,000 of its turbines installed worldwide. For more information, see Vestas, Profile, http://www.vestas.com/en/about-vestas/profile.asps (last visited Sept. 30, 2009).

D. October 2007 to February 2008: The Search for the Contractor

As Team UMPI was searching for a contractor, the consultants were drafting a Request for Proposals (RFP). The result was a ninety-six page document entitled "REQUEST FOR PROPOSAL: WIND TURBINE PROJECT, Presque Isle, Maine," released in October 2007.[152] The summary paragraph read:

> Sealed Proposals are invited from technically competent, experienced firms for design, manufacture, inspection, packing and forwarding, supply, installation, foundation, testing and operation of Wind Energy Generator [WEG] in Presque Isle, Maine of 500 kW to 700 kW capacity, including annual maintenance for a period of two plus (2+) years after completion and acceptance from Wind Turbine Generator manufacturers/Collaborators approved by an International accredited organization.[153]

The Introduction repeated and elaborated on what the campus needed from the contractor:

> [The] UMS [University of Maine System] has decided to purchase a WEG with net minimum guaranteed generation through a single engineering procurement and construction (EPC) Contractor on turnkey basis. Responsibility of the operation and maintenance (O&M) of this wind power plant shall also be of the same EPC Contractor . . . . The EPC/O&M Contractor shall be responsible for complete design, engineering, procurement, erection, and operational testing of the wind power plant.[154]

The remainder of the bulky document detailed aspects of the wind project and included standard University System contracting provisions.

Despite an extension of the bid opening date from October 25 to November 15,[155] UMPI was underwhelmed with responders. On November 15, Team UMPI opened two bids. A Woburn, Massachusetts contractor, Lumus Corporation, made a bid for a turnkey operation at a price considerably above UMPI's anticipated maximum price and left several matters unanswered.[156]

A second bid came from a subsidiary of an electric utility company. Its bid centered on just the turbine purchase. It noted there were "simply too many options with regard to turbine sizes, rotor diameter, turbine electrical output . . . tower heights . . . to complete the bid package as sent out."[157] The prospective bidder further noted that turbine vendors "were unwilling to provide firm prices until they were sure that the

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152. *See generally* WOODARD & CURRAN, REQUEST FOR PROPOSAL, WIND TURBINE PROJECT (2008) (on file with author).

153. *Id.* at v (introductory material).

154. *Id.* at 1.

155. *Id.* at v, -2- (Addendum).

156. Letter from Devon Carter, Senior Project Eng'r, Woodard & Curran, to Joseph Currie, Senior Project Manager, Lumus Constr. (Nov. 20, 2007) (on file with author).

157. Letter from General Manager, Second Wind Util. Servs. Group, to Charles Bonin, Vice-President for Admin. & Fin., UMPI (Dec. 7, 2007) (on file with author).

order was going to be placed."[158] Further concerns centered on an increase in demand for turbines that made likely a delay in delivery of between nine and eighteen months and a reluctance of the manufacturers to guarantee any electricity production minimums from their products. A subsequent letter from the CEO of the company repeated the areas of concern and made clear that the company could supply only the electrical aspects of the project—it would need to partner with other companies to provide a full turnkey bid.[159]

Given the newness and complexity of the RFP, Team UMPI was not surprised that neither potential bidder had provided an immediately responsive offer to the RFP. Both companies' initial and follow-up responses left significant matters unanswered. Both companies indicated a willingness to continue negotiations. But, more troubling, both bidders suggested that their final offer might be well over the $2 million UMPI was authorized to spend.

Team UMPI formally rejected both bids as non-compliant and released the bidders from their bid bond.[160] The Team made clear to both bidders that it welcomed further negotiations over both the price and the services provided.[161]

The president's diary summarized a December 10 conference call with Team UMPI: "News not so good . . . ." The Lumus bid left many questions unanswered and looked to be beyond the University's price range. Nonetheless, it did respond to the need for a turnkey project. The second bidder posed even larger problems. In addition to price concerns, the bidder seemed inexperienced in handling all aspects of a major construction project and only modestly interested in pursuing the venture. That bidder gradually drifted out of consideration.

Team UMPI's work continued over the holiday break. A new option was to drop the insistence on a turnkey project and explore the costs of purchasing a turbine and tower alone and then looking separately at installation.[162] A January 15, 2008, conference call identified four prospects including Lumus. A W&C comparison sheet summarized turbine sizes from 600 kW to 900 kW, completion dates of from ten to fifteen months, and prices from $1.1 to $1.8 million dollars.[163]

Lumus's original bid proposed using a German-manufactured

158. *Id.*

159. Letter from President & CEO, Second Wind Util. Servs. Group, to Charles Bonin, Vice-President for Admin. & Fin., UMPI (Dec. 21, 2007) (on file with author).

160. Letter from Devon Carter, Senior Project Eng'r, Woodard & Curran, to Joseph Currie, Senior Project Manager, Lumus Constr. (Dec. 11, 2007) (on file with author).

161. *Id.* "The University of Maine System is still pursuing a wind project at this site to meet the available budget. If you are still interested in the possibility of working with UMS on a scaled back project, we would appreciate any suggestions you have regarding cost savings." *Id.*

162. E-mail From Jim Wilson, Vice-President, Woodard & Curran, to D. Jones (Feb. 14, 2008, 11:55:00 EST) (summarizing the steps following formal rejection of initial bids) (on file with author).

163. Woodward & Curran, UMPI Wind Turbine Bid Evaluation (Jan. 15, 2008).

Fuhrlander turbine. A separate bid through a supplier for Fuhrlander technology confirmed that it was probably beyond the University's price range. Team UMPI's attention then moved to the Indian turbine market. Both Lumus and an American middleman offered a turbine from India's Elecon Company.[164]

Team UMPI continued due diligence work on general contractors, suppliers, and turbine manufacturers. Lumus, the primary general contractor, was a well-regarded, mid-sized contractor with an attractive collection of public projects under its belt. However, Lumus had not yet completed a wind turbine project although it had several projects under contract. Elecon, the Indian manufacturer, was a major manufacturer but its wind power record was uncertain.[165] Also uncertain was the nature of the contract needed.[166] "Unfortunately, this industry is reversed [from a normal construction or vendor's contract] with the owner having to accept all the risk for purchase of a million dollars worth of equipment before it's even manufactured."[167] W&C summarized the problem: "I think we will all have to put our heads together to modify what is basically a building contract to fit the turbine project."[168]

The presence of a third-party supplier also complicated matters. Team UMPI received information that Elecon had entered into an exclusive dealing arrangement with a Kansas firm. Limited investigation suggested the Kansas firm offered little additional benefit to the University. The troubling question was whether the Kansas firm had an exclusive dealing arrangement with Elecon that made it the only way to secure an Elecon turbine with a resulting additional cost to UMPI.[169]

A January 28, 2008, letter from Lumus responded to Team UMPI's questions with the message: "We have every intention of moving forward . . . ."[170] The letter did address several old and new issues raised by the Elecon machine. Neither Elecon, nor Lumus was willing to guaran-

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164. Letter from Sumul Shah, President, Lumus Constr., to Devon Carter, Senior Project Eng'r, Woodard & Curran (Jan. 11, 2008) (on file with author).

165. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. & Joseph Currie, Senior Project Manager, Lumus Constr. (Jan. 30, 2008, 08:45:00 EST) ("[E]veryone is eager to do the project but no one seems to have much depth of experience. Elecon is relatively new to wind, Lumus is relatively new to wind, the University is new to wind, and W&C is new to wind although we have [a consultant] on board who is quite experienced.") (on file with author).

166. *Id.*

167. *Id.*

168. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Joseph Currie, Senior Project Manager, Lumus Constr. (Jan. 17, 2008, 10:18:00 EST) (on file with author).

169. Memorandum from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. (Feb. 1, 2008) (on file with author). "Please verify that Elecon is allowed to sell this turbine in the United States. We've been told by [the Kansas corporation] that they hold exclusive rights to sale of these turbines in the U.S." *Id.* "[W]e are in the process of settling this issue with our collaborators very soon." E-mail from V D Kalani to Pallav Shah, (Feb. 5, 2008, 05:43:00 EST) (on file with author).

170. LUMUS CONSTR. & FACILITIES SERVS., UNIV. OF ME., PRESQUE ISLE WIND PROJECT QUESTIONS & ANSWERS WITH ELECON 1 (2008) (on file with author).

tee an amount of power production. One-year warranties appeared standard in the Indian market. Cold weather operation, an area where Presque Isle differed from most of India, might be solved by a heating system.[171]

At the beginning of February, both Lumus and Team UMPI sensed that an agreement was close. A February 1 memo from W&C to Lumus presented twelve questions: half centered on Elecon's experience while others addressed delivery dates, warranties, and turbine specifications.[172] A three-page e-mail reply supplied generally favorable responses.[173] In mid February, Lumus CEO Sumul Shah visited the Elecon factory in India. He returned "thoroughly impressed with their professionalism and their approach to this project."[174] He urged UMPI to issue a letter of intent to Lumus "to establish our credentials in discussing this project with Elecon."[175]

Close, but not close enough. A February 15 e-mail to Team UMPI identified ten matters still needing resolution.[176] Familiar issues of contractor experience, warranties, cold weather performance, operations, and maintenance were featured. So, too, was the nagging concern of who needed to move first to gather information. The author of the message reported UMPI "will not be able to secure the information to complete the technical evaluation of the turbine itself until we sign a contract with Lumus or at least secure a letter of credit for the value of the turbine."[177] The message ended with mention of discussions with a California-based dealer of rebuilt turbines.

Enthusiasm for the Lumus proposal at the start of February had dampened by the end of the month. A diary extract on February 29 noted the Lumus proposal was drifting to a "No" answer, "given costs, inexperience and complexity." The only prospects for doing the project for $2 million appeared to be a new 250 kW Fuhrlander turbine or a rebuilt 500 kW Vestas turbine. Matters were "[f]rustrating but not terminal."

E. March to May 2008: New Prospects and a Licensing Delay

In March and April, Team UMPI explored new options and en-

171. *Id.* at 2.

172. Memo from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr., at 1 (Feb. 1, 2008) (on file with author).

173. E-mail from V D Kalani to Pallav Shah (Feb. 5, 2008, 05:43:00 EST) (on file with author).

174. E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Feb. 14, 2008, 20:31:00 EST) (on file with author).

175. E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Feb. 8, 2008, 02:11:00 EST) (on file with author).

176. E-mail from Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys., to Charles Bonin, Vice-President for Fin. & Admin., UMPI (Feb. 15, 2008, 16:06:00 EST) (on file with author).

177. *Id.*

countered another complication. At their March meeting, University System trustees inquired about delays in the project since its approval the previous September. Team UMPI reported about the market uncertainties and the contracting complexities. It emphasized its eagerness to continue exploration. That was sufficient to retain the trustees' support.

The search for a turbine continued. Vestas technology returned to serious consideration. In late March, members of Team UMPI flew to California to explore the purchase of a rehabilitated ten-year-old Vestas turbine.[178] The team was impressed with the rehabilitation operation and with the quality of the Vestas product. The concern, however, was long-term stability of the small business rehabilitator at a time that project risk was becoming an ever-more serious part of negotiations. Rightly or wrongly, the team concluded that the rehabilitation operation provided little guarantee of ongoing service for the turbine. The option was dropped.

Better Vestas news came from Lumus.[179] Lumus reported that a different Indian manufacturing firm, Vestas RRB of Chennai, had purchased the Danish Vestas technology for the manufacture of mid-sized machines. Blades were also manufactured in Chennai under the factory supervision of Vestas, Denmark.[180] Lumus offered a new and lower price for the total project.

This message was consistent with the reports of Vestas moving to larger machines for the off-shore market. An exchange of messages with Vestas and Lumus gathered further encouraging information.[181] The Vestas RRB was identical to existing Vestas Denmark turbines. While Vestas RRB exports to the United States were just beginning, around 450 Vestas RRB 600 kW machines had been installed in India. Cold weather heaters and an internet-based Supervisory Control and Data Acquisition (SCADA) system for gathering wind generation data could be supplied.

A subsequent exchange of messages clarified the Vestas Denmark and Vestas RRB relationship. Vestas Denmark had dropped its 49% ownership of Vestas RRB when Danish manufacturing of 660 kW units

178. E-mail from Gale Power Sys., to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Feb. 11, 2008, 23:44:00 PST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Mar. 6, 2008, 19:27:00 EST) (reviewing prospects for a rebuilt Vestas turbine) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Mar. 13, 2008, 11:05:00 EST) (on file with author).

179. Letter from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Mar. 10, 2008) (on file with author); E-mail, Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Mar. 6, 2008, 19:27:00 EST) (on file with author).

180. Letter from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Mar. 10, 2008) (on file with author).

181. Letter from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Mar. 21, 2008) (on file with author).

stopped. A technology transfer agreement remained that placed Vestas Denmark workers in India and Vestas RRB workers in Denmark. Vestas Denmark continued to supervise blade construction at Chennai.[182] The generally favorable news from Lumus and Vestas RRB meant that Lumus had jumped back into the favorite's role. An April 2 diary entry recorded that it "gets us almost to 'Yes' with Lumus."

At this point, the FAA entered the picture. The initial consultant's report had noted an FAA interest in our location site given its proximity to the small commercial Northern Maine Regional Airport.[183] However, the W&C Report suggested little concern about securing a permit. The necessary paperwork had been filed with the FAA in early January, and we anticipated a mid-March response.[184] A March 11 call to the FAA revealed there were some reservations that there may be a "presumed hazard." The FAA refused to comment further, and Team UMPI was left to weigh alternatives. One was to lower the overall height to fall below the 200 foot height above which the FAA had jurisdiction.

On April 3, Team UMPI received troubling news. An FAA Notice of Presumed Hazard stated:

> Initial findings . . . indicated that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.[185]

In order to receive a favorable determination, "further study would be necessary." That study involved public comment and an additional 120 days of study.

Phone consultation with the FAA gave hope. The Notice of Presumed Hazard was a standard form that did not necessarily indicate any specific objections to the project.[186] While the permit process could affect the schedule and the UMPI project would need to undergo various reviews, a favorable result was quite likely. A phone call to the Northern Maine Regional Airport manager confirmed that airport officials had no evidence of interference with flight paths or notice of objections from pilots or other interested parties. Team UMPI breathed more easily.

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182. E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Apr. 1, 2008, 08:54:00 EST) (on file with author).

183. The turbine would be located approximately 1.65 nautical miles from the Northern Maine Regional Airport Reference Point. FAA, AERONAUTICAL STUDY NO. 2008-ANE-101-OE, at 3 (2008) (on file with author). The FAA authority is spelled out in 49 U.S.C. § 44718 (2006).

184. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Mar. 13, 2008, 11:05:00 EST) (on file with author).

185. FAA, *supra* note 183, at 1.

186. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Apr. 7, 2008, 08:28:00 EST) ("As bleak as the letter makes it seem, IT ISN'T AS BAD AS IT LOOKS . . . .") (on file with author).

The University also immediately filed its request for approval with the FAA. The FAA responded that UMPI had "sent . . . exactly what [was] needed," a response that further boosted Team UMPI's faith in the federal processes.[187] The response promised that the University would have the FAA's determination during the week of May 19, 2008.

Since the FAA was open to public comment, Team UMPI felt a letter from the University president was appropriate. He provided the background to the UMPI wind project. The letter also noted the considerable public visibility of the project and the enthusiastic support for it. He also politely suggested that time was important to the contract negotiations. The letter concluded: "No need to get back to me if that fairly states where things stand. If I'm not correct, please let me know so that I don't misrepresent things."[188] He received no response.

By the end of April, Team UMPI felt it had progressed. It had one serious general contractor prospect in Lumus. It had located a satisfactory turbine manufacturer that was free of any third-party exclusive dealership obligations. Lumus also offered a schedule that could provide for late Fall 2008 operation of the project. The price was within range. Another discussion of the wind project on the local television station projected Team UMPI's confidence that it was close to a contract and also elicited no objections to the project. Permitting, particularly with the FAA, raised some concerns. But they seemed manageable with time.

Good things needed to happen in May. They did not. Lumus returned to the discussions with new contract provisions that increased some prices and pushed the anticipated date of completion to 2009.[189] Given Northern Maine weather, 2009 completion probably meant April or May rather than January. The prospect of losing some of the best wind months was painful. Equally frustrating was the inability to gather full information on the Indian manufacturer. How many turbines had it constructed inside and outside of India? What was its performance record? What were the specifications of the machine the University was purchasing?

Those uncertainties made Team UMPI even more concerned with warranties, operations, and maintenance on the completed project.[190]

187. E-mail from Mike Blaich, OE Air Space Specialist, FAA, to Laurel Grosjean, Woodard & Curran (Apr. 7, 2008, 17:13:00 EST) (on file with author).

188. E-mail from Donald Zillman, President, UMPI, to Michael Blaich, OE Air Space Specialist, FAA (Apr. 13, 2008, 08:04:00 EST) (on file with author).

189. E-mail from Joe Currie, Senior Project Manager, Lumus Constr., to Julie Crozier (May 5, 2008, 09:18:00 EST) (presenting The University of Maine System's preferred contract, AIA Document A101-1997) (on file with author).

190. E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (May 16, 2008, 12:09:00 EST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. (May 16, 2008, 10:22:00 EST) (on file with author); E-mail from Sumul Shah, President, Lumus Constr., to Jim Wil-

The Indian manufacturer, Vestas RRB, seemed insistent on a one-year maximum warranty.

Two further conditions involved penalties for delay in completion. For a time, Team UMPI proposed liquidated damages that would reflect "the value of the generation [lost] . . . every day the turbine is not available."[191] Lumus resisted. A second provision produced the concept of "wind days." What would have been thought to be good news was actually bad news—wind blowing so hard that construction activities would have to shut down.[192] The parties reached agreement on that concept, as everyone recognized it would be foolish to risk lives and property in the worst of Northern Maine weather.

Warranties and performance histories became sticking points as May neared its end and the campus moved to summer vacation mode. Hopes of an end of May contract-signing ceremony vanished, and Lumus's hope of "[l]et's get this done" remained unfulfilled.[193] Team UMPI remained firm on a two-year warranty.[194] Vestas RRB insisted on one year. The W&C representative summarized: "Fair or unfair, the University will interpret Vestas' unwillingness to provide a 2 year warrantee as a reflection of their risk management for turbines that apparently have problems in the second year."[195]

Vestas RRB seemed reluctant to share product information without a clear indication that a contract to purchase its product had been reached. Lumus, who had no prior relationship with Vestas RRB, was caught in the middle. Lumus pressured Team UMPI for some form of agreement to allow the manufacturer's information to flow. Team UMPI resisted committing to an unverified product. Lawyers and engineers faced an impasse. Mid-May optimism turned to end-of-the-month despair. The UMPI President left a May 28 conference call with Team UMPI feeling it was "still spinning wheels with another layer of lawyering . . . very frustrated."

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son, Vice-President, Woodard & Curran (May 22, 2008, 17:34:00 EST) (on file with author).

191. E-mail from Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys., to Jim Wilson, Vice-President, Woodard & Curran (May 20, 2008, 16:18:00 EST) (on file with author); E-mail from Sumul Shah, President, Lumus Constr. to Jim Wilson, Vice-President, Woodard & Curran (May 22, 2008, 17:34:00 EST) (on file with author).

192. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (May 20, 2008, 16:18:00 EST) (on file with author); Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (May 22, 2008, 17:34:00 EST) (on file with author).

193. E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (May 22, 2008, 17:34:00 EST) (on file with author).

194. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (May 23, 2008, 08:31:00 EST) (stating the one-year warranty "could be a deal breaker") (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. (June 2, 2008, 07:40:00 EST) (on file with author).

195. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. (May 27, 2008, 09:03:00 EST) (on file with author).

One positive development took place in May. The FAA approved a "DETERMINATION OF NO HAZARD TO AIR NAVIGATION" on May 23.[196] The UMPI President had been the single commenter on the proposal. Officially, a further public comment period of thirty days remained to be exhausted, but Team UMPI felt as if it was federally licensed for the installation of a wind turbine on a fifty-meter tower on campus.

A second piece of good news came with the construction of the road to the turbine site. The Army National Guard was scheduled for summer training in the Presque Isle area. Team UMPI reached an agreement to house the Guard detachment in vacant university dormitories. At the time, it was expected that the Guard's major civil works project would be the construction of an athletic field north of town. However, that project stalled in the face of local objection and the Guard was delighted to have a substitute project—the construction of the road from the dormitory parking lot to the turbine site. Over that road would come the construction equipment, the turbine, blades and tower, and the installation crane that would complete the campus wind turbine project. By the end of the Guard's stay, the University had its hard-packed dirt road.

F. June to August 2008: So Close and Yet So Far

During early June, Team UMPI emotions varied from "it's almost done" to "it's not going to happen"—depending on the day.

Permits were in hand or close to completion. The State Department of Environmental Protection Site Location of Development Act permit was approved following a June 10 findings of fact.[197] The findings specifically considered and approved the campus's treatment of noise, harm to scenic character, damage to wildlife and fisheries, and storm water management.

Road construction was complete. Vestas RRB appeared willing to extend its warranty to two years.[198] A W&C summary of Contract Negotiations of June 4, 2008 asserted Team UMPI believes "we are very near to an agreement and . . . willing to sign an agreement as soon as the details can be worked out."[199]

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196. FAA, *supra* note 183, at 1.

197. Letter from Jeffrey G. Madore, Div. Dir., Me. Dep't of Envtl. Prot., to UMPI (June 2008) (on file with author); ME. DEP'T OF ENVTL. PROT., FINDINGS OF FACT AND ORDER (2008) (on file with author).

198. E-mail from Praveen Siohi, Senior Manager (Export), RRB Energy, to Pallav Shah, Lumus Constr. (June 2, 2008, 09:52:00 EST) (on file with author); E-mail from Sumul Shah, President, Lumus Constr. to Jim Wilson, Vice-President, Woodard & Curran (June 3, 2008, 15:49:00 EST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. (June 3, 2008, 11:03:00 EST) (on file with author).

199. Letter from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President,

The devil was in the details, and a contract for equipment and construction still seemed just beyond reach. Full information on the performance of the Vestas RRB turbines remained inaccessible. Several price items remained under negotiation. The contract completion date continued to slip towards Spring 2009.[200] A June 17 diary reflection of "continued dithering" indicated that it might be time to go back to the drawing board, probably in the direction of one or two smaller turbines.

The next day a new player entered the field. The University System had been working on a variety of energy efficiency ventures with Purewind,[201] a large out-of-state general contractor. In conversations between Purewind representatives and members of Team UMPI, the wind turbine had come up.[202] The Purewind representative mentioned that Purewind had several wind projects completed or underway. Moreover, Purewind had entered into contracts with Vestas RRB and had access to the Vestas RRB data that Team UMPI had been missing. Purewind expressed serious interest in entering a bid for the UMPI project and, in fact, offered tentative bid terms a few days later.[203] The initial Purewind bid came in slightly higher than the Lumus bid.[204] Team UMPI representatives explained the ongoing negotiations with Lumus and that if those negotiations fell through Team UMPI might give Purewind a call.

A June 24 conference call among Team UMPI participants reviewed concerns with the Lumus proposal.[205] The first involved access to Vestas RRB data. Exactly what product was it planning to sell? Despite Lumus's encouragement to enter a contract, which would then encourage Vestas RRB to release the information, Team UMPI stuck to its "all information first, then contract" approach.[206] A second concern was a price increase of $96,000 in the revised Lumus proposal. Most of this was for operations and maintenance charges. These impediments encouraged Team UMPI to seek a formal proposal from Purewind.[207] The message concluded, however, with a note that Purewind appeared

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Lumus Constr. (June 4, 2008) (on file with author).

200. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Joe Currie, Senior Project Manager, Lumus Constr. (June 17, 2008, 09:04:00 EST) (on file with author).

201. The name is fictional.

202. E-mail from David St. Peter, Dir. of Facilities, UMPI, to Donald Zillman, President, UMPI (June 19, 2008, 09:22:00 EST) (on file with author).

203. E-mail from Senior Project Developer, Purewind, to Jim Wilson, Vice-President, Woodard & Curran (June 24, 2008, 13:11:00 EST) (on file with author).

204. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (June 24, 2008, 13:32:00 EST) (on file with author).

205. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Donald Zillman, President, UMPI (June 24, 2008, 11:09:00 EST) (on file with author).

206. *See id.* "[I]t was our consensus that the University would be in the strongest position if we could develop an agreement that results in the production of the technical data before the agreement is fully executed and any money changes hands." *Id.*

207. *Id.* "[It] seems like a prudent step in light of the recent price issues and concern over the inability to provide a complete technical data package before signing a contact." *Id.*

to have some of the same communications problems with Vestas RRB that Lumus had experienced. For the first time, UMPI had two bidders seriously interested in a contract with it.

The next month varied good days with bad. Further investigation by Team UMPI received solid endorsements of Purewind's capabilities. Team UMPI supplied Purewind with the request for proposals. Purewind's lawyers and engineers slowed action for necessary review. But Team UMPI's Purewind contacts continued to talk of a Fall 2008 installation.[208] Lumus learned of Purewind's entry into the competition. A June 27, 2008, message among Team UMPI members summarized: "Lumus is disappointed but still hanging in there. [Purewind] is scrambling and so far [has] not gotten us anything we didn't have Tuesday."[209]

Turbine details and performance records arrived with what seemed like painful slowness.[210] Engineering reviews were solid. The Vestas RRB 600 kW turbine under consideration looked like the time-tested Danish turbine. Performance records were good based on over 400 Indian installations and a few out-of-country installations.

One area of concern was operation at low temperatures, only a modest issue in India, but a major concern in Northern Maine.[211] Indications that operation might be inadvisable at temperatures below negative four degrees Fahrenheit were troubling. Team UMPI's concerns were both damage to the machine and the inability to generate power during attractive wind periods.

By late July, Team UMPI's challenge was to get the information to allow a precise comparison between the two interested bidders. Purewind messages promised to have a turbine on site in Presque Isle in October. Purewind also promised a sixty-five meter tower from a U.S. supplier.[212] The new tower raised issues about the validity of the FAA permit—issued for a fifty-meter tower.

A July 22 e-mail from Purewind offered to do the project for

208. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Andrew Perkins (June 25, 2008, 11:48:00 EST) (on file with author); Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (June 25, 2008, 07:33:00 EST) (on file with author); Jim Wilson, Vice-President, Woodard & Curran, to Donald Zillman, President, UMPI (June 27, 2008, 11:08:00 EST) (on file with author).

209. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Donald Zillman, President, UMPI (June 27, 2008, 11:08:00 EST) (on file with author).

210. E-mail from Senior Project Developer, Purewind, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (July 1, 2008, 14:44:00 EST) (on file with author); E-mail from P. Devendra, RRB Energy, to Praveen Sirohi, Senior Manager (Export), RRB Energy (June 23, 2008, 06:16:00 EST) (noting no significant breakdown or warranty problems and specifying Vestas RRB technical particulars of Pawanshakthi-600 kW Turbine) (on file with author).

211. Memorandum from Jim Wilson, Vice-President, Woodard & Curran, to Senior Project Developer, Purewind, at 1 (July 8, 2008) (on file with author); E-mail from Senior Project Developer, Purewind, to Jim Wilson, Vice-President, Woodard & Curran (July 9, 2008, 16:25:00 EST) (on file with author).

212. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (July 21, 2008, 15:08:00 EST) (on file with author).

$1,822,242.[213] The manufacturer for a modest additional price could provide cold weather protection to a satisfactory negative twenty degrees Fahrenheit.

Lumus responded that it was now able to provide the technical documentation from Vestas RRB. Lumus would hold to its previous price. Lumus also offered hope that Vestas RRB could deliver the turbine to Presque Isle "before the end of the year if we place our order this month."[214] The note also observed that Lumus had "worked extremely hard on this project and would hate to see it slip away at the last moment."[215]

A two-hour July 23 conference call among the Team UMPI members processed old and new information. Purewind's price had increased by $120,000. However, the higher tower promised 18% more electricity production, given the better wind exposure at greater heights. A diary note summarized, "[Purewind] still beats Lumus for responsiveness, connection with RRB, and ability to complete Fall installation." Team UMPI felt it had the basis for an agreement in principle with Purewind.[216] The diary summarized: "We are a long way beyond where [we] have been."

The change in tower height sent us back to the FAA. Team UMPI hoped that a fifteen-meter difference on a project that had drawn no expression of concern in the initial licensing of the fifty-meter tower could simply be handled by an amendment to our existing permit.[217] No such luck.[218] Team UMPI regretted but understood. The team was less understanding when it then asked: "We still retain the 50 meter license if we ask for an extension to 65 meters and it is denied, don't we?" "No" came the answer from the protectors of air safety. UMPI would need to surrender its existing fifty-meter permit and start over. Team UMPI's confidence in ultimate government fairness and the attraction of the Purewind proposal pushed it toward re-filing. The FAA clock started running again, leaving Team UMPI uncertain about a fall instal-

213. E-mail from Senior Project Developer, Purewind, to Jim Wilson, Vice-President, Woodard & Curran (July 22, 2008, 13:43:00 EST) (on file with author).

214. E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (July 17, 2008) (on file with author).

215. *Id.*

216. E-mail from Senior Project Developer, Purewind, to Jim Wilson, Vice-President, Woodard & Curran (July 23, 2008, 17:34:00 EST) (on file with author); E-mail from Donald Zillman, President, UMPI, to Richard Pattenaude (July 23, 2008, 15:19:00 EST) (summarizing the negotiations: "[W]hat a long journey this has been. Prudence has been a watchword throughout—possibly too much at times. We are dealing with a rapidly evolving world industry and a rapidly changing set of market factors.") (on file with author); E-mail from David St. Peter, Dir. of Facilities, UMPI, to Donald Zillman, President, UMPI (July 23, 2008, 15:37:00 EST) (on file with author).

217. Email from Donald Zillman President, UMPI, to Jim Wilson, Vice-President, Woodard & Curran (Aug. 25, 2008, 06:32:00 EST) (on file with author).

218. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Donald Zillman, President, UMPI (Aug 25, 2008, 06:43:00 EST) (on file with author).

lation, or even about its ability to sign a contract.[219]

Both Team UMPI and Purewind understood that considerable technical and legal reviews were required to move an agreement in principle to a signed contract. On July 28, Purewind supplied a four-page letter setting out the scope of work, exclusions and assumptions, and price and schedule. Its price was $1,772,242. Purewind promised commissioning and operation of a completed project by the fourth week of October 2008.[220] Team UMPI consultants responded on July 30. Purewind summarized those matters in an August 7, 2008, letter.[221] The exchanges reflected cautious legal and engineering discussions by both parties that appeared likely to lead to a final contract.[222]

On August 14, Team UMPI presented its formal offer to Purewind. It was drawn substantially along the terms of the original University RFP. The diary noted the crucial question: "Now will [Purewind] agree . . . ?"

The next day, Friday, August 15, ended with a 5:09 p.m. e-mail, followed by a letter from an attorney representing Lumus. The correspondence suggested considerable Lumus awareness of UMPI dealings with Purewind. The Lumus attorney indicated his client's displeasure that Lumus might lose out on the contract after nearly a year of hard and expensive work. The lawyer's argument mixed appeals to the equities of the matter—Lumus had been there since the beginning—with the suggestion of a legal argument that the discussions with Purewind violated University System competitive bidding requirements. A diary note: "Never boring" captured Team UMPI sentiments.

Two tough weeks followed. Purewind's lawyers rejected the UMPI offer but expressed a willingness to continue negotiating. Purewind put forward a twenty-nine page contract.[223] Purewind also asked for UMPI approval of an "Initial Notice to Proceed" that would commit UMPI to the purchase of "certain equipment" from a third party. This equipment was needed to begin construction of the turbine base in order to allow a fall completion of the project.[224] UMPI attempted to make the equip-

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219. E-mail from FAA to David St. Peter, Dir. of Facilities, UMPI (July 25, 2008, 07:07:00 EST) (on file with author).

220. Letter from Senior Project Developer, Purewind, to David St. Peter, Dir. of Facilities, UMPI (July 28, 2008) (on file with author).

221. Letter from Senior Project Developer, Purewind, to Jim Wilson, Vice-President, Woodard & Curran (Aug. 7, 2008) (on file with author).

222. Memorandum from David St. Peter, Dir. of Facilities, UMPI, to Jim Wilson, Vice-President, Woodard & Curran, at 1 (Aug. 12, 2008) (on file with author); Draft of Letter from Donald Zillman, President, UMPI, to Senior Project Developer, Purewind (Aug. 15, 2008) (stating UMPI "is excited to be finalizing our relationship") (on file with author).

223. CONTRACT FOR THE CONSTR. OF A 600 KW RRB ENERGY PS 600 WIND TURBINE GENERATOR BETWEEN THE UNIV. OF ME. [SYSTEM/PRESQUE ISLE] AND [PUREWIND] (2008) (on file with author).

224. LIMITED NOTICE TO PROCEED BETWEEN THE UNIV. OF ME. AT PRESQUE ISLE AND [PUREWIND] (on file with author).

ment purchase contingent on a final Purewind-UMPI contract.[225] For once, boldness trumped caution. Despite unease about purchasing material before a contract was final or the FAA permission was received, the attraction of a Fall 2008 completion pushed UMPI to order about $34,000 worth of specialized equipment for construction of the turbine base.[226]

A new complication came with news that the local utility company was demanding a substantial and unexpected charge for stranded costs of electricity generated from the wind turbine. A year of discussions with the local "wires company" had not previously raised this prospect.[227] The University was, in effect, given little credit for the power it would be generating from the wind turbine. The prospect of losing $50,000 of its annual savings in electricity costs prompted an August 21 diary note: "We may have reached the end of an ultimately frustrating three year saga . . . . Why didn't this get identified earlier?"

One encouraging part of a discouraging fortnight was Lumus's clear indication of continued interest in the project. Team UMPI's review of Lumus's lawyer's letter persuaded it that it was on solid legal ground.[228] Team UMPI had completed the request for bids required by University System bidding requirements eight months ago. Lumus and the other initial bidders had submitted non-compliant bids. Team UMPI was then free to begin negotiations with Purewind or continue negotiations with Lumus or any other parties to see if an agreement could be reached. Team UMPI's responses to Lumus also emphasized that it had reached no contractual agreement with the other bidder and that it needed Lumus's firm and final bid as promptly as possible.[229]

G. September to October 2008: Coming to Closure

The last week of August and the first week of September saw five negotiations in progress that would determine the future of the UMPI wind turbine project. Negotiations with Purewind moved in a few weeks from "close to a deal" to "fundamental differences separate the

225. E-mail from David St. Peter, Dir. of Facilities, UMPI, to Donald Zillman, President, UMPI (Aug 17, 2008, 13:48:00 EST) (on file with author); E-mail from Donald Zillman, President, UMPI, to David St. Peter, Dir. of Facilities, UMPI (Aug. 17, 2008, 16:07:00 EST) (on file with author); E-mail from Senior Project Manager, Purewind, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Aug. 26, 2008, 14:14:00 EST) (on file with author); E-mail from Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys., to Senior Project Manager, Purewind (Aug. 27, 2008, 09:58:00 EST) (on file with author).

226. E-mail from Donald Zillman President, UMPI, to David St. Peter, Dir. of Facilities, UMPI (Aug. 17, 2008, 16:07:00 EST) (on file with author).

227. Letter from Andrew Perkins to UMPI (Aug. 25, 2008) (on file with author).

228. Letter from Jim Wilson, Vice-President, Woodard & Curran, to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Aug. 21, 2008) (on file with author).

229. Letter from Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys., to Perkins/Thompson (Aug. 28, 2008) (on file with author).

parties." The differences in the contract forms favored by Purewind and by the University System ultimately reflected more than just lawyers' preferences for familiar forms. Purewind made it clear that it could not be a guarantor on many matters for which Team UMPI needed assurance in order to go forward. The contrast in positions became highly visible when Purewind forwarded to Team UMPI an Assignment of Warranty agreement for University signature. Once deciphered, that document placed the sole role of guarantor on a Canadian company that was evidently the distributor for the RRB turbine.[230] University System officials made clear that this was more risk than it was willing to take. Their fears, and UMPI's, were not helped when Purewind conceded in a conference call that it had only limited dealings with the Canadian third party. The prospect of needing to rely on an unknown foreign company for essential assurances in the project dampened UMPI's enthusiasm for Purewind. So, too, did further cost refinements. Purewind's proposal now appeared to cost well over $250,000 more than Lumus's proposal. Lastly, Purewind's attractiveness declined as the various delays understandably moved its promised completion date from October to December. There were expressions of enthusiasm on both sides, but the fundamental differences remained non-negotiable. A September 3 conference call with Purewind representatives probably ended Purewind's status as the favored bidder.

Purewind's exit from the bidding did leave open the issue of the $34,000 of equipment ordered from two suppliers on the assumption that Purewind would be the contractor of choice.[231] A letter from the Project Engineer offered Team UMPI the choice: either take delivery or cancel the orders with a 20% or 25% cancellation fee.[232] Team UMPI took the risk that the equipment would probably be useful to any contractor on the project and that its presence on site in Presque Isle might be very useful if fall construction schedules got tight. Team UMPI wrote the checks, took delivery, and hoped all would work for the best.

If news from Purewind was discouraging, news from Lumus was promising. Lumus expressed general satisfaction with using the University System contract. Lumus also seemed eager to be bound at the hip with UMPI in making sure all aspects of the project went well. Lumus also offered the delightful provision that if UMPI would change its terms of offer from the original fifty-meter tower to a sixty-five meter

230. ASSIGNMENT OF WARRANTY BETWEEN [PUREWIND], [CANADIAN COMPANY], AND UNIV. OF ME. [SYSTEM/PRESQUE ISLE] 3-4 (on file with author).

231. Letter from Charles Bonin, Vice-President for Fin. & Admin., UMPI, to Dale Michaud, Cianbro Corp. (Aug. 19, 2008) (committing UMPI to up to $35,000 for the purchase of "rock anchors and other supplies") (on file with author); Letter from Chad Allen, Project Engineer, Cianbro Corp., to Charles Bonin, Vice-President for Fin. & Admin., UMPI (Oct. 2, 2008) (on file with author).

232. Letter from Chad Allen, Project Eng'r, Cianbro Corp., to Charles Bonin, Vice-President for Fin. & Admin., UMPI, (Oct. 2, 2008) (on file with author).

tower, it would reduce the price by $25,000. Team UMPI was delighted to agree, both for the dollar savings and to remove the prospect of having to go back to the FAA with a third modification of its proposal.

The third negotiations were with the local utility about its service charges. Conversations with senior leadership indicated a willingness to assist in making the project work. Both parties expressed a wish to reach a "specific-to-the-project" agreement and present it to the PUC. Neither UMPI, the University System, nor the utility wished for a contentious PUC proceeding or even a resort to the Maine Legislature for rate relief. Further lawyering would be needed, but the end result appeared promising.

The fourth negotiations completed land use permitting with the City of Presque Isle. The ultimate bargaining was over dollars rather than matters of principle. Team UMPI urged the City to fix its building permit fee on only the costs of construction work on the UMPI site, not the full cost of the turbine, blades, and tower.[233] The City officials insisted on setting the fee according to the cost of the entire project.[234] Team UMPI acceded to the City's request.[235] While Team UMPI members felt its position was solid on both legal and equitable grounds, it also recognized that land-use licensing for a wind tower project had been both easy and inexpensive compared to other Maine wind power licensing efforts, both successful and unsuccessful.[236]

The final negotiations cleared any remaining issues with the Maine Department of Environmental Protection. The change from the fifty-meter tower to the sixty-five meter tower had the prospect of concerning the DEP as well as the FAA. Team UMPI asserted its view that with the same turbine, there should be no difference in the noise generated by the wind power system.[237] An engineering study showed no difference in noise impact.[238] State DEP officers agreed. The DEP noted about the permit condition:

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233. E-mail from Sarah Nicholson, Vice-President/Project Manager, Woodard & Curran, to Jerry McAvaddy, Code Enforcement Officer, City of Presque Isle (Sept. 2, 2008, 12:06:00 EST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Sept. 16, 2008, 14:47:00 EST) (on file with author).

234. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Sept. 12, 2008, 08:03:00 EST) (on file with author).

235. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Charles Bonin, Vice-President for Fin. & Admin., UMPI (Sept. 16, 2008, 14:47:00) (on file with author).

236. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Charles Bonin, Vice-President for Fin. & Admin., UMPI (Sept. 5, 2008, 07:55:00 EST) (on file with author); E-mail from Ken Arndt, Dir. of Planning & Dev., City of Presque Isle, to Sarah Nicholson, Vice-President/Project Manager, Woodard & Curran (Sept 3, 2008, 15:10:00 EST) (on file with author).

237. E-mail from Jim Wilson, Vice-President, Woodard & Curran (Aug. 25, 2008, 13:59:00 EST) (on file with author).

238. E-mail to Jim Wilson, Vice-President, Woodard & Curran (Sept. 2, 2008, 09:09:00 EST) ("The results show nearly identical results with same turbines at either 50 or 65 meters in height, so no impact on sound level analysis.") (on file with author).

> Prior to final selection of a specific wind turbine, the applicant will confirm that the noise performance specification of the planned wind turbine does not exceed the sound power levels used in the sound level prediction model by more than 2 dBA and that the turbine does not generate tonal sounds per Chapter 375(10).[239]

The DEP concluded: "This is fine and falls with[in] the requirements of the permit."[240]

The last two weeks of September pushed UMPI tantalizingly close to an agreement with Lumus. University System officials put together a good comparison of the two proposals.[241] Its author summarized:

> LUMUS Construction will provide a package that better meets the original turnkey/EPC expectations of the University and accepts much more[] responsibility for the administration of the risk during the 2 year warranty as long as they perform the O&M . . . . Given the very broad, long term exposure this type of project will create for the University. LUMUS Construction provides the least risk option and better price to the University at this point in time.[242]

The campus members of Team UMPI assessed the factors for decision.[243] The broader guarantees, the willingness to use a University System contract, and the overall enthusiasm to work directly with the campus now created an environment that favored Lumus.[244] So, too, did the measurably lower price Lumus offered that promised to keep the project within the $2 million limit. Purewind remained the larger business and somewhat more experienced in dealings with RRB and India. However, Team UMPI's comfort level with the turbine manufacturer had increased considerably over the last several months. A further Purewind advantage had been the promise of earlier completion of the project. However, the continuing delay as negotiations with both companies persisted and the unresolved FAA permit issue persuaded Team UMPI that neither Purewind nor Lumus could provide an operating turbine before Spring 2009. Still, the uncertainties discouraged a final rejection of the Purewind offer. A diary entry reflected "too much still

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239. *In re* Univ. of Me. Single Wind Turbine, L-21308-26-C-B (Me. Dep't of Envtl. Prot. June 10, 2008) (findings of fact order).

240. *Id.*

241. UNIV. OF ME. AT PRESQUE ISLE PROPOSAL COMPARISON (2008) (on file with author); E-mail from Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys., to Jim Wilson, Vice-President, Woodard & Curran (Sept. 4, 2008, 17:31:00 EST) ("LUMUS looks hard to beat . . . .") (on file with author).

242. PRESQUE ISLE PROPOSAL COMPARISON, *supra* note 241, at 2-3.

243. E-mail from Donald Zillman, President, UMPI, to Charles Bonin, Vice-President for Fin. & Admin., UMPI (Sept. 5, 2008, 10:47:00 EST) (on file with author).

244. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Brad Kites, Capital Planning & Constr. Manager, Univ. of Me. Sys. (Sept. 12, 2008, 08:03:00 EST) (stressing lengthy edits on the most recent Purewind contract) (on file with author); E-mail from Sumul Shah, President, Lumus Constr., to Jim Wilson, Vice-President, Woodard & Curran (Sept. 15, 2008, 21:55:00 EST) (Lumus finds the System contract "generally acceptable . . . [with] a few minor corrections") (on file with author); E-mail from Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys., to Jim Wilson, Vice-President, Woodard & Curran (Sept. 22, 2008, 18:16:00 EST) (stressing the importance of working with a single contractor) (on file with author).

unclear" in a process in which the unexpected had been the rule.

On September 24, another in the long line of Team UMPI conference calls resulted in unanimous agreement.[245] Lumus was the contractor of choice and only minor tinkering on the contract was needed. The diary reflected: "Could it really be?"

Lumus promptly agreed to Team UMPI's remaining contractual requests.[246] The team's worries now shifted from whether a contract would be signed to whether work on the project could start before Maine fall turned to winter and precluded most on-site work.[247]

The University System now became if not an adversary, at least an impediment. Diary entries of "Too many cooks," and "Let's get this done" reflected frustrations on campus. The first impediment was a University System request for another budget summary on the project. "Been there, done that," the team felt. The second impediment involved the FAA permit. The University's second Determination of No Hazard to Air Navigation was issued on October 16 with no indication of objection to the project. UMPI was good to go with the larger sixty-five meter tower. While Team UMPI had the FAA permit in hand, University System officials insisted that UMPI wait the further thirty-day period to exhaust the opportunity for citizen objection. Both the University and Lumus felt the chance of late stage objection was remote given all that had gone before. Further, the thirty-day wait could prevent serious late fall work at the site. University System officers disagreed. The University System felt the necessity of a "zero risk" policy. Team UMPI admitted that caution was understandable in view of serious University System budget crises and earlier, well-publicized financial mishaps. Once again, the clock started running on a review process, and Team UMPI kept its eyes on long-range weather forecasts for Aroostook County.

With lovely appropriateness, matters came together on October 21. Another conference call settled all aspects of the Lumus deal and had a contract ready for signing. The president's diary reflected: "How long

245. Letter from Jim Wilson, Vice-President, Woodard & Curran, to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Sept. 24, 2008) (discussing a summary of factors for the decision used in the conference call) (on file with author).

246. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Sumul Shah, President, Lumus Constr. (Sept. 30, 2008, 08:23:00 EST) (on file with author); E-mail from Sumul Shah, President, Lumus Constr. to Jim Wilson, Vice-President, Woodard & Curran (Sept. 29, 2008, 13:06:00 EST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Sept. 30, 2008, 17:47:00 EST) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Sept. 30, 2008, 17:45:00 EST) ("The latest series of emails look like we are getting closer to reaching agreement with Lumus.") (on file with author).

247. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Oct. 3, 2008) (on file with author); E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Oct. 7, 2008, 14:01:00 EST) (on file with author).

have we waited for this?" At the same time, UMPI hosted the second annual wind conference. Two hundred thirteen registrants packed the largest conference space on campus. In his morning remarks welcoming the group, the president reflected on the change from eighteen months earlier when fifteen hearty souls were willing to discuss community wind projects. By the time he closed the day-long session in late afternoon with an update on the campus project, he was able to disclose that he had signed an agreement with Lumus just two hours earlier. His brief message to campus read: "This afternoon I signed a contract for the construction of our wind turbine. Dave St. Peter, Charlie Bonin, and I are delighted to complete a very complicated and unpredictable year of negotiations. We are all pleased with the result."[248] Once the contract was signed, W&C sent a letter to Purewind thanking and excusing it from further participation in the project. One sentence captured the deal breakers between the parties: "Your most recent proposed terms and conditions and the assignment of risk, particularly in the warranty and operation and maintenance provisions, continue to be unacceptable."[249]

A final diary thought for October 21 summarized the contract discussions with Lumus: "Good to be partners at long last!" A week later, the new partners gathered on campus for a pre-construction review.[250] Campus officials were delighted with Lumus's desire to get started as soon as possible and to complete installation of the tower's base before winter precluded digging through frozen ground and pouring and settling cement in bone-chilling weather. The problem with the FAA permit protest period remained. University System officials insisted that Lumus take the risk of permitting problems stemming from an objection to the granted FAA permit.[251] Lumus was understandably reluctant to do so. The days between the October 30 meeting and the November 18 expiration of the FAA challenge period looked like the difference between substantial completion of groundwork in fall and the delay of any project work until a date uncertain in Spring 2009.

In a welcome display of good faith, Lumus agreed to take some of the risk.[252] They began relatively low-cost site surveying work in the first week of November. By the second week, earthmoving equipment

248. E-mail from Donald Zillman, President, UMPI, to All UMPI Students, Faculty, and Staff (Oct.. 21, 2008, 17:35:00 EST) (on file with author); *see also* E-mail from Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Oct. 21, 2008, 12:30:00 EST) (on file with author).

249. Letter from Jim Wilson, Vice-President, Woodard & Curran, to Senior Project Developer, Purewind (Oct. 21, 2008) (on file with author).

250. Its agenda and expectations were summarized in an e-mail. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Eduard Dailide, Dir. of Facilities Mgmt. & Planning, Univ. of Me. Sys. (Oct. 29, 2008, 09:33:00 EST) (on file with author).

251. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Donald Zillman, President, UMPI (Oct. 31, 2008, 09:41:00 EST) (on file with author).

252. *Id.* (summarizing Lumus's willingness to begin some work even without a guarantee).

arrived on site. When November 18 arrived with no objection from the FAA,[253] Lumus was ready to begin drilling ten holes, forty feet deep, into bedrock. These would provide the anchor for the tower and turbine. The project was underway.

The early start encouraged two separate press conferences to announce progress. The first conference, in the week of November 17, explained the beginning of construction that was quite visible from the main highway in town. A press release also announced that a formal contract signing and full description of the project work and timetable would take place the following Monday, November 24. The first press release attracted widespread attention. In addition to the local television channel, the news appeared statewide on the Maine Public Broadcast System, on statewide commercial television channels, and on two Bangor area radio stations. That coverage was picked up in Boston and Providence as well.

The first wave of coverage satisfied a few news outlets, but a camera crew and reporter from a Bangor television station made the 160-mile trek to Presque Isle—a relatively rare event—to provide a feature story for both the Bangor and Portland channels. The Presque Isle weekly newspaper published a lengthy lead story, and one local radio personality interviewed the major players. The press conference itself provided a detailed history of the project and introduced the Lumus team. Lumus President Sumul Shah made an excellent impression on the local audience and media as he described Lumus's historic restoration projects and described his passion for working with the campus on renewable energy technology. In a "too good to believe sound bite" he described his six-year-old daughter's description of daddy's work on carbon-neutral wind projects as meaning that Santa's house would not melt into the ocean.

If the contracting and permitting processes had often been slow and excruciating, actual construction began with remarkable efficiency. Lumus had been willing to purchase the equipment on site and was pleased to have it available to start work. If anything, UMPI came out slightly ahead on all aspects of the costs. A further delight was that Boston area Lumus officials had been pleased with the work of several of the Aroostook County subcontractors on the project. Doubtless, the Lumus team members were delighted to see work going forward efficiently on some bitterly cold days—by Boston standards—and with some snow on the ground. Within a week of the final FAA approval

253. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Nov. 17, 2008, 08:32:00 EST) (stating the FAA "has indicated they have received no petitions regarding the UMPI application and the FAA Determination of No Hazard. You are good to go.") (on file with author).

and the release of money to Lumus, half of the foundation holes had been completed.[254] By early December, all foundations had been completed and concrete had been poured to complete the turbine base.[255] A further piece of good news came in a December 23 e-mail from Lumus President, Sumul Shah: "It is with great pleasure that I am able to report to you that your wind turbine is ready for shipment."[256] A Lumus representative had inspected the turbine in Chennai, India.

Team UMPI entered 2009 recognizing that it was in the fifth calendar year of the project. Despite regrets and frustrations, the team was optimistic that matters were finally coming to a successful closure.

Team UMPI's attention now centered on bringing all of the required parts—tower, turbine, blades, skilled workers—together in Presque Isle, Maine at the same time. The first worry was the shipment of the blades and nacelle from India. Stories about threats of ocean piracy left the team nervous about movement of the RRB products from India to the east coast of North America. Gallows humor masked the team's nervousness concerning the real risks that ocean shipments faced in early 2009.

January winter in Aroostook County featured an all-time state record low temperature of fifty degrees below Fahrenheit, an hour north of the turbine site.[257] UMPI suffered a mere negative thirty-nine degrees Fahrenheit.[258] Team UMPI was quite happy that it had bargained for cold weather performance of the turbine down to negative twenty degrees. Below that, the team was ready to accept that many things shut down, including wind turbines.

President Zillman delivered the Foulston Siefkin Lecture at Washburn University School of Law in late February. During that most pleasant visit, he was able to report two pieces of good news. First, the initial section of the sixty-five meter tower arrived from South Dakota in Presque Isle. The silver conical section with its interior ladder impressed everyone with how large the project would be. It also validated the work of the Maine National Guard in its road construction; flatbed trucks with their multi-ton cargoes drove on the hard-packed dirt road in excellent fashion. The most serious problem in all the deliveries came

254. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to David St. Peter, Dir. of Facilities, UMPI (Nov. 20, 2008, 08:29:00 EST) ("[Lumus] ha[s] 5 holes completed and so far no surprises. Everything is consistent with the earlier Geotech work by SW Cole.") (on file with author).

255. E-mail from Jim Wilson, Vice-President, Woodard & Curran, to Donald Zillman, President, UMPI (Dec. 11, 2008, 08:21:00 EST) (on file with author).

256. E-mail from Sumul Shah , President, Lumus Constr., to Donald Zillman, President, UMPI (Dec. 23, 2008, 17:00:00 EST) (on file with author).

257. Tim Kelley, *All Time Record Cold Maine*, WEATHER NEW ENGLAND, Feb. 10, 2009, http://www.weathernewengland.com/tim-kelley/all-time-record-cold-maine/1001599.html; *see also* NAT'L OCEANIC & ATMOSPHERIC ADMIN., NAT'L WEATHER SERV. WEATHER FORECAST OFF., CLIMATOLOGICAL REPORT FOR CARIBOU MAINE (Jan. 16, 2009), http://www.erh.noaa.gov/car/News_Items/2009-01-16_item001.htm.

258. *See* NAT'L OCEANIC & ATMOSPHERIC ADMIN., *supra* note 257.

when one driver made a successful delivery of a tower section, but then became stuck on the ice when he tried to leave with a measurably lighter load. A local tow truck solved the problem.

The second piece of news came from our Presque Isle School District. It was considering installing wind generation and asked for UMPI's help. Team UMPI gave the superintendent and staff an early draft of this article together with the advice: "It's not as bad as it sounds." The team felt like pioneers providing the trail map to the later settlers. Team UMPI's promises of help with community wind projects took life. The team also reminded itself that imitation is the sincerest form of flattery.

By mid-March, all three tower sections were on site resting on their sides close to the tower base. The massive crane that would put the parts of the puzzle together arrived at the end of the month. Team UMPI took this as the best indicator that the shipment from India was nearing port. One week later, the team received word that the nacelle and blades were safely in port. Fears of piracy were extinguished.

A long history of watched pots rarely boiling continued to hold true. On April 14, the members of Team UMPI were going about their business. A phone call reported blades and nacelle forty miles down the road on Highway 1. Frantic phone calls alerted campus staff, news media, and the project's filmmaker. All parties arrived just in time as the flatbed trucks turned into campus. Audio seemed almost superfluous. The pictures of the monster blades and the bus-sized nacelle with the UMPI logo on the side told the story.

After the endless waits, construction moved almost too quickly. On April 15, the crane went to full extension. It provided the first indicator of how tall the tower would be. Team UMPI nervously anticipated a call from the FAA wanting one more review of possible interference with air commerce. Happily, it never came.

The following day saw the installation of the first section of the tower. The size seemed overwhelming and the structure appeared to be right next to campus buildings rather than several hundred meters away, across the athletic fields. It also reminded some of the tower of a nuclear plant, tall, conical, and open at the top.

The next day saw the completed installation of both remaining sections of tower and the nacelle placed at the top. Ironically, the completed whole seemed less massive than the first section. The University was probably getting used to its new neighbor. First responses to the aesthetics were positive. President Zillman breathed a special sigh of relief when UMPI's art faculty—creative artists themselves—pronounced the new symbol of campus as visually striking. Walks, drives, and runs around campus and greater Presque Isle also reminded

everyone of how visible the project would be. The one disappointment was that the UMPI logo on the nacelle was barely visible sixty-five meters in the air. Not to worry, Team UMPI reminded itself that people will make the connection.

Saturday, April 18 was supposed to mark the installation of the "nose cone" and blades. The wind intruded. Heavy breezes most of the day aborted the delicate operation. Having come this far, no one was excited about risking damage to equipment or the people installing it. Soon enough, high wind would be good news on the UMPI campus.

Sunday morning, April 19, dawned bright and still. A small gathering in the potato fields saw the installation completed between 7 and 8 a.m. The cone and blades had been assembled as a single unit. It was held in a sling attached to the crane. Ropes attached to the ends of the blades allowed some human control from the ground. Slowly and majestically, the crane lifted the parcel off the ground and maneuvered it into position to attach to the nacelle. Even the crewmembers pulled out cameras during the moments they were not needed for work. With the precision of a space shuttle link up, the two parts were joined, and everyone got their first look at the completed wind turbine.

The next three weeks were dedicated to testing and certification. Having seen the turbine go up so quickly, Team UMPI became concerned with why the turbine was not generating power. The experts from RRB and Lumus explained to the technical novices the need for many testing steps before full operation. Nonetheless, Team UMPI began to worry that its announced dedication ceremony on May 14 might fall well short of actual operation. Several nervous days followed as needed factory experts from India did not arrive.

At last, things came together two days before the big event. On the day before dedication, some movement of blades and nacelle persuaded watchers that things were getting close. Nonetheless, Team UMPI had several contingency plans ready as late as the morning of the dedication day in case the turbine was short of operational. The team also had memories of a first anniversary celebration of the Mars Hill commercial wind facility that took place on a perfectly windless winter day. Television cameras could not help but film motionless wind turbines.

On May 14, 2009, Presque Isle provided just the opposite visuals. Early in the morning, Team UMPI received word that the turbine was good to go. The president would push a computer button and the turbine blades would begin spinning. The weather forecast called for breezes up to fifty miles per hour. A question to the experts was: "Is that too much?" "No problem," they responded. The turbine is good for another ten miles per hour, at least.

Team UMPI felt validated in its decision to hold most of the dedi-

cation ceremony indoors. Speakers provided background to the project. Sumul Shah provided a well-received fifteen-minute course in Wind 101—how turbines operate and how the construction process took place. Federal, state, and local government representatives said nice things about the project and its lessons.

With that, everyone adjourned across the athletic fields into a breeze that sent caps flying and almost prevented walking. Once at the turbine site, a Native American drummer provided a symbolic welcome with a "what was old is new again" theme. Jim Wilson of W&C read a dedicatory statement crafted the previous evening by our media office and the president.

The next part of the ceremony had been carefully scripted for symbolic and media perfection. Alaya Shah, Sumul's daughter and author of the memorable "saving Santa's house from melting" quote, was to cut a ribbon on a big box. Biodegradable balloons would waft gently upward toward the blades and nacelle. When the balloons reached sixty-five meters, an operator in the nacelle would release hundreds of paper helicopters with the UMPI logo and dedication date. The helicopters would flutter gently to earth to provide a souvenir of the event for anyone wanting to claim one from the turbine site or the potato fields.

What happened was quite different. With help from Dad, Alaya cut the ribbon. The balloons caught the first gust of wind and went horizontally, rather than vertically. The operator waited an appropriate period and then released the helicopters. They caught a stream of the fifty mile per hour wind and headed toward Canada. So it goes.

The president was then ushered into the shelter of the tower control room. He pressed the magic button. Right on schedule, the blades began to turn, and there was applause from the crowd. Everyone happily adjourned back to the Campus Center for refreshments, conversation, and some of the first film footage of the project. The day was marked as a success.

The next day it was back to work. Testing and certification work continued. The wind was down but still productive. The University received about eight hours of electricity production. It also received the wonderful news that in mid afternoon, on the day before graduation, the turbine was generating all of the campus's need for electricity. On graduation day, everyone celebrated the accomplishment as parents and graduates took further photographs of the turbine in motion. Team UMPI felt that it had reached another milestone for the project.

IV. IS THERE A BETTER WAY? WIND ENERGY IN SPAIN AND THE EU

A. Introduction

The European Union (EU) is a leader in the development of renewable sources of energy. Within the EU, Denmark, Germany, and Spain are among the countries in which the proportion of wind energy—and matching demand—have grown significantly in past years.

Accordingly, Spaniards felt honored when President Obama, only two days before taking office, recognized Germany, Japan, and Spain as examples of countries that have successfully promoted renewable energies.[259]

The purpose of this contribution is to present an overview of the EU's policies toward renewable energies and, in particular, towards wind energy as well as the EU law related to them. Its purpose is also to provide a wider context in which the situation of wind energy in Spain, particularly off-shore wind farms, can properly be understood.

B. Renewable Energies in the European Union

1. The Existing Legal Framework

The main legal instrument for the creation of an internal electricity market in the EU is the 1996 Directive, which was repealed and substituted by the "*Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 Concerning Common Rules for the Internal Market in Electricity and Repealing Directive 96/92/EC.*"[260] The attention paid to renewable energies in this Directive is limited because it only refers to them in the following provisions:

> A Member State may require the system operator, [and/or the distribution system operator] when dispatching generating installations, to give priority to generating installations using renewable energy sources or waste or producing combined heat and power.[261]
>
> . . . .
>
> Member States may ensure the possibility, in the interests of environmental protection and the promotion of infant new technologies, of tendering for new capacity on the basis of published criteria. This tender may relate to new capacity or energy efficiency/demand-side management measures. A tendering procedure can, however, only be launched if on

259. *See* Pablo Cubel, *Renewable Energy in Spain: Details on the Government's New FIT Regulation*, RENEWABLE ENERGY WORLD.COM, June 4, 2009, http://www.renewableenergyworld.com/rea/news/article/2009/06/renewable-energy-in-spain-details-on-the-governments-new-fit-regulation. Specifically, President Obama remarked that Germany, Japan, and Spain are three countries that have made a "real investment in renewable energy." *Id.*

260. Council Directive 2003/54/EC, 2003 O.J. (L 176) 37.

261. *Id.* art. 11(3), at 45.

> the basis of the authorisation procedure the generating capacity being built or the measures being taken are not sufficient to achieve these objectives.[262]
>
> . . . .
>
> Member States shall designate . . . regulatory authorities . . . [to monitor] . . . (f) the terms, conditions and tariffs for connecting new producers of electricity to guarantee that these are objective, transparent and non-discriminatory, in particular taking full account of the costs and benefits of the various renewable energy sources technologies, distributed generation and combined heat and power . . . .[263]

However, the earlier 1997 *White Paper*[264] on renewable energies paid closer attention to renewable energy sources. It set an initial target of 12% gross inland energy consumption from renewables for the EU by 2010.[265] The 1997 *White Paper* also led to the adoption of *"Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market*"[266] and "*Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the Promotion of the Use of Biofuels or Other Renewable Fuels for Transport.*"[267]

The 2001 Directive constitutes an essential part of the package of measures needed to comply with commitments made by the EU under the Kyoto Protocol on the reduction of greenhouse gas emissions, and it establishes a goal of 21% energy share from renewable sources by 2010.[268] The Directive concerns electricity produced from non-fossil fuel renewable energy sources such as "wind, solar, geothermal, wave, tidal, hydroelectric, biomass, landfill gas, sewage treatment plant gas and biogases."[269] In order to facilitate exchanges and to increase transparency while facilitating consumer choice, the 2001 Directive also provides for a system concerning the "guarantee of origin" of electricity generated out of renewable energies—the so called green certificates.[270] These guarantees of origin indicate the renewable energy source from which the electricity is produced, the date and place of production, and

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262. *Id.* art. 7(2), at 44.

263. *Id.* art. 23(1), (1)(f), at 49.

264. *Energy for the Future: Renewable Sources of Energy, White Paper for a Community Strategy and Action Plan*, COM (97) 599 final (Nov. 26, 1997).

265. *Id.* at 9-10. The *White Paper* noted that this objective was "ambitious but realistic." *Id.* at 10.

266. Council Directive 2001/77/EC, 2001 O.J. (L 283) 33.

267. Council Directive 2003/30/EC, 2003 O.J. (L 123) 42. For more information on the law of Biofuels in the EU see Iñigo del Guayo, *Biofuels: EU Law and Policy*, *in* BEYOND THE CARBON ECONOMY, *supra* note 1, at 265-86.

268. Council Directive 2001, *supra* note 266, recital (3), at 33; art. 3(4), at 35; s*ee also Proposal for a Directive of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources*, at 3, COM (2008) 19 final (Jan. 23, 2008).

269. Council Directive 2001, *supra* note 266, art. (2)(a), at 35.

270. *Id.* art. 5(4), at 36.

in the case of hydroelectric installations, state the capacity.[271]

One of the obstacles identified for the promotion of renewable energies was administrative and planning procedures.[272] To help overcome this obstacle, the 2001 Directive requires member states to review their existing legislative and regulatory frameworks concerning authorization procedures.[273] Their goals in doing this are to: (1) reduce regulatory and non-regulatory obstacles; (2) rationalize and speed up administrative procedures; and (3) ensure that the rules are transparent and non-discriminatory.[274]

As to grid connection, member states are to put in place a legal framework guaranteeing the transport and distribution of electricity produced out of renewable energies; they may agree upon priority access for said electricity.[275] The 2001 Directive also asks member states to define and publish standard rules relating to: (1) the allocation of responsibility for the costs of technical adaptations needed to enable a new electricity producer, by means of renewable energies to feed their electricity into the interconnected grid; and (2) a complete and detailed estimate of the connection costs.[276] In this regard, member states may allow producers to "call for tender for the connection work."[277]

2. Moving Towards a New Sustainable, Secure, and Competitive EU Energy Policy

In early 2007, the European Commission published two policy documents affecting renewable energies. One was *An Energy Policy for Europe*[278] with an action plan and other initiatives to promote renewable energies; the other was the *Renewable Energy Road Map: Renewable Energies in the 21st Century: Building a more Sustainable Future*.[279] In *An Energy Policy for Europe*, the commission proposed a binding target which "increas[ed] the level of renewable energy in the EU's overall mix from less than 7% today to 20% by 2020"—the effort to be shared in an appropriate way between member states.[280] According to the European Commission, this "target will require a massive growth in all three renewable energy sectors: electricity, biofuels[,] and

271. *Id.* art. 5(3), at 36.
272. *Id.* art. 6(1)-(3), at 36-37.
273. *Id.* art. 6(1)-(2), at 37.
274. *Id.*
275. *Id.* art. 7(1)-(2), at 37.
276. *Id.* art. 7(4)-(5), at 37.
277. *Id.* art. 7(4), at 37.
278. *Communication from the Commission to the European Council and the European Parliament: An Energy Policy for Europe*, COM (2007) 1 final (Jan. 10, 2007) [hereinafter *Energy Policy for Europe*].
279. *Communication from the Commission to the European Council and the European Parliament: Renewable Energy Road Map: Renewable Energies in the 21st Century: Building a More Sustainable Future*, COM (2006) 848 final (Jan. 10, 2007).
280. *Energy Policy for Europe*, *supra* note 278, at 14-15.

heating and cooling."[281] The Commission realized that the existing measures regarding "renewable electricity, biofuels, energy efficiency and the Internal Energy Market have achieved important results but lack the coherence necessary to bring sustainability, security of supply and competitiveness."[282] The Commission admitted a failure in achieving the agreed targets for renewable energy and ascribed this failure to the relatively "higher costs of renewable energy sources today compared to 'traditional' energy sources – [and] the lack of a coherent and effective policy framework throughout the EU and a stable long-term vision."[283] Therefore, "[t]he first step is for Member States to endorse a strategic vision and an Action Plan for the next three years."[284]

The European Energy Council meeting, held in Brussels on February 15, 2007, marked a new starting point for a renewed and reinforced EU policy to promote the use of renewable energies.[285] In turn, the European Union Council meeting, held on March 8-9, 2007, had a remarkable impact on a new European energy policy, in general, and on biofuels in particular.[286] On the basis of the Commission's Communication, *An Energy Policy for Europe*, the European Council adopted a detailed energy Action Plan for 2007-2009.[287] The Action Plan spread the seeds for the emergence of an energy policy for Europe and provided a clearly-marked starting point for further action. The plan "fixe[d] highly ambitious quantified targets on energy efficiency, renewable energies[,] . . . and [it] call[ed] for a European Strategic Energy Technology [P]lan [(ESETP)]."[288] The ESETP provides for an overall renewable energies target of 20% by 2020 and provides that each Member State must be fully involved and contribute towards reaching it.[289] For that purpose, there is the need to fairly and adequately allocate partial targets among member states, taking into account starting points and potentials, and in particular, the level in which renewable energies currently contribute to the energy mix.[290] It will be for each member state to decide which targets must be achieved within each specific sub-sector of the overall renewable energies sector—electricity, heating, cooling, and biofuels.[291]

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281. *Id.* at 14.
282. *Id.* at 6.
283. *Id.* at 13.
284. *Id.* at 6.
285. *See* Press Release, Council of the European Union, 2782nd Council Meeting on Transport, Telecommunications and Energy (Feb. 15, 2007), *available at* http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/trans/92802.pdf.
286. Council of the European Union, Presidency Conclusions of the Brussels European Council, (Mar. 8-9, 2007) No. 7224/1/07 REV 1 (May 2, 2007).
287. *Id.* at 13.
288. *Id.* at 14.
289. *Id.* at 21.
290. *Id.*
291. *Id.*

3. Moving Towards a New Legal Framework in 2009

There was also a need to pass new legislation, in order to comply with the new 2007 EU policy. In the view of the European Commission, "[w]ith current policies and efforts in place, [and under the framework of the 2001 Directive], it can be expected that a share of 19% by 2010 – rather than the 21% aimed at—will be reached."[292] For those reasons, the Commission drafted a proposal to incorporate the targets envisaged in its 2007 document, *An Energy Policy for Europe*, into legislation. The draft is included in the 2008 *Proposal for a Directive of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources*, which was adopted in the first reading by an overwhelming majority of the European Parliament on December 18, 2008.[293]

This proposal led to the adoption of "*Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC.*"[294] This new directive fixes a binding target, in overall terms, of a 20% share of renewable energies consumption; moreover, it fixes a 10% binding target for renewable sources in the transport sector, which must be reached by each member state.[295] Additionally, it fixes national binding targets that must be consistent with matching the overall EU target of 20% by 2020.[296] The Commission stated in its Explanatory Memorandum of the Proposal: "[i]t is clear . . . that real progress only began to be made when the European Union adopted legislative instruments containing targets to be reached by a given deadline."[297] Moreover, to provide support for introducing the 20% target on renewable energies by 2020, the European Council concluded that the target was set, based on "security of supply, . . . environmental protection and for reasons of competitiveness of the renewable sector, which is currently a world leader in many sectors."[298]

The EU experience shows that leaving action exclusively to member states seriously risked fulfilling the aim and poses difficulties in equitably distributing among them the efforts needed to reach the 20% target. Additionally, leaving action to member states creates unnecessary investor uncertainty with regard to both the objectives that must be sought and the means. Indeed, the new Directive does not restrain itself

292. *Proposal for a Directive*, *supra* note 268, at 3.
293. *Id.* at 12-40.
294. Council Directive 2009/28/EC, 2009 O.J. (L 140) 16.
295. *Id.* recital (13)-(18), at 17-18.
296. *Id.* recital (13), at 17.
297. *Proposal for a Directive*, *supra* note 268, at 9.
298. *Id.*

to fixing targets, but rather helps member states choose the proper means for instituting better administrative, planning, and construction procedures, as well as information and training. The new Directive also addresses issues related to accessing the electricity grid and guarantees of electricity origin.[299] To avoid criticism from member states that the new Directive is too detailed and, therefore, gives too little room to each member state, the Council argued that the envisaged measures are proportionate—in other words, that community action is needed if the target is to be matched at all.[300]

Although the setting of binding targets surely contributes to changing the EU scenario, it should be noted that the new Directive still remains attached to the use and trading of certificates.[301] Yet, the key point for success with regard to the introduction of renewable energies relies upon the use of subsidies, rather than green certificates.

4. Wind Energy in the European Union

Wind is undoubtedly the most important source of renewable electricity. In some member states, wind energy is a reality—notably in Germany, Denmark, and Spain. And in other member states, wind is a promising resource which should grow and follow the path of successful countries. The highest proportion of wind electricity production is found in Denmark, but Germany and Spain have a larger installed capacity.[302] According to estimations of the European Commission, around seventy-five GW of wind capacity will have been installed by 2010—more than what was expected in 1997.[303] In fact, by 2010, wind will be the most important form of renewable generation in the EU with the exception of large scale hydroelectric.[304]

By following this trend, the EU will reinforce its position as one of the international agents promoting new electricity generation technologies. The success of wind, among other renewable energy technologies, lies in the fact that it is abundant; the required technology has a higher level of flexibility, as compared with other technologies; and there is a relatively mature industry available.[305] However, it could be said that using wind means taking advantage of some of the bad consequences of climate change, such as deforestation. Wind energy has other disadvan-

299. Council Directive 2009, *supra* note 294, art. 15-16, at 34-36.
300. *See id.* recital (96), at 26.
301. *Id.* art. 15(4)-(5), at 34.
302. *See* WORLD WIND ENERGY ASS'N, WORLD WIND ENERGY REPORT 2008 5 (2008), *available at* http://www.wwindea.org/home/images/stories/worldwindenergyreport2008_s.pdf.
303. *Communication from the Commission to the European Council and the European Parliament: The Share of Renewable Energy in the EU*, at 19, COM (2004) 366 final (May 26, 2004).
304. *See id.* at 13.
305. Aileen McHarg & Anita Rønne, *Reducing Carbon-Based Electricity Generation: Is the Answer Blowing in the Wind? in* BEYOND THE CARBON ECONOMY, *supra* note 1, at 288.

tages as well: it does not provide the electricity system with enough security, and it often has a major negative impact on the landscape.[306] Yet, if one had to compare costs among various new renewable energy technologies, wind is among the cheapest.[307]

C. Renewable Energies in Spain

Spain has successfully promoted renewable sources of energy for two main reasons: (1) the provision of generous subsidies in the form of purchase tariffs to kilowatts produced out of renewable energy sources and (2) the decentralisation of powers in favor of the autonomous communities.[308]

1. A Brief Overview of the Spanish Energy Sector

Spain relies mainly upon the consumption of oil and oil products. Consequently, Spain is heavily dependent on foreign sources of energy because there are no significant oil or gas fields in Spain. The largest share of national energy production is nuclear, and although there has been a remarkable increase in the use of renewable energies, there is still room for growth. Since 1985, imported natural gas has been Spain's primary energy source and has seen the fastest development.[309]

Spain shares with many other members of the Organisation for Economic Co-operation and Development (OECD) an energy policy which pursues objectives of diversification and security of supply. For example, Spain seeks alternative gas supplies (both piped gas and liquefied natural gas), addresses strategic stock obligations and emergency reserves in oil and natural gas, promotes natural gas consumption, energy savings and efficiency, and maintains environmentally-friendly energy policies.[310] The Spanish energy policy also strongly promotes the

306. *See id.* at 292.

307. *Id.* at 288; *see also Communication from the Commission: The Support of Electricity from Renewable Energy Sources*, at 26-29, COM (2005) 627 final (Dec. 7, 2005) (discussing the various generating costs of wind energy among countries in the EU).

308. *See generally* Iñigo del Guayo, *Energy Law in Spain*, *in* ENERGY LAW IN EUROPE. NATIONAL, EU AND INTERNATIONAL REGULATION 1077-1167 (Martha M. Roggenkamp et al. eds., 2d ed. 2007) (setting forth a complete analysis of the law related to energy in Spain).

309. In 2007, the respective amount of energy resources in terms of final energy consumption for Spain was as follows: 57.1% petroleum products; 20.4% electricity, 16.4% natural gas, 3.7% renewable energies, and 2.3% coal. SPANISH MINISTRY OF INDUSTRY, TOURISM AND COM., ENERGY IN SPAIN 2007 29 (2007), *available at* http://www.mityc.es/energia/es-ES/Servicios1/Destacados/LaEnerg%C3%ADaenEspa%C3%B1a2007.pdf [hereinafter ENERGY IN SPAIN]. As to primary energy consumption, the distribution in 2007 was as follows: 48.3% petroleum products, 21.5% natural gas, 13.8% coal, 9.8% nuclear, 5.4% renewables, and -0.3% electricity balance (imports *minus* exports). *Id.* at 32. The level of national energy production in 2007 was as follows: 46.9% nuclear, 25.8% renewable energies (excluding hydroelectricity), 19.2% coal, 7.6% hydroelectricity, 0.5% petroleum products, and 0.1% natural gas. *Id.* at 33.

310. For more information about Spain's participation and membership in the Organisation for Economic Co-operation and Development (OECD), see http://www.oecd.org/spain (last visited Sept. 30, 2009).

use of indigenous sources of energy, such as coal and renewable energies.[311] An interesting point is the ongoing procedure for the creation of an electricity market between Spain and Portugal, the so called Iberian Electricity Market or MIBEL, but endless obstacles seem to be delaying its effective functioning.[312]

2. The Special Generating Regime

Since the 1980s, the Spanish Government has tried to encourage the use of renewable energies, but not until the *1997 Electricity Sector Act* (ESA),[313] which introduced liberalisation and privatisation, did the government mark a starting point in such a direction by promoting renewable energies for electricity generation purposes. The ESA deals with the so-called *special generating regime*, as opposed to the *ordinary generating regime*, according to which electricity-generating activities will be regarded as generation. Under the special generating regime, electricity-generation activities are regarded as generation, when carried out in installations not exceeding fifty MW installed capacity, in the following cases:

> a) Self-generators (autoproducers) using cogeneration or other forms of electricity generation associated with nonelectricity operations, provided they involve high energy output.
>
> b) Whenever non-consumable renewable energies, biomass or biofuels of any type are used as primary energy, provided their holder does not engage in generation activities under the ordinary regime.
>
> c) Whenever non-renewable waste is used as primary energy.[314]

The generation of electricity from plants processing waste from the agricultural, cattle, and services sectors, having an installed capacity of twenty-five MW or below, is also considered generation under the special generation regime when there is high-energy performance.[315]

3. Premiums to Renewable Energies

According to the ESA, producers under the special regime benefit not only from priority dispatch access, but also from subsidies in the form of preferential purchase tariffs.[316] In that sense, producers of the

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311. *See generally* ENERGY IN SPAIN, *supra* note 309.

312. *See* International Convention on the Constitution: A Market of Iberian Electricity Between the Kingdom of Spain and the Portuguese Republic (B.O.E. 2006, 121); International Convention on the Establishment of a Market of Iberian Electricity Between the Kingdom of Spain and the Portuguese Republic (B.O.E. 2004, 132). The BOE is the Official Spanish Bulletin which contains Spain's statutes and decrees.

313. Law 54/1997 of November 27, 1997, on the Electric Sector (B.O.E. 1997, 285).

314. *Id.* art. 27(1)(a)-(c), at 42.

315. *Id.*

316. *Id.* art. 30(2)(a), at 44. Article 30(4) was amended by article 108 of Act 66/1997 on December 30, 1997, and article 108 of Act 14/2000 on December 29, 2000; both were amended with a view to allow an increase in premiums for some renewable energies. *See id.* art. 30, at 45.

special regime envisage a particular remuneration scheme. Remuneration is guaranteed, according to the original wording of the ESA, with an additional premium added to prices paid for electricity generated out of ordinary sources. This premium, in general terms, is fixed by the government within a range of 80% to 90% of the average electricity price.[317] Such a premium takes on the character of diversification and security costs of maintaining the electricity system. Thus, it is paid by electricity consumers and financed by the regulated tariff—the electricity tariff approved by the government—from which small and medium-size consumers benefit.

The general framework for renewable energies under the 1997 ESA and the guaranteed minimum remuneration had to be developed by Government Royal Decree 436 of March 12, 2004.[318] This decree managed to set forth a stable and attractive framework for companies investing in renewable energies by linking the premium to kWh's produced out of renewable energies to the average regulated tariff and also by generally fixing high percentages for premiums.[319] This framework helped renewable energies to grow. The growth, however, was below the objectives laid down by the 1999-2010 Plan on the Promotion of Renewable Energies, which foresaw a 12% use of renewable energies in total energy consumption by 2010.[320] Due to a change in the scenario taken into account by the 1999-2010 Plan, the need to adapt its forecasts to the 2001 and 2003 Directives, and, in particular, the unexpected growth of energy demand and energy intensity, the 1999-2010 Plan was substituted by a new 2005-2010 Plan.[321]

Despite political declarations of a stronger commitment towards the new renewable energies promotion plan, the governmental officials elected in 2004 softened the provisions of the ESA in 2006 by eliminating the Act's guaranteed minimum remuneration.[322] Although the 2004 Royal Decree was kept in force, the measure generated uncertainty for investors.[323]

Additionally, forecasts for new wind energy installations, of which Spain is the third largest producer in the world, were lowered by the 2005-2010 Plan, due mainly to the grid's lack of capacity and connection

317. *Id.* art. 30(4), at 44.
318. Royal Decree 436/2004 (B.O.E. 2004, 75).
319. *See generally id.* art. 22(1)(a), art. 32-40.
320. *See* SPANISH MINISTRY OF INDUSTRY, TOURISM AND COM., RENEWABLE ENERGY PLAN FOR SPAIN 2005-2010 7 (2005), *available at* http://www.idae.es/index.php/mod.documentos/mem.descarga?file=/documentos_PER_2005-2010_8_de_gosto 2005_Completo.(modificacionpag_63)_Copia_2_301254a0.pdf [hereinafter RENEWABLE ENERGY PLAN] (including and surpassing the 1999-2010 Plan); *see also* SPAIN—RENEWABLE ENERGY FACT SHEET 1 (2007), http://ec.europa.eu/energy/energy_policy/doc/factsheets/renewables/renewables_es_en.pdf.
321. *See generally* RENEWABLE ENERGY PLAN, *supra* note 320.
322. *See* Royal Decree 7/2006 (B.O.E. 2006, 150).
323. *Id.*

points.[324] These forecasts created problems for companies which had already received the relevant authorization for new wind energy installations. In that respect, the Spanish Electricity System Operator opined that Spain's Electricity System was only capable of allowing a maximum of 12% wind energy operating simultaneously with other electricity sources. Yet, that limit has been overcome. There are, however, governmental rules limiting the amount of wind energy that the electrical system can bear.[325] Royal Decree 661/2007, of May 25, 2007, substituted Royal Decree 436/2004, and in doing so, provided new financial stability to electricity producers using renewable energy sources.[326] In general terms, although premiums were lowered, the period of time in which they were to be enjoyed by producers was extended.[327] In 2005, measures were adopted increasing subsidies to biomass and co-combustion whenever biomass is used.[328]

With regard to premiums in favor of photovoltaic solar farms and in view of the draft Royal Decree fixing them, a controversy emerged in 2008 between the renewable energy industry and Spanish senior officials. This controversy led, as is always the case in political negotiations, to a decrease of the existing premiums, but not as much as the government announced.[329] The key question decided in 2007 by Royal Decree No 661/2007 was that: (1) existing premiums to photovoltaic solar farms were to be kept up to a deadline and (2) from the deadline forward, a new premium would be fixed for new plants.[330] After the controversy, Royal Decree No. 1578/2008, of September 26, 2008, did eventually lower the premiums for new plants.[331] Consequently, this sub-sector of the renewable energies industry is no longer such an attractive investment as in past years.

These developments show that the promotion of renewable energies needs a stable regulatory framework and, in particular, a stable amount of premium. The success of wind energy in Spain relies upon such a stable framework. This is in contrast with the situation for biofuels, solar energy, and biomass, in which the constantly changing condi-

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324. *See* RENEWABLE ENERGY PLAN, *supra* note 320, at 35-67.

325. *See* Royal Decree 661/2007 (B.O.E. 2007, 126); Royal Decree 1454/2005 (B.O.E. 2005, 306); *see also* Resolution of May 18, 2009, Approving Operation Procedures 3.7 & 9 for Adapting to the New Electrical Regulations (B.O.E. 2009, 129); Resolution of April 7, 2006, Approving Operation Procedure 8.2 Operating the Transport and Production System (B.O.E. 2006, 95).

326. Royal Decree 661/2007, *supra* note 325.

327. *Id.* Royal Decree 661/2007 has subsequently been modified. *See* Ministerial Order ITC/2794/2007 (B.O.E. 2007, 234); Royal Decree 222/2008 (B.O.E. 2008, 67); Royal Decree 1578/2008 (B.O.E. 2008, 234).

328. *See* Law 24/2005 of November 18, 2005, On Reforms to Boost Productivity (B.O.E. 2005, 277) (adding new provisions to article 30 section 5 of the Electricity Sector Act 54/2007, of November 27, 1997).

329. *See* Royal Decree 1578/2008, *supra* note 327.

330. Royal Decree 661/2007, *supra* note 325.

331. Royal Decree 1578/2008, *supra* note 327.

tions of governmental support have lead to a slowdown of investment and a loss of jobs in the field.

4. Renewable Energies and Decentralisation

The 1978 Spanish Constitution abolished the centralised character of the Spanish State and recognised the regions' right to autonomy.[332] As a result of the new constitutional provisions regarding the territorial organisation of the State, the entire Spanish territory is now divided into seventeen autonomous communities, which enjoy a remarkable level of self-government.[333] In several regards, decentralisation is higher than in federal States. For American citizens, it must be shocking that a small country such as Spain has been involved in such a procedure, but that is, in fact, what has happened. There is surely much more to come.

In overall terms, and in particular with regard to energy issues, decentralisation has been beneficial. Renewable energies installations with less than 50 MW of capacity are to be authorized by the governments of the autonomous communities.[334] This means both the elimination of administrative burdens—since the central government is not directly involved in the procedure—and the emergence of a kind of *regulatory competition*, in the sense that the autonomous communities have sought to promote renewable energies to attract investment. Note, however, that the subsidies to renewable energies are fixed by the central government, and they are unique for the whole country.[335] In fact, several autonomous communities have passed their own legislation on renewable energies.[336] The dark side of the picture is that autonomous communities have managed to promote renewable energies at the expense of central funds. And from time to time, they have used powers they do not really possess, such as the power to determine the evacuation points of electricity produced out of renewable energies.

D. Wind Energy

In 1997, Spain had 420 MW of wind-generated installed capacity, whereas by 2008, the capacity had multiplied, forty-fold, to a current

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332. Constitución [C.E.] art. 137 to 158.

333. The seventeen autonomous communities are: Andalusia, Aragon, Asturias, the Balearic Islands, Basque Country, the Canary Islands, Cantabria, Catalonia, Castile-La Mancha, Castile and Leon, Extremadura, Galicia, La Rioja, Madrid, Murcia, Navarra, and Valencia. Gibraltar should enjoy the same level of autonomy as the other Spanish communities as soon as it comes back to the Sovereignty of the Kingdom of Spain, in accordance with United Nations resolutions on the issue.

334. *See* Law 54/1997 of November 27, 1997, on the Electric Sector, art. 3(3)(c) (B.O.E. 1997, 285).

335. *Id.* art. 3(1)(b), at 13.

336. *See, e.g.*, Law 10/2006, of December 22, 2006, Renewable Energy and Energy Efficiency Savings for the Region of Murcia (B.O.R.M. 2006, 2).

16,740 MW of wind-generated installed capacity.[337] The 2005-2010 Renewable Energies Plan envisages a capacity of 20,155 MW by the year 2010.[338] Additionally, wind generation in Spain reached a new record on Thursday, March 5, 2009, around mid-morning when the electricity system had 11,180 MW of wind functioning production, producing 40% of the country's total electricity demand.[339] The previous record was set on Thursday, January 22, 2009, at around 7:50 p.m., when the peninsular electricity system had 11,175 MW of wind functioning production, producing 26% of the total electricity demand in the Peninsula—excluding the Balearic and the Canary Islands and the towns of Ceuta and Melilla.[340] Prior to that, three previous records were reached on November 24, 2008, when 43% of the Spanish Peninsula's demand was realized through 9,253 MW of production; April 18, 2008, when production reached 10,880 MW, representing 30% of the demand; and March 22, 2008, with 40.8% of demand and 9,862 MW of production.[341]

1. Prospects for the Development of Off-shore Wind Energy

Within the various norms dealing with the special generating regime, as applied to renewable energies, off-shore wind energy was only mentioned as one of the renewable sources of electricity entitled to premiums. But, as opposed to the other renewable energies, no further details were laid down. This surely has to do with the complexity of the licensing procedure necessary to building an off-shore wind plant. The relevant administrative procedure for awarding these licences was not fixed in any particular legal norm but rather in a disparate set of legal norms. In general terms, this set of norms involves the *Territorial Waters Act of 1977*;[342] the *Coasts Act of 1988*;[343] the *Harbours Act of 1992*;[344] and a variety of central and regional acts dealing with the environment, town and country planning, fisheries, and archaeological issues. Additional norms include the *Local Organisation Act of 1985*;[345]

337. *See* Press Release, Spanish Wind Energy Ass'n, Installed Wind Energy Capacity in Spain Reaches 16,740 MW with New 1,609 MW in 2008 (Feb. 2, 2009), *available at* http://www.aeeolica.es/userfiles/file/notas-de-prensa/090202%20NP%20Installed%20wind%20energy%20capacity%20in%20Spain%20reaches%2016,740%20MW.pdf.

338. RENEWABLE ENERGY PLAN, *supra* note 320, at 63.

339. Giles Tremlett, *Gales Set Wind Power Record for Spain: Fierce Winds Push North-west Spain's Wind Farms to Provide 40% of the Country's Electrical Power*, GUARDIAN, Mar. 6, 2009, http://www.guardian.co.uk/environment/2009/mar/06/spain-wind-power.

340. Press Release, RED Eléctrica De España, New Maximum of Wind Power Production: 11,175 MW (Jan. 1, 2009), *available at* http://www.ree.es/ingles/sala_prensa/web/notas_detalle.aspx?id_nota=80.

341. Kevin Grandia, Spain Breaks Wind Power Generation Record (Nov. 26, 2008), http://www.desmogblog.com/spain-breaks-wind-power-generation-record.

342. Law 10/1977 of January 4, 1977, on the Territorial Sea (B.O.E. 1997, 7).

343. Law 22/1988 of July 28, 1988, on the Coasts (B.O.E. 1988, 181).

344. Law 27/1992 of November 24, 1992, on the Harbors of the State and Merchant Marines (B.O.E. 1992, 283).

345. Law 7/1985 of April 2, 1985, Which Regulates the Bases of Local Government (B.O.E.

the *Public Administration and Common Administrative Procedure Act of 1992*,[346] the *Electricity Sector Act of 1997*,[347] and so on.

At the same time, because the project affects national, regional, and local interests, the various bodies involved in the final decisions are many. The central government retains powers, among other ones, regarding use of the coastal public domain, because it is declared by the Constitution to be vested in the State.[348] The central government also retains power over the basic aspects of electricity regulation, including management of the National Electricity System; whereas the governments of the autonomous communities enjoy powers related to town and country planning, including that of the coasts, the promotion of renewable energies, and environmental protection.[349] Finally, municipalities must have a word, and from time to time, a final say in activities which are to be developed within their territory. Moreover, although the territorial sea is not considered a portion of any municipality—since the waters are not, properly speaking, a part of the Spanish *territory,* though Spain exercises *sovereign rights* over them—off-shore wind farms must be connected to the on-shore national grid.[350] Eventually, its installations will affect the territory of a municipality.

With a view to overcome that situation, the Spanish Government passed Royal Decree 1028/2007, of July 20, 2007, which lays down a group of procedures to award licenses for the construction of off-shore wind energy facilities in Spanish territorial waters.[351] One of the novelties of this group of procedures—which was not foreseen in any of the existing legal norms—is that awarding licenses will be subject to a tender procedure, whereby, among other merits, the Spanish government will examine the amount of subsidy asked for by each applicant.[352]

A serious legal problem arises, however, when one considers that several companies seeking to install and operate off-shore wind farms at different locations on the Spanish coast and Canary Islands have already submitted license applications before the 2007 Royal Decree was passed. When these companies submitted their applications, they were not subject to a tender procedure, but some senior officials are of the opinion that their applications must be subject to the 2007 Royal Decree, including the tendering procedure. In contrast, those companies argue that it will be against the Rule of Law to deal with their applica-

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1985, 80).

346. Law 30/1992, of November 26, 1992, On the Legal Regime of Public Administrations and Common Administrative Procedure (B.O.E. 1992, 285).

347. Law 54/1997 of November 27, 1997, on the Electric Sector (B.O.E. 1997, 285).

348. Constitución [C.E.] art. 132(2).

349. Constitución [C.E.] art. 148(1)(iii), (vi), (ix), 149(1).

350. Law 7/1985 of April 2, 1985, Which Regulates the Bases of Local Government (B.O.E. 1985, 80).

351. Royal Decree 1028/2007 (B.O.E. 2007, 183).

352. *Id.*

tions under the provisions of the 2007 Royal Decree and not under the provisions in force when they submitted their applications—provisions they had in mind when reaching a decision on the investment. Therefore, there is current uncertainty about the beginning of off-shore wind energy in Spain. However, it could not be argued that EU law imposes the obligation to call for a tender procedure, because the wording of the 2003 Directive is clear when it states that:

> Member States may ensure the possibility, in the interests of environmental protection and the promotion of infant new technologies, of tendering for new capacity on the basis of published criteria. This tender may relate to new capacity or energy efficiency/demand-side management measures. A tendering procedure can, however, only be launched if on the basis of the authorisation procedure the generating capacity being built or the measures being taken are not sufficient to achieve these objectives.[353]

In light of this provision, it is clear that a tender procedure is not an exigency of EU law, but rather that it can only be launched under strict conditions, which do not seem to apply to those companies which had already applied for a licence. The uncertainty also derives from the fact that the governments of the autonomous communities of the Canary Islands and Galicia have applied to the Constitutional Court—the Court dealing with disputes between the central government and regions—for it to nullify the 2007 Royal Decree, insofar as they think it violates their powers on the issue.[354] Finally, the Spanish Electricity System Operator is due to include off-shore wind energy within its short-term forecasts, but it has yet to do so. On the other hand, the Spanish continental shelf is not, for geological reasons, the nicest place to install an off-shore wind energy farm. In turn, this may create an obstacle because the proper technology to install those farms further out to sea is not currently available.

V. CONCLUSION

New technologies often encounter legal and political difficulties. A wealth of factors shape law and policy. These factors are typically driven by real-world considerations, rather than by visionary thinking. Such is the case with the new versions of wind energy systems. It is not that existing laws intentionally oppose wind-power development. Rather, the new technology plays out against a set of laws and policies designed for other purposes that may come into conflict with the needs of an emerging wind industry.

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353. Council Directive 2003, *supra* note 260, art 7(2), at 44.

354. *See* Positive Conflict of Competence No. 9061-2007, in Connection with Royal Decree 1028/2007 (B.O.E. 2007, 313); Positive Conflict of Competence No. 9260-2007, in Connection with Royal Decree 1028/2007 (B.O.E. 2008, 27).

The issues are particularly visible in the United States, a nation that has almost prided itself on not having "an energy policy" or "policies." As the summary of United States wind law indicates, a wealth of law and policy have an impact on wind development. Multiple levels of government—local, state, and national—are involved. Multiple types of laws and policies intersect with wind development. A single wind project may encounter local land-use prohibitions, uses of federal lands, federal or state incentives, and health and safety laws. Some laws specifically encourage wind energy developments but rarely do they trump all other laws having their own constituencies and objectives.

The European Union takes a bolder approach to the promotion of desired new technologies including wind power. A public policy of "*we shall develop wind power unless compelling reasons oppose*" can ease many of the individual battles fought under a less direct approach to wind development. It remains to be seen how direct the Obama Administration and the U.S. Congress will choose to be now that wind power has attained a more favored status.

The experience at the University of Maine at Presque Isle suggests that energy pioneering can be slow, complicated, and unpredictable. In many steps of the process, Team UMPI was making up the rules or negotiating something new with governmental regulators. Working with newly emerging industries also posed problems. In looking back at the end of five years, many matters should have been easier. Developments like the UMPI project doubtless will make projects easier for future wind ventures, and everyone involved is very pleased to have played that role.

The adventure continues now that the turbine is up and operating. We await the completion of other community wind projects that borrow from UMPI's experiences. We await power generation results over a substantial period of time. We anticipate the glitches that will likely show up in any piece of sophisticated machinery. We look forward to new developments in the industry that may benefit us. Two or three years from now, we look forward to writing a follow up on the successes or failures of the turbine in operation. A fascinating story continues.