Utilizing Wind Power to Offset Agribusiness Utility Costs

by

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Originally published in DRAKE JOURNAL OF AGRICULTURAL LAW
12 DRAKE J. AGRIC. L. 475 (2007)

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I. INTRODUCTION

Renewable energy has become the world's fastest growing energy resource.[1] From wind and solar energy to biomethanation, advances in technology are rapidly creating an environment in which alternative and renewable energy sources are becoming cheaper, more reliable, and more accessible to individuals and companies seeking to reap the financial and environmental benefits of indi-

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1. Richard L. Ottinger & Rebecca Williams, *Renewable Energy Sources for Development*, 32 ENVTL. L. 331, 340 (2002).

vidual and independent energy production.[2] One group standing to benefit greatly from these technologies is the vast number of farmers and ranchers scattered across the United States. By integrating renewable energy systems into already existing farm infrastructures, farmers could supplement their incomes and save energy costs, while at the same time contribute to a cleaner and greener environment.[3]

This note will focus on the feasibility of farmers and ranchers implementing renewable energy systems, specifically windmills. To begin, the history of alternative energy policy in the United States will be discussed. The note will then examine various incentives and programs already in place that can help ease the financial burdens associated with these undertakings. Next, current barriers to the implementation of renewable energy production will be discussed. Finally, policy initiatives which would greatly reduce or eliminate these barriers altogether will be examined. Before beginning this discussion, however, it is necessary to briefly examine wind energy and its contribution to energy production in the United States and worldwide.

II. A BRIEF DESCRIPTION OF WIND ENERGY

Wind power technology and implementation have increased substantially over the past two decades.[4] Roughly 50,000 turbines are in operation worldwide, generating approximately fifty billion kilowatt-hours ("kWh") of electricity per year.[5] In proper perspective, current worldwide wind energy production equals the amount of electricity that could be produced by eight large nuclear power plants.[6] This is just a drop in the bucket, however, in terms of worldwide energy production capacity. The U.S. Department of Energy estimates that 5,800 quadrillion British thermal units ("BTU"), or quads, of energy per year could be pro-

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2. *See* Howard A. Learner, *Cleaning, Greening, and Modernizing the Electric Power Sector in the Twenty-First Century*, 14 TUL. ENVTL. L.J. 277, 279 (2001).

3. *Id.* at 291-92.

4. *See* Christine Real de Azua, *The Future of Wind Energy*, 14 TUL. ENVTL. L.J. 485, 490-92 (2001). *See* L. BIRD ET AL., NAT'L RENEWABLE ENERGY LABORATORY, POLICIES AND MARKET FACTORS DRIVING WIND POWER DEVELOPMENT IN THE UNITED STATES 5 (2003), *available at* http://eetd.lbl.gov/ea/EMS/reports/53554.pdf (noting that recent advances in technology, in the form of increased turbine size, have increased the efficiency of wind turbines by fifteen to twenty percent. This has increased the cost-effectiveness of wind power and placed it in a better position to compete with existing fuels such as natural gas.).

5. Am. Wind Energy Ass'n, *The Most Frequently Asked Questions about Wind Energy* 9 (2002), *available at* http://www.awea.org/pubs/documents/FAQ2002%20-%20web.PDF.

6. *Id.*

duced using the wind.[7] This is fifteen times the current worldwide energy demand.[8]

This energy potential has been tapped in the United States, but not to a large extent. As of June 2007, the United States generates approximately 12,600 megawatts ("MW") of electricity from wind power.[9] One study pegged the potential electricity that could be generated in the United States at 10,777 billion kWh.[10] Although the United States currently falls far short of its wind power potential, technological developments, coupled with education and rising energy prices, have prompted an increase in development.[11] This development has been spurred by incentives at both the federal and state levels, as well as through private efforts to promote research and development.[12]

Today's average "utility-scale" wind turbine has three blades, each forty meters in length, and sits atop an eighty meter tower.[13] Such windmills generate approximately 1.8 MW, or 1800 kilowatts ("kW"), of electricity at their peak output – enough to supply power to 600 homes annually[14] – and production capacity continues to rise with each increase in technology.[15]

However, not all turbines produce energy in such large quantities. A typical small scale, or residential, windmill stands about eighty to 120 feet high and generates one to twenty-five kW of electricity.[16] These turbines are generally used to help offset the electricity needs of individual residences and small farms.[17] The cost of these smaller turbines is also much lower than utility-scale turbines, with the price of a small wind system being $3,000 to $5,000 per kWh of generating capacity.[18] In contrast, utility-grade systems generally run in the millions of dollars.[19]

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7. *Id.*
8. *Id.* ("A quad is equal to about 172 million barrels of oil or 45 million tons of coal.").
9. Am. Wind Energy Ass'n, *Wind Energy Projects Throughout the United States of America*, http://www.awea.org/projects/ (last visited Nov. 12, 2007).
10. Azua, *supra* note 4, at 493.
11. Ottinger, *supra* note 1, at 353.
12. *Id.* at 341.
13. Am. Wind Energy Ass'n, *Wind Power Today* 2 (2004), *available at* http://www.awea.org/pubs/factsheets/WindPowerTodayFinal.pdf.
14. *Id.*
15. Am. Wind Energy Ass'n, *supra* note 5, at 2.
16. Am. Wind Energy Ass'n, *Small Wind Energy Systems: Frequently Asked Questions*, http://www.awea.org/smallwind/faq_buying.html (last visited Nov. 12, 2007).
17. *Id.*
18. *See generally id.* (A typical ten kW system costs approximately $40,000 installed.).
19. *See generally* Am. Wind Energy Ass'n, *The Economics of Wind Energy*, http://www.awea.org/pubs/factsheets/EconomicsOfWind-Feb2005.pdf (The cost of a typical 1.65 kWh turbine with an output of 5.6 million kWh per year is approximately $1.3 million.).

III. RENEWABLE ENERGY POLICY IN THE UNITED STATES

In the United States, federal law is currently the most developed in terms of policies and programs to encourage alternative energy. However, state initiatives have gained significant ground in the past decades.

A. *PUPRA and the National Energy Act of 1978*

In response to the "oil embargoes [of the 1970s], rising energy prices, and concern[ ] over air pollut[ion]," Congress enacted the National Energy Act of 1978.[20] The Act consisted of five bills written in an effort to "decrease the Nation's dependence on foreign oil and increase domestic energy conservation and efficiency."[21] Of these five bills, the Public Utility Regulatory Policy Act of 1978 ("PUPRA") was the most significant, in that it encouraged the development of renewable sources of energy.[22]

Specifically, PURPA required electric utilities to purchase a portion of their electricity from cogenerators and small renewable energy providers.[23] The utilities would purchase electricity from alternate energy producers, known as qualifying facilities ("QFs"), at the utilities' avoided cost rate.[24] A utility's avoided cost rate, generally established by a state's utility commission, is the "incremental cost to the electric utility of alternative electric energy which the utility would have generated or purchased from another source."[25] This rate is often significantly less than the retail rate utilities charge their customers for electricity, often fifty percent less.[26]

In order to reach QF status, small energy producers and cogenerators were required to be less than fifty percent owned by electric utilities and could produce no more than eighty MW of electricity, "with at least 75 percent of [their] total energy input provided by renewable energy."[27] In addition, a qualify-

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20. Energy Info. Admin., *History of PURPA and Nonutilities*, http://www.eia.doe.gov/cneaf/solar.renewables/rea_issues/html/history.html (last visited Nov. 12, 2007).

21. *Id.*

22. *Id.*

23. Valerie J. Faden, Note, *Net Metering of Renewable Energy: How Traditional Electricity Suppliers Fight to Keep You in the Dark*, 10 WIDENER J. PUB. L. 109, 113 (2000) (citing 16 U.S.C. § 824(a)(3) (2006)).

24. *Id.* at 113 (citing 16 U.S.C. § 796(18) (2006)).

25. Energy Info. Admin., *supra* note 20.

26. Carolyn Szczepanski, *Power Play*, CITY VIEW (Des Moines), Feb. 2, 2006, at 13, *available at* http://www.dmcityview.com/archives/2006/02feb/02-02-06/cover.shtml.

27. Energy Info. Admin., *supra* note 20.

ing facility could not be in the business of primarily generating or selling electricity.[28]

Over the past twenty-eight years, PURPA has had some effect on the development of renewable energy resources; however, its effects have not been as significant as originally intended by Congress.[29] This is primarily due to "inadequate regulatory oversight, problems in determining the level of avoided cost, and institutional barriers to utility adoption of new technologies."[30]

B. *The Energy Policy Act of 1992*

In 1992, Congress enacted the Energy Policy Act of 1992 in an effort to improve energy efficiency[31] and to encourage competition in the electricity markets.[32] The Act sought to increase competition among electric utilities by decreasing legal barriers to entry into electricity markets by wholesale electricity providers.[33] In addition, tax-based incentives and subsidies were implemented to encourage the development of renewable and other clean energy sources.[34] A Production Tax Credit was established under the Act that provided 1.5 cents per kWh of electricity generated by qualified wind and biomass production facilities.[35] Government and not-for-profit facilities, which could not utilize the tax credits, were provided incentive payments that equaled the tax incentive offered to QFs.[36] Although these tax credits have been very effective at spurring wind energy growth,[37] they are difficult to utilize for small energy producers and mainly benefit corporations.[38]

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28. Faden, *supra* note 23, at 110.
29. Real de Azua, *supra* note 4, at 506.
30. *Id.*
31. Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776.
32. Samuel R. Brumberg, *Getting the Camel Out of the Tent: Behind the Federal Energy Regulatory Commission's Rise to Power and the Importance of States' Continued Regulatory Oversight*, 30 WM. & MARY ENVTL. L. & POL'Y REV. 691, 701 (2006).
33. NAT'L. RESEARCH INST., A SYNOPSIS OF THE ENERGY POLICY ACT of 1992: NEW TASKS FOR STATE PUBLIC UTILITY COMMISSIONS iii (1993), *available at* http://www.nrri.ohio-state.edu/dspace/bitstream/2068/312/1/93-07.pdf.
34. *Id.*
35. Robert L. Bradley, Jr., *Renewable Energy: Not Cheap, Not "Green,"* CATO INST., Aug. 27, 1997, *available at* http://www.cato.org/pubs/pas/pa-280.html.
36. *Id.*
37. Union of Concerned Scientists, *Renewable Energy Tax Credit Extended Again, But Risk of Boom-Bust Cycle in Wind Industry Continues*, http://www.ucsusa.org/clean_energy/clean_energy_policies/production-tax-credit-for-renewable-energy.html (last visited Nov. 12, 2007).
38. Windustry, Federal Production Tax Credit, http://www.windustry.org/federal-production-tax-credit (last visited Nov. 12, 2007).

C. *The Energy Policy Act of 2005*

In 2005, after years of dispute between utility companies and small energy producers, Congress significantly amended PURPA under the Energy Policy Act of 2005.[39] Among the most important changes to PURPA is a requirement that electric utilities provide net-metering upon request to consumers that the utility serves.[40] Additionally, the Act amended Section 210 of PURPA by repealing the mandatory purchase requirements originally placed on utilities[41] and by altering the qualification requirements for small energy producers seeking to become qualifying facilities.[42] For example, new qualifying facilities are required to demonstrate that "at least 50 % of the aggregated annual energy output of the facility is to be used for industrial, commercial, residential or institutional purposes and not sold to an electric utility."[43] This is a significant break from the past, where alternate energy producers were deemed presumptively useful in terms of their energy production purposes.[44]

Although the Act did retain some benefits to qualifying facilities, such as the requirement that utilities provide interconnection services to any electric consumer requesting such services,[45] the changes to PURPA are likely to affect the number of new small energy producers in the future.[46] One potential effect is that new alternate energy producers will be forced to alter the design and use of their facilities so that they meet the use standard imposed by the amendment.[47] The amendment may also create uncertainty on the part of producers as to their project's eligibility, thus discouraging them from applying for qualifying facility status.[48] It may also create uncertainty on the part of financial institutions who may be hesitant to provide funding for project developers uncertain of their potential status and ability to sell to utilities due to the repeal of the mandatory purchase requirement.[49]

Despite these changes, Congress did institute several incentives designed to encourage the implementation of renewable energy and energy efficiency

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39. *See* Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594.
40. 16 U.S.C. § 2621(d)(11) (2006).
41. *See* Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 1253, § 824a-3, 119 Stat. 594, 967-68 (codified as amended at 16 U.S.C. § 824a-3(m) (2006)).
42. *Id.*; Michael D. Hornstein & J.S. Gebhart Stoermer, *The Energy Policy Act of 2005: PURPA Reform, the Amendments and Their Implications*, 27 Energy L.J. 25, 32 (2006).
43. Hornstein, *supra* note 42, at 33.
44. *Id.* at 32.
45. 16 U.S.C. § 824a-3(m).
46. Hornstein, *supra* note 42, at 32.
47. *Id.* at 34.
48. *Id.* at 34-35.
49. *Id.* at 36.

projects. One such incentive is the creation of a rebate system for the installation of a renewable energy source at a home or small business.[50] Under this program, a consumer who makes expenditures toward the purchase of a renewable energy system is entitled to receive a rebate of up to twenty-five percent of the costs of the expenditures.[51] In total, one billion dollars have been appropriated by Congress for this rebate program through 2010 and the funds will remain available until they have all been expended.[52]

In addition to this rebate program, Congress extended tax credits for an additional two years for biomass and wind energy systems which were implemented in the Energy Policy Act of 1992.[53] The bill also added additional credits for other forms of renewable energy.[54] These production tax credits ("PTCs") have been a major source of growth in the wind and biomass energy markets.[55] Unfortunately, the PTCs have faced a troubled existence since they were first introduced in 1992, with provisions expiring and being reintroduced at various times over the past fifteen years.[56]

D. *Renewable Energy and Energy Efficiency Improvements Program of the 2002 Farm Bill*

It is clear that the federal government is committed, albeit slightly, to encouraging renewable energy policies and production. One area in which Congress has created legislation with direct application to agriculture and rural development is the 2002 Farm Bill.

In an effort to encourage rural economic development, "Congress passed the Renewable Energy Systems and Energy Efficiency Improvements Program as Section 9006 of the 2002 Farm Bill."[57] The goal of the program was to assist farmers, ranchers, and rural small businesses reduce their energy dependency.[58] Under the program, the Secretary of Agriculture was given authority to provide farmers, ranchers, and small rural business owners with loans, loan guarantees, or

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50. Energy Policy Act of 2005, Pub. L. No. 109-58, § 206(c)(1), 119 Stat. 594, 656 (codified at 42 U.S.C. § 15853 (2006)).

51. 42 U.S.C. § 15853(1)-(2) (2006).

52. *See* 42 U.S.C. § 15853(4) (2006).

53. Union of Concerned Scientists, *The 2005 Energy Bill*, http://www.ucsusa.org/clean_energy/clean_energy_policies/energy-bill-2005.html (last visited Nov. 12, 2007).

54. *Id.*

55. Union of Concerned Scientists, *supra* note 37.

56. *Id.*

57. USDA, SECTION 9006 RENEWABLE ENERGY AND ENERGY EFFICIENCY PROGRAMS, *available at* http://www.rurdev.usda.gov/IA/rbcs_RE-EE_Brochure.pdf.

58. 7 C.F.R § 4280.101 (2007).

grants for use in purchasing renewable energy systems or making energy improvements.[59]

1. *Eligibility Requirements*

Under the program, an eligible applicant may qualify for both a loan and a grant.[60] A grant request may not exceed twenty-five percent of the project's cost;[61] however, the total funds available under a grant will vary from $2,500 to $500,000 for a renewable energy project, and $1,500 to $250,000 for energy efficiency efforts.[62] A loan guarantee, on the other hand, covers up to fifty percent of the project cost for a total ranging from $5,000 to a staggering $10,000,000.[63] Additionally, any combination of funding—grants and loan guarantees—may not exceed fifty percent of the project's cost.[64]

To be eligible, an applicant must be either an agricultural producer, defined as "[a]n individual or entity directly engaged in the production of agricultural products," the production of which provides fifty percent or more of the individual or entity's gross income, or a rural small business.[65] In addition, the applicant must demonstrate financial need, as determined by the Secretary of Agriculture,[66] and must meet certain U.S. citizenship requirements.[67] Demonstrated financial need is defined as a showing that the applicant does not have the capacity to fund the renewable energy project, either with his own funds or through commercially available alternatives, without some form of grant assistance.[68] The applicant may also demonstrate financial need by showing that the project would be unable to produce income and cash flow over the long-term without grant assistance.[69]

The citizenship requirements under the Section 9006 program state that a borrower must be a citizen of the United States or a person admitted for perma-

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59. *Id.*

60. USDA, USDA Farm Bill Section 9006: What is the Section 9006 Program?, http://www.rurdev.usda.gov/rbs/farmbill/what_is.html (last visited Nov. 12, 2007).

61. *Id.*; 7 U.S.C. § 8106(c)(1)(A) (2006).

62. 7 C.F.R. § 4280.110(d) & (e) (2007); USDA, *supra* note 60.

63. 7 C.F.R. § 4280.123 (2007); USDA, *supra* note 60.

64. 7 U.S.C. § 8106(c)(1)(B) (2006); USDA, *supra* note 60.

65. USDA, USDA Farm Bill Section 9006: Who is Eligible? http://www.rurdev.usda.gov/rbs/farmbill/who_is.html (last visited Nov. 12, 2007); 7 U.S.C. § 8106(b) (2006); 7 C.F.R. § 4280.103 (2007); 7 C.F.R. § 4280.107(a)(1) (2007).

66. USDA, *supra* note 65; 7 U.S.C. § 8106(b).

67. USDA, *supra* note 65; 7 C.F.R. § 4279.108(b) (2007).

68. 7 C.F.R. § 4280.103 (2007).

69. *Id.*

nent legal residency.[70] In the case of a corporation, the entity must be at least fifty-one percent owned by citizens of the United States or persons having been admitted to the United States for permanent legal residence.[71]

2. *Project Eligibility*

Renewable energy projects eligible for federal funding include biomass, hydrogen, solar, wind, or geothermal facilities.[72] To be eligible for grants or loans, the project must meet several criteria: the requested funds "must be for the purchase of a renewable energy system or to make energy efficiency improvements;"[73] the project must use commercially available technology having technical merit and it must be located in a rural area; the project must be owned by the applicant, who will maintain control over the revenues derived from the project as well as administer the operating and maintenance expenses associated with the project; and the project must be controlled by the applicant and generate revenues sufficient to manage and provide for the debt incurred over the life of the project.[74]

3. *Results of the Program to Date*

Under Section 9006, Congress appropriated $23 million annually for loans and grants through the year 2007, but has since repealed the mandatory set-aside in favor of a discretionary basis for distribution of funds.[75] In 2003, the year in which the program was first implemented, $21.7 million worth of grants were allocated to 114 projects spread across twenty-four states.[76] After the program's first two years, "approximately $42 million in clean energy grant awards [had been made to] approximately 265 clean energy projects worth more than $1

70. 7 C.F.R. § 4279.108(b).

71. *Id.*

72. USDA, USDA Farm Bill Section 9006, http://www.rurdev.usda.gov/rbs/farmbill (last visited Nov. 12, 2007).

73. 7 C.F.R. § 7280.108 (2007).

74. *Id.* A rural area is defined as "[a]ny area other than a city or town that has a population of greater than 50,000 inhabitants and the urbanized area contiguous and adjacent to such a city or town according to the latest decennial census of the United States." 7 C.F.R. § 4280.103 (2007).

75. Nat'l Assoc. of Regulatory Util. Comm'ns, Resolution Supporting Section 9006 of the Farm Bill, the Renewable Energy Systems and Energy Efficiency Improvements Program, http://www.naruc.org/Resolutions/farmbill_renewableenergy_w05.pdf.

76. USDA, Farm Bill Section 9006: Renewable Energy and Energy Efficiency Program, http://www.energy.sc.gov/publications/Fact%20Sheet%20on%20Section%209006.pdf.

billion dollars."[77] By 2005, the USDA had awarded 435 grants under Section 9006, totaling over $66.7 million.[78]

Although the Section 9006 program is slated to expire in 2007, various attempts to increase and continue federal funding for farmers have been introduced in Congress. One such piece of proposed legislation, introduced by Senator Tom Harkin (D-IA), would rename Section 9006 the Rural Energy for America Act of 2006 ("REAP") and would greatly expand funding for renewable energy projects by 2012.[79] Along with increased funding, the bill would provide additional financing options and provide greater tax security for investments.[80]

It is clear that a substantial effort is under way at the federal level to increase the use of renewable energy technologies. In addition to Congressional efforts, President Bush appropriated $44 million in fiscal year 2007 toward wind energy research.[81] This represents an increase of $5 million over the budget for 2006.[82]

E. *State Renewable Energy Production Incentives*

Although the federal government has shown its commitment to renewable energy, its efforts have not been enough. Over the past decade, state legislatures have been implementing policies and programs aimed at increasing the amount of renewable energy used and generated in their states and are currently outpacing the government in an effort to create workable renewable energy policies.[83]

One such program encompasses renewable energy initiatives. A state's renewable energy initiative generally varies to the extent the state has public policy committed to renewable energy. Renewable Electricity Standards, also known as Renewable Portfolio Standards ("RPSs"), are among the most effective

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77. Nat'l Assoc. of Regulatory Util. Comm'ns, *supra* note 75.

78. USDA, *supra* note 60.

79. *See, e.g.*, Farm Futures, *Rural Energy for America Act Expands Farm Bill's Energy Provisions*, Sept. 13, 2006, http://www.farmfutures.com/ME2/Default.asp (go to "Quick Search" and search "Rural Energy for America Act"; then find article).

80. *See id.* (Under the proposed legislation, grants would be structured as production incentives rather than construction grants. Currently, construction grants have a tendency to undercut tax benefits to project developers.).

81. Press Release, Craig Stevens, Office of Public Affairs, U.S. Dep't of Energy, Energy Secretary Highlights One-Year Anniversary of the Energy Policy Act of 2005 at Iowa Wind Turbine Facility (Aug. 2, 2006), *available at* http://www.energy.gov/news/3885.htm.

82. *Id.*

83. *See generally* BARRY G. RABE, THE PEW CENTER ON GLOBAL CLIMATE CHANGE, RACE TO THE TOP: THE EXPANDING ROLE OF U.S. STATE RENEWABLE PORTFOLIO STANDARDS (2006), http://www.pewclimate.org/docUploads/RPSReportFinal.pdf.

policies aimed at the promotion of renewable energy.[84] Under these standards, state legislatures set minimum levels of electricity to be provided by renewable sources.[85] Most state RPS standards increase the amount of renewable energy provided by states from between ten and twenty percent of the state's current energy sources.[86] Utilizing these standards, state legislatures are able to determine which technologies will provide the most cost-effective alternative.[87]

As of 2003, fifteen states had implemented RPS programs, which resulted in 2,004 of the 2,335 MW of new renewable energy generated.[88] Wind was by far the largest contributor, with approximately 2,183 MW of the new generating capacity coming from wind power facilities.[89] It is clear that state renewable portfolio standards are leading the renewable energy effort in the United States. These programs have the benefit of providing flexibility to various regions and states, which allows for refining and restructuring based on state or local factors. This, in turn, makes the programs more efficient.[90]

IV. LEGAL AND LOGISTICAL CONCERNS WITH WIND ENERGY

Although governments at both the state and federal levels have stated commitments to encouraging renewable energy production and have implemented programs and incentives to encourage small producers to enter the energy market, industries and entities have faced difficulty when attempting to connect to the power grid and receive compensation for the electricity they produce.

A. *The Plight of Small Producers for Recognition and Compensation*

1. *Tension Between Alternate Energy Producers and Utilities*

Two of the major obstacles faced by small energy producers in achieving operational status for their investments are connecting to the local electrical grid

84. *See* Windustry, Wind Energy Policy, http://www.windustry.org/resources/legislation.htm?filter0=renewable+portfolio+standards&op1=AND&op2=AND (last visited Nov. 7, 2007).

85. Azua, *supra* note 4, at 515.

86. State Environmental Resource Center, RPS Renewable Energy, http://www.serconline.org/RPS/stateactivity.html.

87. Azua, *supra* note 4, at 515-16 (The state legislatures determine the eligible technologies, and the market determines which of these eligible technologies is the most cost-effective.).

88. Thomas Petersik, Energy Info. Admin., *State Renewable Energy Requirements and Goals: Status Through 2003*, Jul. 21, 2004, http://www.eia.doe.gov/oiaf/analysispaper/rps/index.html.

89. *Id.*

90. Mary Ann Ralls, *Congress Got it Right: There's No Need to Mandate Renewable Portfolio Standards*, 27 ENERGY L.J. 451, 458 (2006).

and receiving compensation for power produced. This latter problem arises from billing procedures, with utilities preferring traditional billing processes and individual producers lobbying for alternate billing procedures, namely net metering.

This tension between alternate energy producers, customers, and utilities is illustrated by *Windway Technologies, Inc. v. Midland Power Cooperative*, an Iowa case in which there was disagreement as to the proper compensation system for both parties.[91] The appellants had purchased wind-powered electric generators in an effort to reduce their energy expenditures and planned to sell any excess electricity their turbines generated to an electric company, Midland.[92] The appellants and Midland disagreed, however, as to how Midland would compensate the appellants for the excess electricity.[93] The appellants argued that net metering should be used, while Midland argued for traditional, or separate, billing.[94]

Under net metering, or net billing, one bill is generated which encompasses both consumption and production of electricity.[95] The cogenerator, or alternate energy producer, sells to the utility any excess electricity produced after their consumption for the billing period is subtracted.[96] This method of billing not only simplifies the transaction, but allows the alternate energy producer to make a like-kind trade with the utility.[97]

Under the traditional approach two measurements are made—one measures how much electricity the cogenerator produces and the other measures the cogenerator's usage of electricity produced by the utility.[98] The utility bills the cogenerator at its full retail rate for electricity used by the cogenerator[99] and purchases any of the cogenerator's excess electricity at the utility's avoided cost rate,[100] which is "'the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or quali-

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91. *See generally* Windway Techs., Inc. v. Midland Power Coop., 696 N.W.2d 303, 304-305 (Iowa 2005).

92. *Id.* at 304.

93. *Id.*

94. *Id.* at 304-305.

95. *Id.* at 304.

96. *Id.*

97. *Id.* at 311-312 (Under net billing, or net metering, the alternate energy producing customer essentially becomes a contractor for the power company. It generates electricity to be used in lieu of purchasing from the utility. At the same time, the alternate energy producer purchases power from the utility when needed and sells back to the utility when it has produced excess. This buying and selling balances the standing of the two parties, creating a power bill that reflects the transactional nature, rather than simply the billing aspect, of the relationship.).

98. *Id.* at 305.

99. *Id.*

100. *Id.*

fying facilities, such utility would generate itself or purchase from another source.'"[101]

The appellants argued that Midland's setting of a tariff price at which it would purchase electricity from alternate energy producers, rather than using net billing, violated PURPA, which the plaintiffs argued contained a mandate for net billing.[102] The district court agreed, and held that Midland was required to use net billing as well to provide reports to the Federal Electric Regulatory Commission ("FERC") which could be used to determine its avoided costs.[103]

On appeal, the Iowa Supreme Court held that federal law, specifically PURPA, did not mandate net billing, but stated that utilities are required to purchase a portion of the electricity they sell from alternate energy producers at a reasonable price.[104] The court did hold that net billing is appropriate in certain circumstances.[105] PURPA allowed discretion as to how provisions relating to alternate energy producers were to be implemented and Iowa state law at the time directed that only rate-regulated utilities were required to implement net-billing.[106] Midland is a non rate-regulated utility.[107] The court went on to state that FERC allowed for enforcement actions in cases where nonregulated utilities had failed to implement FERC regulations, or had done so in a manner inconsistent with PURPA.[108] These enforcement actions would require a nonregulated utility to implement these regulations, but the issue in this case was not one of implementation but rather general principles of fairness.[109] Ultimately, the Supreme Court rejected the appellant's arguments and held that the district court had overstepped its authority in ordering Midland to use net billing.[110]

2. *Connection to the Grid*

North Star Steel Co. v. MidAmerican Energy Holdings Co. addresses the circumstances arising when a business seeks access to alternate sources of energy through the local utility's electric grid.[111] North Star Steel Co. sought to purchase

101. *Id.* at 306 (citing 18 C.F.R. § 292.101(b)(6) (2007)).
102. *Id.* at 304.
103. *Id.* at 305.
104. *See id* 307.
105. *Id.*
106. *Id.* at 306.
107. *Id.*
108. *Id.* at 308.
109. *Id.*
110. *Id.* at 309.
111. *See generally* North Star Steel Co. v. MidAmerican Energy Holdings Co., 184 F.3d 732 (8th Cir. 1999).

a portion of its power supply from a third party producer while still utilizing MidAmerican Energy's transmission lines.[112] When MidAmerican refused to allow North Star to utilize the transmission lines, North Star brought an action against MidAmerican claiming that the utility was violating monopoly laws and otherwise refusing to cooperate.[113] The district court granted summary judgment for MidAmerican, holding that MidAmerican was immune from federal antitrust liability.[114]

On appeal, the Eighth Circuit held that, although MidAmerican was engaged in actions which would otherwise constitute illegal monopolistic trade practices, Iowa law clearly established "exclusive service areas" in which specific utilities were granted de facto monopolies over the production and distribution of electricity.[115] Also, according to established federal case law, a state may properly grant a monopoly to a private party where "(1) the private party acts pursuant to a 'clearly articulated' and 'affirmatively expressed' state policy to allow the anti-competitive conduct, and (2) the regulatory policy is 'actively supervised' by the state itself."[116] The court held that Iowa had the legitimate and express purpose in creating a monopoly of "develop[ing] [a] coordinated statewide electric service at retail, to eliminate or avoid unnecessary duplication of electric utility facilities, and to promote economical, efficient, and adequate electric service to the public."[117] Because the Iowa legislature had established this express purpose and had provided a means by which the monopoly would be regulated, the court affirmed summary judgment for MidAmerican Energy Co.[118]

At the same time *North Star Steel* illustrates the diverging viewpoints of utilities and small energy producers and consumers, it illustrates the need for regulatory reform in the electricity industry to address new issues arising from efforts and mandates to implement green technologies.[119] The case also points to specific programs states are implementing to ease the anti-competitive nature of the electricity industry.[120]

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112. *Id.* at 734.
113. *Id.*
114. *Id.* at 733.
115. *Id.* at 737-738.
116. *Id.* at 738 (quoting Cal. Retail Liquor Dealers Ass'n v. Midcal Aluminum, Inc., 445 U.S. 97, 105 (1980)).
117. *Id.* at 738 n.9.
118. *Id.* at 738-39. The court strengthened this holding by pointing out that the U.S. Supreme Court had previously "held that [the] principles of federalism and state sovereignty preclude[] the application of federal antitrust laws to activit[ies] directed by state legislative action." *Id.* at 738.
119. *See id.* at 734-37.
120. *Id.* at 736.

In *North Star Steel*, the court pointed out that Iowa had introduced a pilot program under which utilities would purchase power from third party generators and then sell that power directly to customers.[121] In this way, utilities provided only the transmission lines and distribution services.[122] This is one among many alternatives which are being developed to deregulate the electric industry and once again provide a competitive market for customers.

The conclusion to be reached from these case studies is that, although many efforts have been made to make renewable energy production attractive to small producers, such as agricultural entities, many providers face significant challenges once attempts are made to gain access to the long-existing, heavily regulated, and very self-interested utility markets.

B. *The Costs and Benefits of Accommodating Alternate Energy Producers*

At first glance, it may seem that electric utilities are wielding their greedy hands over the electricity markets. But, the reality is that utilities face additional costs when accommodating alternate energy producers. Some of the additional costs consist of premiums for "green" power, transmission costs, and logistical concerns, such as storage and transmission issues.[123] At the same time, there are many benefits to communities and individual producers which must be examined alongside the costs, such as the possibility of local control over power supplies and the reliability of locally produced power—not to mention the many environmental benefits that result from renewable energy.[124]

As mentioned previously, sources of "green energy" carry price and logistical concerns which often hinder their development.[125] Among the costs of renewable energy production are "high transmission costs, high financing costs, and high transactions costs."[126] Costs for the transmission of electricity generated from wind power are generally higher than the costs of transmission for more traditional sources of electricity. Wind power facilities are often located far from population centers, thus necessitating construction of additional means to store and transmit the power generated.[127] In addition, utilities are required to provide qualifying facilities with access to transmission lines, no matter how large or

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121. *Id.*

122. *Id.* at 739.

123. Everett Britt, *Renewable Electric Generation 2004: Incentives, Obligations, and Concerns*, 19 NAT. RESOURCES & ENVTL. 34, 37-38 (2005).

124. *Id.*

125. Ralls, *supra* note 90, at 466.

126. *Id.*

127. Darell Blakeway & Carol Brotman White, *Tapping the Power of Wind: FERC Initiatives to Facilitate transmission of Wind Power*, 26 ENERGY L.J. 393, 397 (2005).

small the producer.[128] This is not a significant problem, however, because the cost of transmission represents only two percent of the cost of electricity.[129]

These issues have been addressed somewhat by what is known as "green pricing."[130] Under such a system, electric utilities offer their customers the option of voluntarily paying a monthly premium that goes toward the construction, maintenance, and operation of renewable energy technology.[131] As such, the customers help offset the costs to the utilities. These programs are currently offered in twenty-three states and the District of Columbia.[132]

Another cost of wind energy, one that critics often cite, is reliability.[133] Admittedly, both wind and solar power suffer from being reliant on nature to provide the inputs for energy output. Because it is impossible to guarantee that wind will always be sufficient to produce electricity, utilities purchasing wind power are compelled to maintain back-up generators which often utilize fossil-fuels, thus diminishing some of the environmental benefits associated with renewable energy sources.[134] The bottom line is that not only do these costs create a barrier to entry into energy markets by small energy producers, they also create problems for utilities who must charge higher prices for the electricity they sell their customers.[135]

Several options for reform have been contemplated over recent years aimed at improving the generation and transmission of electricity. One option, particularly applicable to the rural setting, is distributed generation.[136] Under distributed generation, power is "produced locally, instead of relying on large regional grids for transmission and distribution."[137] Rural distributed energy producers would provide energy from a variety of smaller sources produced at the

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128. Larry Prete, *Transmission Pricing Issues for Electricity Generation from Renewable Resources, in* RENEWABLE ENERGY 1998: ISSUES AND TRENDS 45, 46 (Energy Info. Admin. Mar. 1999), *available at* http://tonto.eia.doe.gov/FTPROOT/renewables/062898.pdf (explaining that the mounting costs of such action are easy to imagine when considering the vast areas of open space available to farmers and ranchers in the midsection of the continent).

129. *See generally id.* (detailing the numerous economic studies regarding transmission pricing which have resulted in a variety of pricing options).

130. Britt, *supra* note 123, at 37.

131. *Id.*

132. *Id.*

133. Sidney A. Shapiro & Joseph P. Tomain, *Rethinking Reform of Electricity Markets*, 40 WAKE FOREST L. REV. 497, 524 (2005).

134. Ralls, *supra* note 90, at 465.

135. *Id.* at 466; *See* Shapiro, *supra* note 133, at 524 (stating that connection to the grid is not only difficult but may thwart efforts to implement wind turbines).

136. Shapiro, *supra* note 133, at 518.

137. *Id.*

local level, many of which would be renewable energy sources.[138] Thus, the electric grid would be considerably smaller than the current regional grid models and would allow for competition among various small producers.[139] In addition, this system would protect against blackouts and would allow for electricity to be produced locally, thereby greatly decreasing the necessity to transmit power over long distances.[140]

Although there are costs associated with wind power in general, there are many benefits which the technology provides. In addition, some of the costs seem to be resolving themselves as time passes. Today, the cost of wind projects is becoming competitive with more traditional sources of electricity.[141] As costs continue to decline, mainly due to increases in technology and efficiency, the other benefits of wind energy begin to come to the forefront. Chief among these benefits is that wind energy produces no air or water pollution and has no hazardous byproducts.[142]

Benefits to the environment are not the only benefits that come from small wind production. According to the U.S. Department of Energy, a small wind project can reduce the electricity costs of a homeowner by fifty to ninety percent.[143] In addition, although the costs of extending transmission lines are very real, consumers who live in rural areas, especially farmers and ranchers, could use wind projects to become energy dependent, thereby freeing themselves from the need to have transmission lines extended to their facilities.[144]

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138. *See id.*

139. *See id.* at 518-19.

140. *See generally id.* (setting forth the proposition that the energy market in the United States is in great need of reform; that such reform necessitates a return to small, local, and competitive energy production; and that this reform can be achieved through the use of distributed generation, renewable energy, renewable portfolio standards, and smart electricity grids which will greatly upgrade the nation's electricity grids and provide a means by which customers can educate themselves about their energy usage and seek to achieve the most efficient energy consumption).

141. *See* Britt, *supra* note 123, at 34; Azua, *supra* note 4, at 493.

142. Shapiro, *supra* note 133, at 523 (Some opponents maintain that wind power does create negative byproducts, in that windmills kill birds and destroy the aesthetic nature of the countryside. This seems to be a small price to pay for the benefits achieved through a reduction in dependence on greenhouse gas emitting technologies. As the old proverb goes, you can't have your cake and eat it too); Azua, *supra* note 4, at 485.

143. U.S. DEP'T OF ENERGY, SMALL WIND ELECTRIC SYSTEMS: A U.S. CONSUMER'S GUIDE 1-2 (2005), *available at* http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf.

144. *Id.*

V. CONCLUSION

The Department of Energy highlighted one success story in which a farmer erected a ten kW wind turbine with the capacity to generate 1,700-1,800 kilowatt hours of electricity per month.[145] The turbine cost $20,000 when purchased in 1983 and incurred an additional cost of $50 per year in maintenance and operation costs.[146] The payoff came, however, in the fact that the turbine reduced the farm's utility bills by fifty percent.[147]

Small wind turbines cost anywhere from $3,000 to $50,000 which, when considering the costs of electricity to many rural farmers and ranchers, is a rather small investment in an effort to save on future energy costs.[148] Further, the federal and state governments have programs which assist consumers, as well as farmers and ranchers specifically, to implement renewable energy systems.[149]

Although there are many costs associated with implementing small wind energy systems, the fact remains that there are substantial benefits associated with renewable energy. Specifically, the benefits of wind energy continue to increase as technology advances and the availability of financial assistance makes wind energy systems cost effective and competitive with existing technologies. These benefits may specifically be realized by farmers and ranchers, who have high energy needs and open space on which to establish a small renewable energy generator.

There are some impediments which are out of the hands of rural consumers—those of utility connectivity, pricing, and transmission. However, as the debate continues on how best to address those issues and electricity deregulation continues to move forward, wind power technology will continue to become a viable option for farmers and ranchers looking for ways in which to reduce their utility bills and make a contribution toward a more energy independent and efficient nation.

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145. *Id.* at 18.
146. *Id.*
147. *Id.*
148. *Id.* at 7.
149. *See generally* N. C. Solar Center, DSIRE: Database of State Incentives for Renewables & Efficiency, http://www.dsireusa.org/ (last visited Nov. 12, 2007) (providing a comprehensive database of state incentives for renewable and efficient energy sources).