

# Farmers' Guide to Wind Energy

## Legal Issues in Farming the Wind

June 2007

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Farmers' Legal Action Group, Inc.

Written by  
Jessica A. Shoemaker

Contributing authors  
Christy Anderson Brekken  
Karen R. Krub

Edited by  
Karen R. Krub

**FLAG**



FARMERS' LEGAL  
ACTION GROUP,  
INCORPORATED

Farmers' Legal Action Group, Inc. (FLAG)  
360 North Robert Street, Suite 500  
Saint Paul, Minnesota 55101-1589  
Phone: 651.223.5400  
Fax: 651.223.5335  
MN Toll-Free: 1.877.860.4349  
Email: [lawyers@flaginc.org](mailto:lawyers@flaginc.org)  
Web site: [www.flaginc.org](http://www.flaginc.org)

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Farmers' Legal Action Group, Inc.  
360 North Robert Street, Suite 500  
St. Paul, Minnesota 55101  
lawyers@flaginc.org  
www.flaginc.org

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The guide was developed by FLAG attorney and Skadden Fellow Jessica Shoemaker. In addition to writing several chapters of the book, Jessica defined its scope, coordinated the efforts of contributors and expert reviewers, and skillfully oversaw the project from beginning to end. Christy Anderson Brekken, an attorney on contract with FLAG to assist with this project, provided invaluable research assistance and drafted several chapters of the book. FLAG attorney Karen Krub drafted sections of several chapters and comprehensively edited the guide. Rita Gorman Capes carefully copyedited and formatted the manuscript. Debby Juarez designed the cover and provided publishing support. FLAG law clerks Sarah Johnson Phillips, Peter Navis, Samantha Bohrman, Stephanie Kerbage, Jacob Fischer, Justin Kwong, and Luke Grundman made significant research, editorial, and cite-checking contributions throughout the guide. Each of these FLAG staff members joined their efforts to produce a final product worthy of the family farmers for whom it is written. To each of them, we say thank you.

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Wind energy holds the promise of providing our nation with clean and renewable energy, and farmers and ranchers and their rural communities with a revitalizing revenue stream. It is our hope that this guide will help farmers and ranchers successfully realize the wind's full potential.

Susan E. Stokes  
Executive Director

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# **FARMERS' GUIDE TO WIND ENERGY**

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### Key Wind Energy Terms

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## Chapter 1

# Wind Development Options and Obstacles

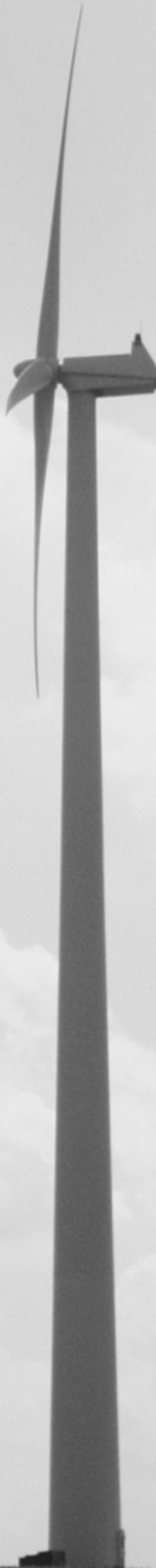
## I. Choosing to Invest in Wind

Wind energy presents exciting new opportunities for many farmers, and those farmers who wish to make productive use of the wind on their farms have many different development options. Projects come in many different sizes and styles, and farmers have a range of opportunities to invest in, and benefit from, the wind.

But it takes more than just wind to make a wind energy project work. Even the smallest wind turbines require time, money, and some technical expertise. For very large commercial-scale projects, the stakes are even higher, and a successful development requires tenacious advocates, the local community's support, and—perhaps most importantly—access to a market for the generated electricity.

One primary obstacle new wind energy projects will face is simply the electric grid itself. The grid is stationary, and its limited capacity can be easily taken up by electricity from traditional energy sources, such as large coal-burning power plants. To be able to sell energy and be financially viable, a wind project must be located close enough to the grid to connect with the local power lines, and there must be sufficient capacity on those electric lines to make them physically available to transport newly generated wind energy.

However, even in the best location, successful development of a wind resource will require overcoming legal obstacles as well, namely the requirements imposed by the tremendous variety of complex and ever-changing laws that will affect a wind development project. Legal issues will arise at every stage of wind development: in contracts with consultants to explore the wind resource; in state and local regulation of project siting; in agreements allowing use of land for wind turbines, transmission lines, and other project activities; in loans and capital investments needed to finance the project; in formation of a business entity, if desired, to own and operate the project; in contracts to purchase and install wind turbines and other equipment; in planning for potential liabilities



associated with the project; and—most dauntingly—in negotiations with electric utilities, entities subject to an enormous amount of regulation, for transmission and purchase of the generated electricity.

This guide is intended to help farmers understand the legal backdrop they must navigate in order to pursue wind energy development. It does not promote any one choice over another, nor does it provide a perfect roadmap to a single successful development model. As is true of any type of enterprise, some wind projects will fail. To guard against this, farmers interested in developing a wind resource must learn as much as they can about the technical and legal requirements of the industry and seek individualized assistance from experts.

The next chapter of this guide gives an overview of energy law principles and requirements that will determine how a wind energy project ties in to the larger electric industry. Throughout the rest of this guide, each chapter describes specific components of the legal framework affecting wind development, such as land use restrictions, leases and easements, power purchase agreements, financing arrangements, business entity formation, liability risks, insurance, and tax implications. While some aspects of this legal framework are imposed by state or federal regulation, others are created through private contracts with electric utilities, neighboring landowners, creditors, investors, contractors, and others.

As has been stated and will be repeated often throughout this guide, finding and hiring an experienced and knowledgeable attorney to work with throughout the project development will be necessary to successfully identify and meet the legal challenges of developing a wind resource. This guide cannot substitute for experienced and committed attorneys who will represent a farmer through the entire development process, and this cannot be emphasized enough. In addition, other experts—including engineers or wind development consultants—can be useful for tackling the technical design and managing the financial cash flow of a wind project. The wind is a valuable resource, and farmers should not let misunderstanding or ignorance of the law prevent them from making the most of their wind energy opportunities.

## **II. Types of Wind Development**

Farmers' efforts to gain revenue from their wind resources can generally be grouped into three distinct categories of wind development: working with a third-party wind developer, installing a small turbine for on-site energy use, and developing a large farmer-owned wind energy project. This section includes a

brief overview of these development categories and highlights which chapters of this guide may be most relevant to each.

Assuming an excellent wind resource in a good location, farmers who are interested in developing the wind must make decisions about the desired project scale based on their financial situation, their individual comfort level with risk, the amount of time they are willing to commit to developing the project, and their degree of interest in wind development. The three development categories are discussed here in a sequence generally reflecting farmer commitment, from lowest—negotiating with another party who will develop the wind resource on the farmer’s land, to highest—direct investment in a commercial-scale wind facility.

### **A. Negotiating with a Third-Party Wind Developer**

Farmers may choose to take advantage of well-situated windy land by selling or leasing their wind rights to someone else who will then construct and operate a wind energy facility. In this scenario, the farmer would convey the wind development rights to a developer, most likely using an option, lease, easement, or some combination of these. The developer would then likely do all of the work to develop, build, and operate the actual wind project, with the farmer simply providing the land on which the project sits. The farmer would most likely receive some rental income or a small percentage of revenues, but not the full return of project ownership.

This option for wind development entails less risk to the farmer than direct ownership in a wind facility would, and it often requires no initial capital investment by the farmer. Contracting with a developer does require a farmer to carefully negotiate legal agreements to ensure fair compensation and a fair allocation of the rights, responsibilities, and risks associated with wind development. However, negotiating this kind of agreement requires significantly less effort than developing an entire project.

This development model is currently the most common form of commercial-scale wind ownership, mainly because investing in turbines can require so much capital, and developers’ prior experience with wind energy projects makes it easier for them to successfully pursue new opportunities.

This type of development usually begins with a wind developer approaching a farmer who the developer believes may have a significant wind resource on his or her land. Initially, developers will often ask a farmer to sign what is called an option agreement and possibly also a separate agreement to allow installation of

wind testing devices. In exchange for relatively small payments (often several hundreds of dollars), these agreements usually give the developer the right to investigate the wind resource on the farmer's land and to contract with the farmer to develop that wind resource within a specified amount of time. If the decision to actually develop a project is made, the developer will typically execute a lease, easement, or purchase agreement, or some combination of these, with the farmer.

Although this type of wind development is less complicated than others, it is still a major undertaking affecting the farmer's legal rights and responsibilities and the condition of his or her land, and the advice and assistance of an experienced attorney will be critical.

The legal agreements farmers might enter into with a wind developer are discussed in more detail in Chapter 3 of this guide (Negotiating Wind and Land Agreements). Farmers who contract with a developer to allow a wind project on their land may also face issues discussed in Chapters 5 (Liability Concerns) and 13 (Tax Benefits and Obligations) of this guide. Although these chapters are directed primarily at farmers who will themselves be owners of a wind facility, the discussions of liability risks and possible property tax increases are also relevant to a farmer who allows a wind facility to be constructed and operated on his or her land.

## **B. Installing a Small Turbine for On-Site Energy Use**

The second general category of wind development a farmer could pursue involves direct purchase and ownership of a relatively small wind turbine designed to supply the farm's own energy needs. For purposes of this guide, "small" refers to a project with a nameplate capacity of 100 kW or less.

In this type of wind development, a turbine might be off grid and installed exclusively for on-farm use. Projects that supply energy for home or farm use provide farmers with the economic benefit of producing their own electricity and not having to pay for it from an electric utility.

Alternatively, a farmer's wind turbine might be connected to the electric grid to allow the farmer to sell any excess electricity back to the local utility, providing an additional source of revenue. Most often, a utility's buy-back of excess electricity generation is negotiated through a process called net metering or net billing. Net metering permits customers with small energy generators, like some wind turbines, to first use the energy they produce for their own needs and then sell any excess power back to the electric grid using the power lines that

normally bring electricity to the customer. Because electricity flows to and from the customer through a single meter, the customer's meter runs backwards when excess power is fed to the grid. If, in a given month, a farmer's wind turbine produces more energy than the farm uses, the utility will pay the farmer for that excess or credit it against the farmer's future electric bills.

Net metering laws have been implemented in a majority of states and typically are available for an energy generation system with a capacity up to 50 kW.<sup>1</sup> This size project is much smaller than most commercial wind developments. Therefore, net metering is primarily intended for small producers who seek to use the energy for their own facilities.

On-site wind projects are costly, and it can sometimes be difficult to make them profitable. Purchase and installation of smaller home- or farm-sized wind turbines usually costs approximately \$3,000 per kW of nameplate capacity. Thus, a single small turbine could easily cost close to \$40,000, and it may be that efforts at electrical efficiency would be more cost-effective than an on-site wind project.

A farmer who installs a wind turbine on his or her own property must take care to comply with the vast array of laws that can affect where the turbine is located, including local land use restrictions, environmental regulations, and any relevant farm program requirements. These and other siting considerations are discussed in Chapter 4 (Siting).

In addition, even a small turbine has the potential to expose the owner to some liability, whether from neighbors' complaints or state and federal regulations. These and other liability issues are discussed in Chapter 5 (Liability Concerns).

And, a farmer wanting to install an on-farm wind project will need to purchase, install, and maintain the turbine and other necessary equipment. These issues are discussed in Chapter 6 (Turbine Purchase and Installation).

There may be some government incentives available to farmers seeking to install small wind turbines, and some of these are summarized in Chapter 12 (Incentives). Furthermore, tax-based incentives and tax consequences of wind developments are discussed in Chapter 13 (Tax Benefits and Obligations).

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<sup>1</sup> Farmers should be aware, however, that several states have limits below the 50 kW average cited above. For example, Minnesota's net metering law applies only to facilities with a capacity of less than 40 kW. Minn. Stat. § 216B.164, subd. 3 (2006).

Finally, a range of legal issues that arise specifically in the context of small wind projects are discussed in Chapter 7 (On-Farm Small Wind Development), including the process for connecting a small turbine to the grid and negotiating for the most beneficial power arrangements with the local utility.

### **C. Developing a Commercial-Scale Wind Project**

The third model for wind development by farmers is to invest directly—either on their own or in collaboration with others—in a commercial-scale wind project. For purposes of this guide, “commercial scale” is defined as more than 100 kW of nameplate capacity; however, many projects are significantly bigger than this—ranging from 2 MW to 200 MW and beyond.

These large wind projects are designed to produce electricity for the purpose of selling it to a utility, or other purchaser, for a profit. In addition to all of the legal agreements needed to site and construct a large wind project, the sale of generated electricity will require a contract called a power purchase agreement between the wind project owner and the utility. The farmer must also negotiate to connect the project to the electric grid and may have to pay one or more local utilities to install sufficient capacity on that grid to accept and transmit the generated power.

A large-scale wind project with several commercial-size turbines can cost many millions of dollars, requiring significant investments in purchases of turbines and other equipment, construction services, and consultant and attorney services. Experts generally say that the installed cost of a medium to large wind project is about \$1,000 to \$1,500 per kW of nameplate capacity. This is based, in part, on the assumption that installing several turbines at once will reduce some of the construction and installation costs.

Installing and maintaining a wind energy system can be an expensive, time-consuming, and even risky endeavor. However, farmers who own a large wind project in a prime windy location, and who can access a market for their generated electricity, have the potential to earn significant revenues from the project.

Developing and owning a wind project can take significant time and effort. A large project like this will require a farmer to navigate all of the issues faced by smaller projects. The farmer will need to negotiate to ensure sufficient access to the wind and land needed to build the project (Chapter 3); to site the project in compliance with all local, state, and federal laws (Chapter 4); to address liability concerns (Chapter 5); and to purchase the turbines (Chapter 6).

In addition to the legal issues presented by wind projects of any size, large commercial-scale projects raise still more issues that must be addressed. Financing must be secured to purchase and construct the project, generally involving secured loans, perhaps with personal guarantees from the project owners, and equity investments. The project must also secure a contract to sell the generated electricity. These are major issues in the success of any project, and they are discussed in Chapters 8 (Financing) and 9 (Selling Power).

A farmer developing a commercial-scale wind project must also make careful decisions about how best to structure the business side of the wind project, including which type of business entity will best fit the project's investment and ownership structure and how the project owners will comply with securities laws, filing and reporting requirements, and other legal obligations. These issues are addressed in Chapter 10 (Business Structure).

While all of this is happening, the farmer must also negotiate with the local utility—or several utilities, depending on the circumstances—to gain access to the grid for the large amount of electricity that will be generated and to transmit that electricity to the ultimate purchaser. This is an extremely complicated process, both legally and technically, and it is discussed in Chapter 11 (Interconnection and Transmission).

Finally, even more so than with smaller wind projects, a commercial-scale wind project must consider how various government incentives can make the project more financially feasible, and how the tax consequences of the wind project will be addressed. These issues are discussed in Chapters 12 (Incentives) and 13 (Tax Benefits and Obligations).

### *Community Wind*

*Community wind* refers to wind energy development that intentionally seeks to optimize local benefits. Although a formal definition of community wind may not yet be agreed upon within the industry, as a general matter, community wind means locally owned wind projects that sell energy back to the electric grid. For a project to be locally owned, members of the local community must have a direct financial stake in the project beyond just land leases or local tax revenue. For example, a community wind project could include several local landowners joining together to purchase multiple turbines and share in a larger investment, or it could be a local school district purchasing and operating a turbine behind a school building.

### III. Conclusion

The decision whether to contract with a developer, or to invest directly in a self-owned project (and, if so, at what size) is tremendously complicated and will have long-lasting, perhaps permanent, effects on a farmer's land and operation. Such a decision necessarily turns on a wide variety of factors, many of which are intensely personal.

Some of the practical factors to consider include the quality of the wind resource; the amount of time and effort available; the financial viability of the project; and the availability of various legal incentives ranging from tax credits to protection from certain liability. To help with these considerations, farmers should seek out additional information on the financial and technical aspects of wind development. A list of Additional Resources is provided at the end of this guide as one place to start.

In all wind projects, there are also complicated legal issues. This guide attempts to identify the legal issues that might arise and describes how some wind projects have addressed them. But this guide provides only an introduction to the legal decisions and dilemmas that farmers developing a wind resource must face. Once again, it is critical for any farmer considering wind development to get the assistance of an experienced and knowledgeable attorney early in the process, and certainly before entering into any agreements.





## Chapter 2

# The Law of Electricity

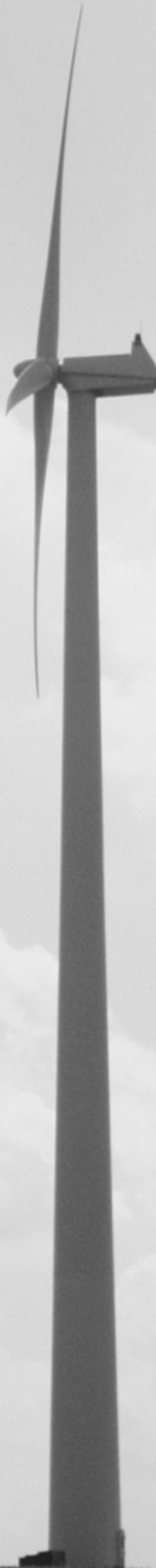
### I. Introduction to the Legal Framework of the Electric Industry

Wind is created when air moves from high to low pressure areas across the earth's surface. When wind turns the rotor of a wind turbine, and that rotor in turn drives the shaft of a generator, raw wind power is converted into useful electricity.

The electricity produced from wind is clean, renewable, abundant, and widely available. Wind energy is logically best developed in rural, open spaces where wind is prevalent and there is no interference from other land uses. Places that are advantageous for wind energy development are therefore often agricultural, and a primary benefit for farmers is the opportunity to generate energy and income from an activity that is compatible with on-going farming operations. This creates difficulties, however, because the generated electricity must usually be transported, sometimes over great distances, to areas where greater numbers of customers are located.

Wind also poses unique challenges because it is intermittent, and the bulk energy generated cannot easily be stored for later use. Therefore, wind energy creates some management challenges for utilities charged with providing customers a constant, adequate supply of electricity and for energy developers needing a market for their electricity.

Not surprisingly, then, the process of capturing, selling, and transporting wind energy can be very complicated. It is controlled by multiple levels of government and types of law. For example, a single large wind project may be governed simultaneously by federal statutes, federal administrative rules, orders of the Federal Energy Regulatory Commission, state statutes, state administrative rules, orders of the state public utility commission, a utility's specific electric tariffs, other contracts with utilities or associations of utilities, and a host of other



private contracts with individuals and entities, such as turbine manufacturers, contractors, attorneys, and expert wind developers or consultants.

This chapter is intended to provide a helpful overview of the legal framework controlling the creation, sale, and transportation of electricity from a wind energy project. The reader should be aware, however, that since energy law is highly complex and changes frequently, this chapter will only begin to lay out some key aspects of the regulatory structure.

## II. Main Components of the Electric Industry

### A. Generation, Transmission, and Distribution

The electric industry is grouped into three separate functional components called generation, transmission, and distribution. Understanding the meaning of each of these three basic functions is critical to participating in any electricity-related endeavor.

**Generation.** Generation refers to the act of producing electric energy from a raw resource, such as wind, coal, or flowing water. When a wind turbine converts wind to electricity, that wind turbine is a generation facility. Electric utilities often operate facilities, such as large power plants, that generate huge quantities of electricity. When non-utility entities, including farmers, generate electricity and sell it, they are called *independent power producers*.

**Transmission.** Once electricity is generated, it needs to be transported to consumers, sometimes over great distances. This is done by *interconnecting* the generator to the existing, complicated system of power lines for moving electricity, called the *grid*. Transmission is the process of moving bulk amounts of electricity over high-voltage transmission lines for long distances.

**Distribution.** The final step in the electricity cycle is distribution of power over low-voltage lines to deliver electricity to the ultimate retail customers. Typically, high-voltage transmission lines transmit bulk power to substations, where the electricity is converted to a lower voltage. That low-voltage electricity is then distributed to homes and businesses on separate distribution lines.

Historically, most electricity has been produced at large facilities, such as coal power plants, that are called *central stations*. Central stations produce huge

amounts of electricity but require lots of grid capacity to transport that energy to the ultimate customers.

***Alternative Uses of the Term  
Distributed Generation***

Farmers should be aware that, in some instances, individuals and organizations in the electric industry also use the term *distributed generation* to refer to a particular subset of small energy producers that use at least some generated electricity on-site.

In some instances, generators can be connected directly to the low-voltage distribution lines, and the electricity can be distributed locally without ever having to be transferred to higher voltage transmission lines. This is referred to as *distributed generation*. Distributed generation is therefore an alternative to the central station method of producing electricity, with several small generation facilities, such as wind turbines, in many disparate locations across a wide geographic area.

The main idea behind distributed generation is that putting several small generation facilities on the distribution side of the substation eliminates the need to convert electricity to higher voltage for transmission and then back down to lower voltage for distribution. This results, ideally, in a more reliable and efficient electric system. Experts continue to study the exact extent to which introducing additional distributed generation facilities could expand the current grid's overall capacity to deliver electricity to consumers.<sup>1</sup>

## **B. Electric Utilities**

Electric utilities are the major players in the electric industry. Collectively, these utilities are responsible for the vast majority of generation, transmission, and distribution of electricity to the public. Not every utility performs all of these functions, however. Of the 3,200 electric utilities in the United States, only approximately 700 operate facilities that generate power. Many electric utilities are distribution-only utilities. They purchase electricity generated by other

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<sup>1</sup> For more information on the advantages and disadvantages of distributed generation, see Windustry's *Distributed Wind Generation and Transmission* Web page at <http://www.windustry.org/dg>. The federal government also recently issued a study of the subject. See U.S. Department of Energy, *The Potential Benefits of Distributed Generation and Rate-Related Issues That May Impede Their Expansion* (Feb. 2007), available at <http://www.ferc.gov/legal/maj-ord-reg/fed-sta/exp-study.pdf> (last visited June 8, 2007).

utilities or independent power producers, and are responsible only for the ultimate distribution of retail electric service to their customers.

Utilities are unique legal entities considered *natural monopolies*. This means that the nature of their business—the provision of electric services—makes it more efficient for only one utility to operate at a time in any given geographic area. Because of the size of the capital investment required to begin providing electric services, and because of the technical characteristics of the electric grid, it would be almost impossible for more than one entity to attempt to provide electric services in a given geographic area.

Monopolies are generally disfavored because they allow a single seller to control a market and set whatever price it chooses. This can be of particular concern for products and services that are considered necessities, as electricity is. Nonetheless, the government has historically allowed electric utilities to operate as monopolies. In fact, the government generally gives electric utilities a *franchise* to operate exclusively in a given market. This is due to the utilities' status as natural monopolies. Their monopoly results from the essential nature of the industry (including the grid infrastructure required to transport and deliver electricity) and not any bad action on a utility's part. The government therefore permits the monopoly, and instead protects the public's interest in access to reasonably priced electricity by heavily regulating electric utilities and monitoring their functions—particularly the rates that utilities are allowed to charge consumers and the new developments they are permitted to pursue.

There are three main types of electric utilities: investor-owned utilities, municipal utilities, and electric cooperatives.

***Investor-Owned Utilities.*** Investor-owned utilities are private, for-profit enterprises with a stock-based ownership. Examples of this type of utility in Minnesota include Xcel Energy, Alliant Energy, and Minnesota Power. Overall, investor-owned utilities are the most prevalent type of utility in the United States.<sup>2</sup>

Investor-owned utilities finance new projects through the sale of debt and equity instruments, such as bonds (debt) or shares of stock (equity). Therefore, investor-owned utilities are naturally motivated to maximize their profits, pay a high return to their investors, and encourage further investment. A utility's primary mechanism for achieving profits is, of course,

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<sup>2</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.03 (2006).

through the rates received from customers for electricity. Because of the potential for an investor-owned utility to allow profit motivations to outweigh the public's interest in affordable and reliable electric services, this type of utility is typically the most heavily regulated in the industry, particularly with regard to the rates they charge their customers.

This profit motivation also means that investor-owned utilities seek to obtain the electricity they sell to their customers as cheaply as possible, whether by generating it directly or purchasing it. However, electricity that a utility considers lowest-cost can have significant side costs for the public, including environmental degradation, health risks, trade dependencies, and increased concentration in the electric industry. To address this, the government can also regulate the prices that investor-owned utilities pay for the electricity they purchase. Moreover, the government can regulate the types of electricity that utilities can generate and purchase—for example, electricity generated from renewable versus non-renewable sources.

***Municipal Utilities.*** Municipal utilities are created as functions of town, city, county, and district governments. Minnesota has 126 municipal utilities, which provide distribution services only. In addition, there are 6 municipal power agencies in Minnesota that provide these distribution-only municipal utilities with electric generation and transmission services.

Few states fully regulate municipal utilities. Instead, most states rely on the elected officials of the government “owner” to be publicly accountable for the utility's operations and, in that way, ensure that customers' rates remain reasonable and, to some extent, ensure that environmental values are considered.<sup>3</sup> In Minnesota, for example, the legislature has determined that “[b]ecause municipal utilities are presently effectively regulated by the residents of the municipalities which own and operate them . . . it is deemed unnecessary to subject such utilities to regulation.”<sup>4</sup> Minnesota law does have a mechanism through which a municipality may become subject to regulation by the state public utilities commission if the municipality chooses to do so.<sup>5</sup>

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<sup>3</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.03 (2006).

<sup>4</sup> Minn. Stat. § 216B.01 (2006).

<sup>5</sup> Minn. Stat. § 216B.025 (2006).

Although municipal utilities are not subject to comprehensive regulation in Minnesota, some of Minnesota's general energy laws do apply to municipal utilities, including the state's renewable energy standard and the requirement for tariffs encouraging locally owned and on-site generation.<sup>6</sup>

**Electric Cooperatives.** Electric cooperatives are non-profit, consumer-owned utilities. In Minnesota, there are 45 distribution-only electric cooperatives. In addition, there are 6 electric cooperatives in Minnesota which generate and transmit electricity (also called *power supply cooperatives* or *G&T cooperatives*). These G&T cooperatives are owned by the distribution cooperatives to which they supply wholesale power. G&T cooperatives in Minnesota include Dairyland Power and Great River Energy.

Electric cooperatives are especially prevalent in rural areas, with almost 50 percent of rural people served by one of the approximately 950 rural electric cooperatives in the United States. This is, in large part, due to federal legislation such as the Rural Electrification Act of 1936, which promoted access to electricity in rural areas by providing subsidized loans for electric development in places where investor-owned utilities found it uneconomical to do business.<sup>7</sup>

Electric cooperatives are private entities controlled by their member-owners through an elected board of directors. Because electric cooperatives

#### ***Independent Power Producers***

When non-utility entities generate electricity and sell it to others, they are called *independent power producers*. Typically, independent power producers sell their electricity at wholesale rates to utilities, and the utilities distribute the electricity to end users at retail rates. Independent power producers are quite common across multiple types of energy sources and include farmers who sell back excess wind energy generated on their farms.

<sup>6</sup> See Next Generation Energy Act, 2007 Minn. Sess. Law (Ch. 136, art. 4, § 10; art. 6, § 1) (to be codified at Minn. Stat. § 216B.1691) (requiring 25 percent of utilities' retail electric sales to be generated by renewable sources by 2025); Minn. Stat. § 216B.1611 (2006) (requiring each utility to adopt a distributed generation tariff that provides for the interconnection and parallel operation of facilities with no more than 10 MW of interconnected capacity); Minn. Stat. § 216B.164 (2006) (requiring all electric utilities, including municipal utilities, to offer net metering—a power purchase and billing system to encourage cogeneration and small power production).

<sup>7</sup> National Consumer Law Center, *Access to Utility Service* § 1.5 (3rd ed. 2004).

are non-profit entities and are designed to be directly accountable to their member-owners (who are also the cooperative's customers), the majority of states do not regulate the rates charged by electric cooperatives.<sup>8</sup>

In Minnesota, for example, electric cooperatives are not generally subject to regulation by the public utility commission.<sup>9</sup> However, the cooperative's members or stakeholders are guaranteed certain rights by law, including access to the cooperative's records and mandatory open meetings.<sup>10</sup> In addition, members of an electric cooperative can vote to make the cooperative subject to Minnesota's rate regulations.<sup>11</sup>

As with Minnesota's municipal utilities, electric cooperatives are subject to some of Minnesota's general energy laws, including the state's renewable energy standard and the requirement for tariffs encouraging locally owned and on-site generation.<sup>12</sup>

### C. The Electric Grid

Electricity travels from generation facilities to retail customers, such as homes and businesses, over the electric grid. The electric grid now in place in the United States started as a series of small, relatively isolated electric systems constructed by local utilities to transmit locally produced electricity to their own customers. Over time, however, utilities realized that interconnecting these discrete but neighboring electric systems would improve overall system reliability, since electricity could then be transferred locally or regionally, and utilities could share their energy to meet collective demands. Thus, the interconnected electric grid we have today was not designed to transmit large quantities of electricity over

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<sup>8</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.04 (2006).

<sup>9</sup> Minn. Stat. § 216B.01 (2006).

<sup>10</sup> Minn. Stat. § 216B.027 (2006).

<sup>11</sup> Minn. Stat. § 216B.026 (2006).

<sup>12</sup> See Next Generation Energy Act, 2007 Minn. Sess. Law (Ch. 136, art. 4, § 10; art. 6, § 1) (to be codified at Minn. Stat. § 216B.1691) (requiring 25 percent of utilities' retail electric sales to be generated by renewable sources by 2025); Minn. Stat. § 216B.1611 (2006) (requiring each utility to adopt a distributed generation tariff that provides for the interconnection and parallel operation of facilities with no more than 10 MW of interconnected capacity); Minn. Stat. § 216B.164 (2006) (requiring all electric utilities, including electric cooperatives, to offer net metering—a power purchase and billing system to encourage cogeneration and small power production).

vast distances.<sup>13</sup> Indeed, the current *grid* is still essentially a combination of several utility-owned, but now interlocking, electric systems.<sup>14</sup>

Technical improvements to the grid have historically been made in a piecemeal fashion, with utilities and independent power producers making limited improvements as a specific need for additional capacity emerged. Today, the need for increased and more flexible transmission capacity is regularly cited as the single biggest obstacle to developing new electric generation sources.<sup>15</sup> This is particularly true for wind projects and other renewable generation that would be located long distances from the ultimate customers.

In this context, it is also important to understand that once a new electric generation facility is connected to the grid, its electricity is indistinguishable from the other electricity running through the grid. When new electricity is fed into the grid, that specific pool of electricity cannot be directed to a specific end-user in a specific location. Instead, newly generated electricity literally joins a pool of other electrons that move along the path of least resistance to the nearest customer who makes a demand for electricity by simply flipping a switch.<sup>16</sup>

Another important characteristic of the electric grid is that it has no capacity for electricity storage. This means that, in order to ensure constant, adequate, and secure electric service, generation into and distribution out of the grid must be constantly monitored and managed. A typical power plant can control the amount of electricity it generates relatively easily, by varying the amount of

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<sup>13</sup> See generally Global Energy Concepts, *Power Grid and Electricity Delivery Overview* (NYS Energy Research & Dev. Auth. Oct. 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/8\\_overviewpowergrid.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/8_overviewpowergrid.pdf) (last visited June 15, 2007). To give some sense of scale, the majority of electricity today still comes from large central stations, such as coal-burning power plants, and these facilities have capacities of roughly 50 to 2,000 MW. By contrast, individual commercial-scale wind turbines typically range in capacity from 200 kW to 3 MW.

<sup>14</sup> Currently, there are 3 major interconnections in the United States. These are the Eastern Interconnect, the Western Interconnect, and Texas.

<sup>15</sup> See, e.g., American Wind Energy Association, *Wind Power Outlook 2007*, at 6, available at [http://www.awea.org/pubs/documents/Outlook\\_2007.pdf](http://www.awea.org/pubs/documents/Outlook_2007.pdf) (last visited June 15, 2007).

<sup>16</sup> See generally Marshall Brain, *How Power Grids Work*, <http://science.howstuffworks.com/power.htm/> (last visited June 17, 2007).



fossil fuels being burned. Wind projects, however, generate electricity from an intermittent and somewhat unpredictable resource, so they necessarily have a more difficult time managing their output. Thus, in some instances, an excess of electricity in the grid may mean that a wind project must be shut down, or *curtailed*, because the grid does not have available capacity for the electricity the wind project could be producing at that time.

Putting all of these factors together, it is easy to see why oversight and regulation of the electric industry is necessary but can also be extraordinarily complex. Multiple parties, with their many discrete and sometimes competing interests, must somehow efficiently coordinate with each other and the entire system to ensure that the public has fair, affordable, and reliable access to electricity. This is where the multiple layers of government regulation come into play.

### III. State and Federal Regulation of the Electric Industry

The most familiar example of regulation in the electric industry is certainly government oversight of the rates investor-owned utilities are allowed to charge their various classes of retail customers. However, the reality is that the states and the federal government regulate almost all aspects of the electric industry, including the siting of new high-voltage transmission lines, the interconnection of independent power producers' projects within the existing electric grid, and wholesale power sales.<sup>17</sup>

Because regulation of the electric industry is so comprehensive and impacts all participants in the industry, farmers who want to sell wind-generated electricity, and their attorneys, will need a good sense of who regulates what aspect of the electric industry, and what those regulations are. Depending on the size and nature of a farmer's wind project, the farmer is likely to negotiate with other electric industry participants at three major points in the project development process. First, the farmer will need to negotiate with the local utility to *interconnect* the wind project to that utility's local grid line. Second, the farmer will need to negotiate to *sell the generated power* to a utility or other power purchaser. Finally, the farmer may need to negotiate to acquire *transmission rights* over other utilities' electric lines in order to move the generated bulk power to the end purchaser. In practice, all three of these negotiations may occur simultaneously; however, all three are regulated differently and potentially by different levels of government.

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<sup>17</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.01 (2006).

Which government agency has jurisdiction over any given facility or any given transaction will depend on the particular facts of the situation. This section provides some general guidelines for determining who regulates what and is intended merely as an introduction to the legal landscape in which wind energy developments are built. In-depth discussion of these various regulations is saved for later chapters of this guide, as appropriate.

### A. State Authority and Regulation

At the state level, *public utility commissions* (PUCs) (also sometimes called *public service commissions*) generally play a major role in utility regulation. State PUCs typically have exclusive jurisdiction over the retail sale and distribution of electricity within the state.

For example, state PUCs are almost always solely responsible for regulating the electric rates charged to individual customers of the rate-regulated utilities in the state.<sup>18</sup> In addition, state PUCs typically have authority to regulate subjects such as: (1) service and quality standards for electric service in the state; (2) in-state construction of new electric generation facilities, such as new power plants, and in-state construction of new electric transmission facilities, such as new high-voltage power lines; (3) franchise (monopoly) areas for in-state electric utilities; and (4) at least in some cases, transmission and wholesale sales of power conducted entirely within the state's borders.<sup>19</sup>

To take Minnesota as one example, it is the Minnesota Public Utilities Commission (PUC) that has the most authority over regulated electric utilities, authority which touches essentially all aspects of electricity generation, transmission, and distribution within the state.

Minnesota PUC has responsibility for setting electric rates and regulating the quality of electric services provided to utility customers.

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<sup>18</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.03 (2006).

<sup>19</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.03 (2006). This last point is actually an area of significant jurisdictional dispute. The federal government may, in some cases, also claim jurisdiction over transmission and wholesale transactions—even if they are entirely within a single state—if the particular transaction or dispute at issue affects the larger interstate energy market or transmission grid.

***Tariffs in Energy Law Terminology***

The term “tariff” has multiple meanings, even within energy law, and this can cause some confusion. *Tariff* is commonly used to refer to the rates paid for electricity based on the amount of *kilowatt hours* (kWh) consumed or generated. From the perspective of a utility or an independent power producer, however, the term “tariff” often refers more generally to a document filed by the utility and approved by the state’s PUC that contains the rates, charges, schedules, regulations, terms, and/or conditions applicable to a class of regulated electric service provided by that utility.

Most state PUCs exercise the majority of their oversight of utility actions by requiring the utilities to obtain their approval of these various *tariffs*. In addition to the retail tariffs, utilities can file—and state PUCs can approve—tariffs that address utilities’ purchases of electricity from independent power producers, such as farmer-owned wind energy projects, and the interconnection of these projects with the grid.

Minnesota PUC is responsible for granting *Certificates of Need* for new transmission lines and large power plants, and oversees construction of new electric facilities by in-state utilities. Minnesota PUC also reviews the siting of most large wind energy projects in the state.

Minnesota PUC supervises each utility’s energy development and planning process, which is called *Integrated Resource Planning*, or *Least Cost Planning*. Utilities in Minnesota are required to file such a plan every two years, and the plan must propose how the utility will meet 50 to 75 percent of all new energy needs through a combination of renewable energy sources and conservation methods.<sup>20</sup> Further, Minnesota PUC is charged with encouraging and approving small power generation resources.

Minnesota PUC also regulates the accounting and business practices of in-state utilities. It must approve utility mergers or acquisitions and other major financial transactions that would have rate impacts within the

state, and it handles consumer complaints on issues ranging from stray voltage to cold weather shut-off of electric service.<sup>21</sup>

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<sup>20</sup> Minn. Stat. § 216B.2422, subd. 2 (2006).

<sup>21</sup> See generally Minnesota Public Utilities Commission, *Electricity*, <http://www.puc.state.mn.us/electric/index.htm> (last visited May 31, 2007); Mike Bull, *Regulation of Energy Utilities in Minnesota* (Research Dept. of the Minn. House of

In addition to the PUCs, in some states, other state agencies may be delegated additional energy-related regulatory authorities. For example, in Minnesota, the state Department of Commerce is charged with advocating for the state's energy policies before the Minnesota PUC, and to further this effort, regulated utilities are required to file annual reports with that Department.<sup>22</sup>

## **B. Federal Authority and Regulation**

The Federal Energy Regulatory Commission (FERC) is responsible for regulating the electric industry at the federal level. Unlike state PUCs, FERC does not regulate retail electricity sales or in-state distribution to consumers. Instead, FERC approves rates for, and regulates wholesale electricity sales and transmission of, electricity across state lines.<sup>23</sup>

FERC also administers accounting and financial reporting regulations and monitors the conduct of certain energy companies that operate across state lines.<sup>24</sup> In this capacity, FERC oversees these entities' issuance of certain stocks and other securities, their assumptions of liabilities, and their mergers and acquisitions. FERC also reviews these entities' officer and director appointments for conflicts of interest.

Federal law mandates some special treatment of certain types of power producers, including so-called *Qualifying Facilities* (QFs) and *Exempt Wholesale Generators* (EWGs). These classifications have effects on both state and federal regulation of those who qualify; however, it is FERC that oversees and reviews power producers' attempts to qualify for these classifications.

As a general rule, FERC does not regulate the physical construction of electric facilities, or the activities of municipal power systems or most rural electric

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Representatives, Oct. 2002), available at <http://www.house.mn/hrd/hrd.htm> (last visited June 8, 2007).

<sup>22</sup> See Minnesota Department of Commerce, *Energy Utilities: About Us*, <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536881736&programid=536884849&id=-536881351&agency=Commerce&sp2=y> (last visited June 1, 2007).

<sup>23</sup> 16 U.S.C. § 824 (2006); see generally 1-3 Sheila S. Hollis, *Energy Law and Transactions* § 3.03 (2006).

<sup>24</sup> See 16 U.S.C. §§ 824b, 824c (2006).

cooperatives. Recent changes in the law, however, have created some exceptions to this.<sup>25</sup>

***Energy Policy Act of 2005***

Farmers interested in developing a wind energy project should be aware that enactment of the federal Energy Policy Act of 2005 promises significant changes for the electric industry. How some of these changes will be implemented, and what they will mean for the future of independent power producers, including wind energy generators, is still to be determined to some extent. Overall, the Act is designed to reduce regulation of electric utilities while simultaneously increasing competition among power providers. For example, the Act repealed a major energy-specific securities law, and this is expected to result in increased consolidation in the electric industry. The Act also paves the way for increased federal authority over transmission corridors considered to be of national importance, and defines conditions under which previously guaranteed markets for small renewable energy producers can be eliminated. These changes will be discussed in detail within the appropriate chapters of this guide; however, farmers should be aware of the changing nature of federal utility regulations and work with an attorney who is up-to-date on the latest developments.

In addition, it should be noted that some states, such as California and Texas, have already experimented with deregulating aspects of utility services in an effort to increase competition in the electric industry. These states have what are called *restructured markets*. Other states are also considering, or are in the process of implementing, major changes to their approaches to regulating electricity generation and sales.

In addition to FERC, the Rural Utilities Service (RUS), which is a part of the U.S. Department of Agriculture, also exercises some federal authorities relevant to the electric industry. Specifically, RUS is responsible for administering various government loans and loan guarantees that are made available to electric utilities

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<sup>25</sup> For example, the Energy Policy Act of 2005 gives FERC limited “backstop” authority to site certain new transmission facilities that are located in areas designated as important national interest electric transmission corridors if the state does not, or will not, so act on a siting decision. 109 Pub. L. 58, Title XII, Subtitle B, § 1221(a), 119 Stat. 946 (Aug. 8, 2005) (codified at 16 U.S.C. § 824p).

in order to advance rural electrification.<sup>26</sup> There have been some legal battles regarding the extent to which RUS, largely via conditions imposed on its mortgage agreements with rural electric cooperatives, has additional regulatory authorities not given to an ordinary lender. Although interesting, these issues are not likely to be relevant to many farmer developers.<sup>27</sup>

The Department of Energy (DOE) also has some role in federal regulation of the electric industry. Structurally, FERC is actually an independent regulatory commission within DOE. DOE acts as a sort of overarching umbrella agency to formulate and implement national energy and conservation programs.<sup>28</sup>

### *Regional Transmission Providers*

Although they are neither governmental agencies nor electric utilities per se, *Independent System Operators* (ISO) and *Regional Transmission Organizations* (RTO) also play a major role in the electric industry and, particularly, in the management and coordination of the electric grid. These regional entities are voluntarily created within the electric industry under Federal Energy Regulatory Commission (FERC) guidelines and operate independently of their utility members to administer non-discriminatory access to the transmission system. For this purpose, utilities that own transmission facilities turn over operational control of large portions of their interests in the electric grid to the ISO or RTO in their region. Farmers are likely to deal with these transmission organizations when seeking to interconnect a large commercial-scale wind project to transmission lines. Transmission, interconnection, and the role of RTOs and ISOs in electricity law are discussed in more detail in Chapter 11 (Interconnection and Transmission) of this guide.

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<sup>26</sup> See 7 C.F.R. § 1700.1 (2007); see also Rural Utilities Programs, *Assistance for Rural Electric Utilities*, <http://www.rurdev.usda.gov/rd/pubs/pa1789.pdf> (last visited June 8, 2007).

<sup>27</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.04[5] (2006).

<sup>28</sup> See generally 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.04[8] (2006).

## Chapter 3

# Negotiating Wind and Land Agreements

### I. Property Requirements for a Wind Project

For anyone seeking to develop a wind energy project, securing access both to land and an unobstructed wind resource is of primary concern. Generally, developers look for places with significant average wind speeds, close proximity to available transmission lines, good access roads for bringing in heavy equipment, and favorable local construction and operation costs.

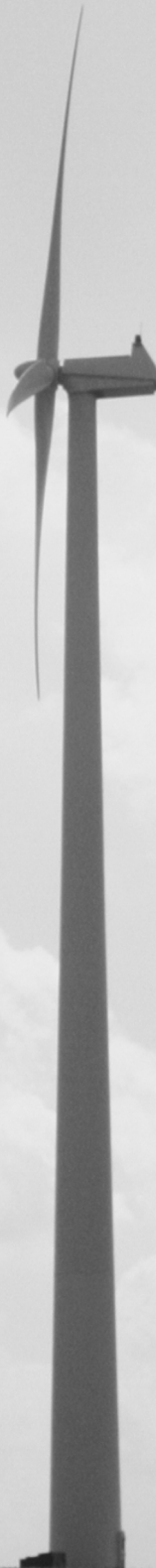
For larger wind projects, most wind developers will need to develop a project site that affects many landowners and many parcels of land. On flat and open terrain, an average commercial-scale wind project would require about 60 acres of land for each megawatt (MW) of installed generation capacity. However, importantly, most of this land constitutes a buffer zone, and only a small percentage of it (roughly 3 acres) will actually be occupied by turbines, access roads, and related equipment. The rest can usually remain free and available for farming, ranching, and other compatible uses.<sup>1</sup>

In addition to the land required for the project site itself, the developer may need to secure the right to cross over adjacent properties to get access to the turbines or to run power lines to transport generated electricity from the project to the electric grid. The developer may also seek agreements from neighboring landowners to ensure they do not put up obstacles that would block the project's open access to the wind.

This chapter provides a general overview of land- and wind-related property agreements and summarizes some important issues to consider when negotiating them. Although this chapter is focused primarily on farmers who are

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<sup>1</sup> See American Wind Energy Association, *Wind Web Tutorial: Wind Energy and the Environment*, [http://www.awea.org/faq/wwt\\_environment.html](http://www.awea.org/faq/wwt_environment.html) (click on "How much land is needed for a utility-scale wind plant?") (last visited June 5, 2007).



considering allowing a third-party developer to build a wind project on or near their farm, the issues should also be of interest to farmers who are considering developing their own wind project and may need to secure land and wind access from another landowner.

The agreements discussed here affect significant property rights and can last far into the future. They should always be carefully detailed in writing, and it is imperative that both sides of the negotiations have the advice of qualified legal counsel who is up-to-date on all of the relevant federal, state, and local laws. In addition, farmers should be aware that these agreements can have significant impact on the parties' tax obligations; therefore, a tax expert should be consulted.

## **II. Property Rights in Land and Wind**

Generally, a landowner owns the right to both the land and the airspace, including the wind, immediately above it.

A landowner's right to use and build on the surface of the land is fairly clear. In most cases, these rights are subject only to state or local zoning and property laws, and the claims of any persons who share an ownership interest in the property.<sup>2</sup>

The landowner's right to possess the wind flowing immediately above the surface of the land is also fairly clear, although this is a less-tested area of property law. Many states have recently passed statutes to clarify that landowners do have a distinct property right in the wind directly over their property.<sup>3</sup>

The issue of who owns the wind is sometimes complicated, because the wind is a resource that literally "flows" over the surface of the land, and the construction of something like a tall building on one person's property could obstruct the flow of wind over neighbors' properties.<sup>4</sup> Similarly, a wind turbine creates a wake of

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<sup>2</sup> See 28 Am. Jur. (Second) Estates § 13 (2007).

<sup>3</sup> See, e.g., Minn. Stat. § 500.30 (2006) (amended by Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 15)); Or. Rev. Stat. § 105.900 (2005); N.D. Cent. Code. § 47-05-14 (2005).

<sup>4</sup> See Iowa Energy Center, *Wind Energy Manual: Wind and Wind Power*, [http://www.energy.iastate.edu/renewable/wind/wem/wem-08\\_power.html](http://www.energy.iastate.edu/renewable/wind/wem/wem-08_power.html) (last visited June 17, 2007).



still air in the area behind it, and if this *wind shadow* extends onto neighbors' properties, it could prevent those neighbors from later developing wind projects of their own.<sup>5</sup>

The law continues to develop to reflect these characteristics of the wind as a resource. In many cases, the issue is dealt with by setback requirements in wind energy zoning laws, and developers frequently seek further agreements in which neighbors agree not to obstruct the flow of wind to nearby turbines in the future. These agreements, typically called *wind easements*, are discussed in more detail below.

State laws vary on whether wind rights can be permanently “severed” from the surface rights on the land. In California, a state court has held that wind rights can be severed from the land.<sup>6</sup> In South Dakota, there is a state statute that prohibits such severing.<sup>7</sup> In most other states, the law is unclear; however, as long as the wind rights are only temporarily transferred to a third party, this uncertainty should not be problematic. When the rights to wind above the land are permanently transferred to a different party, it can create difficulties of coordination in the future between the separate surface and wind owners.

### III. Types of Legal Agreements

There are a variety of legal agreements through which landowners can give developers access to their land and wind resources. This section describes generally what some of these are.

Farmers should keep in mind that in most cases some combination of legal agreements will be needed. For example, a developer might want to negotiate for short-term rights for an initial exploration of the feasibility of the project while preserving the right to enter into more long-term arrangements later. If development actually occurs, most projects include both a land lease for the

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<sup>5</sup> See The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 14 (2005), available at <http://www.cleanenergyresource teams.org/publications.html> (click “Companion Document” under “Other Publications”) (last visited June 17, 2007) (defining the *wind shadow* as equal to 10 times the diameter of the rotor).

<sup>6</sup> *Contra Costa Water District v. Vaquero Farms, Inc.*, 68 Cal. Rptr. 2d 272 (Cal. Ct. App. 1997).

<sup>7</sup> S.D. Codified Laws § 43-13-19 (2006).

project site itself and several wind and other easements over the surrounding properties.

All agreements that affect property rights should be in writing and reviewed by a qualified attorney. The descriptions in this section describe general legal concepts, but the provisions in any specific agreement may differ from what is described here. The final written agreement will control the actual rights and obligations of the parties.

Moreover, farmers should be aware that the requirements for land- and wind-related property agreements vary from state to state. For example, most states require the legal agreement itself, or some summary of that agreement, to be filed or “recorded” and made part of the official public record. The procedures for recording these documents, and the requirements for what these documents specifically contain, vary greatly depending on the locality. For this reason, before signing any agreement, a farmer should consult an attorney about local and state-specific legal requirements.

### **A. Option to Purchase or Lease**

Initially, a developer may want to buy an option to purchase or lease the land from the landowner. An option gives the developer the right to purchase or lease the land in the future at an agreed-upon price, subject to agreed-upon terms. An option essentially removes property from the market while a developer determines whether to proceed with the project. The terms of the final purchase or lease are negotiated and set forth in the option agreement.

With an option, the developer gets to decide whether he or she will actually purchase or lease the land at any point during the term of the option, but the developer is not obligated to do so. At the end of the option period, the developer must decide whether to purchase or lease the property at the price and terms agreed to in the option agreement, or to give up all interest in the land. The option right is forfeited if not exercised by the stated date.

If a better offer from someone else comes along while the option is in place, the landowner cannot accept it. The landowner can only sell or lease the land to the developer who holds the option, according to the terms and price already negotiated in the option agreement.

The price of the option should compensate the landowner for keeping the property off the market. The value depends on the length of the option period and the value of the land and wind resources being selected. Usually, the landowner is paid a lump sum equivalent to a small percentage of the property value. If more than one developer wants to purchase the option, it should become more valuable.<sup>8</sup>

Most likely, the developer will also want to acquire some rights to access and even use the land during the option period, in order to test the wind resource or otherwise investigate the feasibility of a wind project on the site. This will probably be in the form of a separate short-term lease or license agreement to allow the developer to access and use the land for specific purposes during a specific period of time.

For example, a developer who is serious about exploring the feasibility of a wind project on a landowner's property will likely want to install an *anemometer* on the property to monitor and measure the average wind speed. A *meteorological tower agreement* (also called a *MET tower agreement*) allows the developer to erect a tower on the land to hold the anemometer. It may be a separate contract or incorporated into the wind option, lease, or easement.

Some farmers negotiate for the right to access and use the wind information gathered about their land.

#### *State Law Limits on Length of Wind Options*

Many states are debating or have already imposed mandatory time limits on wind-related option agreements to prevent developers from stockpiling wind rights or manipulating markets and demand for "green" energy. For example, a wind option agreement in North Dakota terminates if wind development has not occurred within 5 years after the agreement commences. N.D. Cent. Code § 9-01-22 (2005). The same is true for wind easements in South Dakota. S.D. Codified Laws § 43-13-17 (2006). Minnesota also recently passed legislation that requires that wind option agreements will terminate if the anticipated wind project does not begin commercial operation within 7 years. Next Generation Energy Act, 2007 Minn. Laws (Chap. 136, art. 4, § 15) (to be codified at Minn. Stat. § 500.30, subd. 2).

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<sup>8</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 41 (Izaak Walton League of America, 2nd prtng. 2001).

## **B. Right of First Refusal**

Instead of selling an option to an interested developer, a landowner could instead sell the developer a right of first refusal over the land. This right of first refusal gives the developer the right to match the terms of any proposed sale or lease to a third party in the future. Unlike an option, a right of first refusal does not set the price or other terms of an anticipated future sale or lease. Instead, the holder of a right of first refusal merely gets the right to match any other offer to buy or lease the property. If a developer with a right of first refusal agrees to match an offer received for the land, then the right of first refusal is exercised and the developer gets to buy or lease the property.

The holder of a right of first refusal can also elect not to match the offer. In that case, the third party making the offer can acquire the property from the landowner.

When a landowner has given a right of refusal to a developer, the landowner is required to communicate to the developer any offers to purchase or lease the property. Other terms of the right of first refusal can be negotiated. For example, the right of first refusal can be made not to apply to certain offers by family members.

A right of first refusal is beneficial to a landowner because it does not take the property entirely out of the wind development market. However, other developers may be unwilling to make the effort to attempt to acquire property that is subject to a right of first refusal.<sup>9</sup>

## **C. Sale**

A sale of property typically conveys to the buyer all of the seller's interests in, and rights to, a piece of property. The seller is paid in full at the time of the exchange, and the buyer is then free to use the property for any legal purpose.

The sale price should reflect the market value of the property, including the value of the wind resource, if any. If a wind developer wants to pay the sale price over time, the landowner should consult an attorney about setting up some kind

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<sup>9</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 41 (Izaak Walton League of America, 2nd prtg. 2001).

of security arrangement to ensure future payment.<sup>10</sup> This kind of arrangement can also have important tax consequences.

#### **D. Lease**

A lease transfers the right to possess specific property, for a specific period of time and under certain conditions, from the landowner (landlord) to another party (tenant). Unlike a sale, a lease transfers only the right to possess the property and only for a discrete period of time.<sup>11</sup>

In most wind developments, the developer will seek a long-term lease of the land on which the project will be built to secure access to the installation site. These leases are typically for a period of many years.

If the farmer wants to maintain any control over the use or development of the land being leased, those details must be written into the lease agreement. Unless the farmer expressly reserves certain rights in the lease agreement, leases are usually presumed to give the tenant an exclusive right to possess the leased property.

#### **E. Easement**

An easement conveys limited rights to use a portion of a landowner's property rights, either on the land or in the air. Generally, most easements are assumed to be created in perpetuity, which means they attach to the land forever. However, a written easement agreement can provide a cutoff point and last for only a specified period of time.<sup>12</sup>

The most common type of easement is the right to travel over another person's land, also known as a right-of-way. Other common examples of easements

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<sup>10</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 40 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>11</sup> See generally Fred Zalzman, *Harvesting the Wind: A Legal Guidebook for Landowners* 2 (NYS Energy Research & Dev. Auth. May 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/12\\_harvestingthewind.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/12_harvestingthewind.pdf) (last visited June 5, 2007).

<sup>12</sup> See generally Fred Zalzman, *Harvesting the Wind: A Legal Guidebook for Landowners* 2-3 (NYS Energy Research & Dev. Auth. May 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/12\\_harvestingthewind.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/12_harvestingthewind.pdf) (last visited June 5, 2007).

include the right to construct and maintain a roadway across the property, the right to construct a pipeline under the land, and the right to build and maintain a power line over the land.

A farmer who allows his or her property to be subject to a developer's easement is said to be "burdened," because he or she is not allowed to interfere with the developer's use of the easement.

Easements are also often referred to as either affirmative or negative easements. In an *affirmative easement*, the farmer grants the developer the right to do something on the property, such as cross the property to install and repair testing devices or turbines, or to erect and maintain transmission lines.

Another example of an affirmative easement is an overhang or encroachment easement in which a landowner permits the overhang of something like the rotors of a neighbor's wind turbine onto his or her property.<sup>13</sup>

In a *negative easement*, the farmer agrees not to do something on his or her land in order to benefit the neighboring land. For example, a farmer may grant a developer a wind easement on his property by agreeing not to build anything

#### ***State Law Limits on Wind Easements***

Many states are now enacting specific statutes defining and regulating wind easements. Minnesota law, for example, provides that a wind easement must be in writing and filed in the county recorder's office. In addition, Minnesota law requires several specific provisions be explicitly described in the written easement, such as the angles of wind obstruction prohibited, and maintains that a duly filed wind easement will be presumed to be perpetual unless otherwise provided by the terms of the agreement or by operation of other Minnesota laws. Minn. Stat. § 500.30 (2006). However, in 2007, the Minnesota legislature added that, like wind options in the state, any wind easement, easement to install wind turbines, or lease of wind rights will also terminate if the intended wind project is not in commercial operation within 7 years. Next Generation Energy Act, 2007 Minn. Laws (Chap. 136, art. 4, § 15) (to be codified at Minn. Stat. § 500.30, subd. 2). South Dakota has passed a law requiring that no wind easement can exceed a term of 50 years. S.D. Codified Laws § 43-13-17 (2006).

<sup>13</sup> Robert R. Nardi and John H. Daniels, Jr., *Wind Energy Easement and Lease Agreements* 3 (Windustry Sept. 2005), available at [http://www.windustry.com/easements/GuidelinesOutline\\_Sept2005.pdf](http://www.windustry.com/easements/GuidelinesOutline_Sept2005.pdf) (last visited June 5, 2007).

that would block a neighboring turbine's access to the wind. A farmer may also grant a noise easement, thereby agreeing not to object to any noise created by neighboring wind turbines.

Easements are commonly used in wind development to ensure wind access. Developers might purchase or lease only sufficient land to install actual turbines, but not enough to assure the turbines have access to the required wind. Instead, these developers may seek wind easements from neighboring farmers, as well as the farmer with the turbine on his or her property, to restrict vegetation, structures, or other obstacles that would impair or obstruct the required wind flow.

#### *Difference Between Leases and Easements*

Although they may appear to be practically similar, *leases* and *easements* are legally distinct agreements. They secure different types of property rights, and they impose different default terms and obligations. Nonetheless, in the reality of the wind development industry, the words "lease" and "easement" tend to be used somewhat interchangeably and without much precision. This can create significant confusion. The substance of all legal documents should be reviewed carefully to ensure they are in fact what they claim to be.

#### **F. Covenant**

A covenant is typically a restriction on an owner's right to use his or her property in a specified way. A common example of a covenant is a provision in the title to a residential condominium agreeing to be subject to homeowners' association requirements. Covenants are also sometimes used in a wind development. For example, if a farmer sells only a portion of a large parcel of land to a wind developer, the farmer may agree that, if the remainder of the parcel is sold, the deed will contain a restrictive covenant preventing the new owner from obstructing the developer's wind access.

Properly recorded covenants bind later purchasers of land, whether those purchasers are burdened or benefited by the covenants. However, some states have laws limiting how long these restrictions can have effect. For example, Minnesota law provides that many restrictive covenants cease to be valid

30 years after the date of the deed or document creating them, unless certain exceptions, specified in the law, are met.<sup>14</sup>

### **G. Permit or License**

A farmer may grant a developer a permit or license to use the land or airspace for a specified time or purpose. Permits or licenses are typically short-term permissions granted for specific land uses, and these agreements can usually be terminated at any time.

## **IV. Effect of Agreements on Landowner's Relationship with Others**

While negotiating with a developer, the farmer should be aware that any property agreement reached could affect, or be affected by, the farmer's dealings and relationships with other parties.

### **A. Secured Creditors**

If the property selected for potential wind development is subject to a mortgage or other secured creditor claim, the farmer should consider the impact of any wind-related negotiations on the terms of that security agreement.

For example, the farmer should know whether it will be a default of an agreement with a secured creditor to grant the developer an interest in the property without prior permission of the secured creditor. In most cases, when there is a mortgage on the land, the terms of the landowner's security agreement with the lender will require that the lender be involved in the negotiations with the developer. At a minimum, the lender will likely need to give a formal consent to the transaction.

The farmer should also be concerned whether the agreement with the developer will affect the overall property value in such a way that a secured creditor could claim the debt is under-secured and seek immediate payment, whether any creditors have a security interest or mortgage that would allow them to claim an interest in the payments due the farmer under the wind agreement, and how the

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<sup>14</sup> See Minn. Stat. § 500.20, subd. 2 (2006).



agreement with the developer could affect the farmer's ability to obtain new farm financing in the future.<sup>15</sup>

In addition, many developers will seek a *subordination and non-disturbance agreement* from the landowner's lender. The developer uses this agreement to ensure the landowner's lender will not interfere with the developer's use of the land for the wind project. In addition, the subordination portion of the agreement will require the landowner's lender to give the developer's own creditors a first claim over any shared interest in the property.<sup>16</sup>

Farmers should consult a knowledgeable attorney who can review all existing mortgages and security agreements, in conjunction with any proposed wind-related agreement, to give specific advice on these matters.

#### *Effect of State Corporate Farm Laws*

Several states have laws limiting corporate ownership of farmland and corporate farming activities. These laws generally prohibit non-family-owned business entities from acquiring an interest in farmland. If a farmer in one of these states grants an easement or enters into a lease with a developer or utility for a wind project, there is a possibility that the agreement could be invalid under the state's corporate farming law.

However, these laws typically have exceptions that might apply to leases or easements for wind energy projects. Farmers should consult an attorney to determine whether any of these restrictions may affect property agreements in a particular state. More general information about corporate farm laws is also available in the chapter on business structures later in this guide (Chapter 10).

### **B. Federal Farm Programs**

Wind development on farmland may also impact the farmer's participation in government farm programs, including the farmer's eligibility for commodity payment programs or for enrollment in various conservation programs. Farmers

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<sup>15</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 39 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>16</sup> Cindy Wenig, "Real Estate Issues in US Wind Deals" 47 from *Project Finance NewsWire* (Chadbourne & Parke LLP Aug. 2005), available at <http://www.chadbourne.com/publications> (click on "Newsletters," then click on "Project Finance NewsWire, August 2005") (last visited June 5, 2007).

should consult the particular rules of the programs at issue, any existing program agreements, program officials, and, if necessary, an attorney knowledgeable in these matters.

More detailed information about the effect of a wind energy project on participation in a variety of federal farm programs can be found in the chapter about siting a wind project (Chapter 4).

In some instances, farmers may negotiate to have the developer compensate the farmer for any lost income from farm programs or any penalties that are imposed under the programs as a result of the wind development.

### **C. Income Tax**

Different types of wind agreements, and payment arrangements, may have different income tax consequences. For example, receiving one or a few large payments may result in higher income tax liability than receiving several smaller payments over an extended time. In addition, depending on the nature of any agreement, there may be a depreciation in property value that affects income tax. The farmer should get expert tax advice during the negotiation process and before signing any agreement.

### **D. Property Tax**

Several states have specific property tax laws that apply only to wind developments, frequently with some tax exemptions for wind energy production. These laws are discussed in more detail in the chapter of this guide discussing taxes (Chapter 13).

However, any state-specific property tax exemption is likely subject to exceptions and may be changed with subsequent legislation. Accordingly, wind agreements should be negotiated with terms providing for who will be responsible for any subsequent increase in the property tax due. If the developer is hesitant to take on this uncertain future liability, farmers should be aware of this risk when negotiating the terms of the agreement.

## **V. Negotiation Issues for Farmers**

Whether negotiating from the perspective of a landowner or a local wind developer, farmers should be as informed as possible about the property issues likely to arise and should be represented by qualified legal counsel. Farmers should carefully negotiate these agreements to ensure that all possible concerns are addressed in detail in the written language of the agreement. For example,

for each right or obligation set out in the wind agreement, the parties should specify whether it applies to the landowner, the developer, or both. A thoughtfully negotiated and well-written agreement can help prevent disputes and even lawsuits in the future.

In the early stages of a new wind project, developers are driven to secure an exclusive and reliable right to develop windy sites. They often want to secure early access to multiple tracts of land in order to test and gather wind data. Developers may have an incentive to obtain future development rights from more landowners and in more areas than they will ultimately actually use. This enables developers to comfortably explore multiple locations before selecting the best scenario; and, in some cases, it may enable developers to exclude competitors from the local market.

As with any business relationship, selecting which individual or entity to contract with in the first place is a critical decision. Landowners have the right to investigate the developer's history. Landowners should ask about prior projects and may consider the risks of dealing with a first-time developer or a developer who is merely collecting wind or land rights. It is critical for landowners to be as informed as possible before entering into negotiations with a wind developer.

### **A. Duration of Agreement**

Each agreement should specify its term, meaning how long the agreement will be in effect. A typical wind project lease has a term of 20 to 30 years, but it may be significantly longer. Option periods are typically shorter, in the range of 3 to 5 years, to avoid the landowner having his or her development rights tied up for too long.<sup>17</sup>

Agreements should also address the conditions for renewal. The number and operation of the renewal periods is frequently a subject for focused negotiation. Most wind project leases will have one or two renewal terms, typically at the developer's option. These renewal periods may last for 5 or 10 years, and may be at an increased rental rate to reflect inflation and/or expected price increases. If the renewal periods are not automatic, the landowner and developer will need to agree to the terms of any future continuation at the time of the desired renewal.

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<sup>17</sup> See generally Global Energy Concepts, *Lease Agreements* 6-7 (NYS Energy Research & Dev. Auth. Oct. 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/14a\\_LeaseAgreements.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/14a_LeaseAgreements.pdf) (last visited June 5, 2007).

On a related note, the landowner and developer should negotiate whether, and under what conditions, the developer will have the right to re-power the project. Generally, re-powering requires replacing existing wind generating equipment with new and more advanced technologies.

## B. Compensation

There are many ways in which a landowner's compensation for wind agreements can be structured. Possibilities include an upfront, lump-sum payment; annual rental payments on a per turbine, per MW or per acre basis; and royalty payments based on a percentage of the gross revenues of the project. Various combinations of these approaches can also be used.<sup>18</sup>

Some general compensation guidelines for annual payments for large-scale wind projects are \$2,500 to \$5,000 per turbine, \$3,000 to \$4,000 per MW of generating capacity, or 2 to 4 percent of the project's gross revenues.<sup>19</sup> However, in practice, the exact amount of compensation varies greatly depending on a variety of factors, including the size of the project and

### *The Consequences of Confidentiality Clauses*

Historically, many wind developers have required broad confidentiality clauses in their property agreements with landowners, seeing confidentiality as part of their competitive advantage for securing the best windy sites. These clauses make it difficult, if not impossible, to get good data on existing compensation patterns. For more information on this and other compensation issues, Windustry has prepared a study of compensation packages for wind energy easements and leases. It is available on-line at [http://www.windustry.org/easements/Compensation\\_Sept2005.pdf](http://www.windustry.org/easements/Compensation_Sept2005.pdf).

<sup>18</sup> Montana Dept. of Env. Quality, *A Landowner's (Informal) Guide to Negotiating for a Wind Farm* (Aug. 15, 2003), available at <http://www.deq.state.mt.us/Energy/Renewable/LandownersGuiToWind.pdf> (last visited June 5, 2007). Moreover, farmers and developers should be careful to observe state laws in this regard. Some states may require that payments to landowners be made at least annually. Cindy Wenig, "Real Estate Issues in US Wind Deals" 48 from *Project Finance NewsWire* (Chadbourn & Parke LLP Aug. 2005), available at <http://www.chadbourn.com/publications> (click on "Newsletters," then click on "Project Finance NewsWire, August 2005") (last visited June 5, 2007).

<sup>19</sup> See Windustry, *What Does a Farmer Need to Know About Wind Energy?*, <http://www.windustry.org/opportunities/farmer.htm> (last visited June 5, 2007).

turbines being installed and the value of the land for other uses.<sup>20</sup> Additional factors include the perceived potential for profits from the wind project, the degree of competition for wind development in the area, and the negotiating skills of the landowner and his or her representatives.<sup>21</sup> Before entering these negotiations, farmers should attempt to learn the investment and cash flow projections for the planned wind project. This can affect the amount of compensation the farmer should expect for the transaction.

If royalty payments are contemplated, the landowner should be careful to ensure that the base amount for the royalty calculation (usually gross revenues) is clearly identified and defined in the contract. For example, gross revenues may or may not include other financial benefits the developer receives for operating the project, such as tax credits, other government subsidies, or revenue from selling the environmental attributes of the wind energy separate from the electricity itself (also called *renewable energy certificates (RECs)* or *green tags*). Including or excluding these other sources of income in the base amount would significantly affect the landowner's royalty payment.

Landowners agreeing to a royalty payment scheme should also seek the right to verify with the purchasing utility any data used to calculate the payments. Alternatively, landowners should seek the right to independently audit the developer's books at specified intervals to verify payment computations.

In addition to the amount of compensation, the terms of payment must be carefully and thoroughly defined. The agreement should specify whether there will be one payment or a series of payments, when each payment will be made, what each payment is for, how the payments are to be calculated, whether there are minimum guaranteed payments, whether the minimum payments are in addition to or subtracted from other payments, and how and to whom the payments are to be made. For example, landowners should be sure a written option agreement clearly addresses whether any option payment will be credited

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<sup>20</sup> Windustry, *Wind Energy Easements and Leases: Compensation Packages* (Sept. 2005), available at [http://www.windustry.org/easements/Compensation\\_Sept2005.pdf](http://www.windustry.org/easements/Compensation_Sept2005.pdf) (last visited June 5, 2007).

<sup>21</sup> See generally Kathleen J. Doll, "Wind Energy Lease Agreements" 1-5 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 5, 2007).

against any subsequent purchase, lease, or easement payments owed by the developer if the option is exercised.

Finally, in some instances, developers will offer additional payments to landowners for the right to build improvements other than turbines on the property (such as substations or roads). These agreements can be confusing, because the additional payments are usually made in these cases only if the improvements are actually built, something typically left to the developer's discretion.<sup>22</sup>

### C. Scope of Land Subject to Agreement

When land agreements are negotiated early in the development process, before all of the relevant wind data has been accumulated, developers will want to maximize the amount of property subject to the agreement. This preserves for the developer the maximum flexibility in the ultimate project layout and design once sufficient data has been collected. In addition, the developer will want to control—and prevent—any obstruction in the area that could interfere with the average speed and flow of the wind over the turbines.<sup>23</sup>

Landowners, on the other hand, are typically motivated to limit the amount of property affected by wind agreements. This not only provides maximum control over non-wind-related uses of the land, such as farming, but it also preserves the landowner's ability to lease the excluded land for other purposes. Therefore, the amount of land subject to the agreements should be considered early in the process and be carefully negotiated.

### D. Uses of the Land

To be functional, land agreements must describe in as much detail as possible how both parties can use the land. Developers will likely want to collect wind data, conduct environmental testing, construct the wind farm, create access roads

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<sup>22</sup> Cindy Wenig, "Real Estate Issues in US Wind Deals" 48 from *Project Finance NewsWire* (Chadbourn & Parke LLP Aug. 2005), available at <http://www.chadbourn.com/publications> (click on "Newsletters," then click on "Project Finance NewsWire, August 2005") (last visited June 5, 2007).

<sup>23</sup> See generally Kathleen J. Doll, "Wind Energy Lease Agreements" 1-1 to 1-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 5, 2007).

where needed, install connecting electric lines, and have the ability to do all other activities necessary to the generation, collection, and transmission of electricity on the site.

Conversely, landowners should be sure to clarify their remaining rights to use the land. Activities that are typically of particular interest include planting, cultivating, and harvesting crops; grazing livestock; developing subsurface mineral, gas, or oil resources; cutting timber; hunting; and entering upon and inspecting the property.

One issue that frequently comes up is what approval rights, if any, the landowner maintains over the final siting of both the wind turbines and any access roads. Farmers, for example, will likely want to ensure access roads are built so that disturbance of any ongoing farming operations is minimal. Similarly, the agreement should carefully spell out who maintains those roads and who may use them.

#### **E. Taxes**

The agreement should clearly identify the parties' obligations regarding payment of real property taxes, personal property taxes, and taxes on the generation or sale of electricity.

Unless otherwise specified, property taxes will likely be assessed against the landowner. Some agreements require the developer to pay all increases in taxes due because of improvements made or the changed use of the property resulting from the wind power development.

The agreement should also address whether a party has a right to be notified of taxes to be paid by the other party, and whether a party has the right to pay taxes owed by the other party to avoid placement of tax liens on the property or tax foreclosure.<sup>24</sup>

#### **F. Allocation of Liabilities**

Generally, landowners require a clause in the agreement requiring the developer to defend and hold the landowner harmless from claims for any future loss or damage to persons or property arising from the developer's use and occupation

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<sup>24</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 44 (Izaak Walton League of America, 2nd prtg. 2001).

of the land. Similarly, the developer will likely seek a promise of indemnity from the landowner for any losses he or she causes to the wind operation. These indemnification clauses may also include a requirement that the party at fault pay the other party's reasonable attorney fees should any dispute arise.

Frequently, the landowner insists that the developer buy insurance to protect against damages arising from the wind development. Possible risks to insure against include damage to real property, structures, equipment, livestock, and crops owned by either party; personal injury or property damage suffered by third parties; environmental impacts; and business interruption.<sup>25</sup>

The agreement should also identify the amount of insurance coverage to be obtained by the developer and who must be listed as insured parties. Many landowners also seek the right to notice by the developer of any default under an insurance policy and the opportunity to pay premiums not paid by the developer in order to maintain coverage.

As for environmental liability, the landowner will likely be required to warrant that there are no hazardous materials or contamination on the land at the time of the agreement. If this kind of environmental issue does exist, the parties should negotiate remediation requirements. The landowner should ensure that the developer bears responsibility for any future environmental liability the developer creates.

More information about various liability issues that may arise in the context of a wind development project is available in the chapter of this guide discussing liability (Chapter 5).

### **G. Assignment of Contract Rights by Developer**

The agreement should also specify whether the landowner and developer may allow other parties to exercise their contractual rights. Developers almost always seek broad rights to sublease, assign, and/or mortgage their rights under a wind agreement, usually without the landowner's consent.<sup>26</sup> This may be done to

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<sup>25</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 45 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>26</sup> See, e.g., Global Energy Concepts, *Sample Annotated Land Lease Agreement* 17 (NYS Energy Research & Dev. Auth. Oct. 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/14b\\_windenergyleaseagreement.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/14b_windenergyleaseagreement.pdf) (last visited June 5, 2007).



obtain financing for the project, for tax or liability purposes, to allow another developer to complete the project if the original developer is unable to do so, and for other reasons.

The landowner may try to negotiate to receive more information about the developer's plans for assignment. For example, the landowner might seek a list of circumstances under which the landowner's written permission must be obtained before an assignment can be made so that the landowner can investigate the qualifications of the assignee. The landowner could also negotiate for some guarantees that the original developer will remain responsible for all contractual obligations if the subsequent assignee fails to meet its obligations.

In most cases, the developer will also seek to transfer some rights to the developer's lender. This may be required to finance the project. For example, the developer's lender is likely to require notice of any default by the developer under the agreement, and the developer's lender will also likely require an opportunity to cure that default before the agreement is terminated. This could go so far as, in the event of foreclosure, requiring the landowner to recognize the lender as the new project owner and operator. This is designed to ensure continued operation of the wind power project and, ultimately, repayment of the developer's loan.<sup>27</sup>

## H. Covenants of Title

In most cases, before finalizing a wind agreement, a developer will want a title report prepared by a title insurance company or an attorney to determine for certain whether any other party has an interest in the land. This investigation should identify any outstanding recorded or unrecorded liens or encumbrances. The agreement should specify whether the landowner is obligated to remove any liens or encumbrances on the land or whether the developer's interest will be subject to any such claims. Many developers will also require a physical survey of the property.

In many cases, the developer will seek a representation or warranty from the landowner that there are no other liens, encumbrances, or leases affecting the land other than those specified in the agreement. In addition, as discussed above,

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<sup>27</sup> See, e.g., Global Energy Concepts, *Sample Annotated Land Lease Agreement* 18-21 (NYS Energy Research & Dev. Auth. Oct. 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/14b\\_windenergyleaseagreement.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/14b_windenergyleaseagreement.pdf) (last visited June 5, 2007).

a developer will often require the landowner to obtain a subordination and non-disturbance agreement from any existing or future lenders.

Some developers have had difficulty obtaining title insurance policies that would compensate for any losses to the value of wind turbines as a result of any title defect. This results from some legal uncertainty as to whether installed wind turbines constitute real or personal property. This legal issue is beyond the scope of this guide; however, farmers should note that, to address this uncertainty, some states permit special title insurance endorsements that specifically cover wind turbines.<sup>28</sup>

## **I. Liens and Encumbrances**

It is very important that the agreement specifically address the parties' rights and obligations regarding payment of debts secured by the land and placement of new liens or encumbrances on the property.

In some deals, both sides pay off any existing liens when the agreement is executed, and then both parties are prohibited from incurring any additional liens during the contract period. However, this is not always practical. Some farmers, in particular, are concerned about limitations that restrict their rights to use their land to secure future farm credit.<sup>29</sup>

If future liens and encumbrances are permitted, the agreement should address whether the developer can make payments on the landowner's mortgage debt and receive credit against future payments the developer would owe the landowner, and what other actions the parties can take to prevent the sale of the land to satisfy any liens or other encumbrances. Both sides may seek the right to

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<sup>28</sup> See Cindy Wenig, "Real Estate Issues in US Wind Deals" 50 from *Project Finance NewsWire* (Chadbourn & Parke LLP Aug. 2005), available at <http://www.chadbourn.com/publications> (click on "Newsletters," then click on "Project Finance NewsWire, August 2005") (last visited June 5, 2007).

<sup>29</sup> Robert R. Nardi and John H. Daniels, Jr., *Wind Energy Easement and Lease Agreements* 10 (Windustry Sept. 2005), available at [http://www.windustry.com/easements/GuidelinesOutline\\_Sept2005.pdf](http://www.windustry.com/easements/GuidelinesOutline_Sept2005.pdf) (last visited June 5, 2007).

review the other's security agreements to ensure that they are reasonable, and a right to be notified in the case of any default.<sup>30</sup>

## **J. Termination of the Agreement**

Any wind agreement should describe the conditions under which termination of the contract by either party is permissible, and what may be required to avoid termination. Developers will frequently seek the right to voluntarily terminate a lease or easement at the developers' option, often in their complete discretion without the requirement of any good cause. Other developers will agree to terminate only with cause, or if certain conditions or required milestones—such as obtaining the needed wind easements from neighbors—cannot be met.

Although objected to by most developers, some landowners also consider whether they themselves want the right to terminate the agreement under certain circumstances before the intended end of the project. This may be difficult to achieve given the amount of time and money developers are required to invest to get a project going.

If termination by one or both parties is permitted only with good cause, the events that are sufficient to constitute *material default*—and therefore are so-called *triggering events* giving good cause to terminate the agreement—must be specifically detailed in the agreement. Some typical triggering events for termination are:

- Failure to make payments required by the agreement.
- Failure to develop the project or meet certain development milestones within a specified period, such as acquiring siting permits, signing power purchase agreements, or initiating construction.
- Failure to maintain adequate insurance.
- Abandonment or non-operation of turbines.
- Bankruptcy or insolvency.
- Non-payment of taxes.
- Failure to make reasonable efforts or use due diligence in carrying out the terms of the agreement.<sup>31</sup>

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<sup>30</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 44 (Izaak Walton League of America, 2nd prtg. 2001).

The parties should also negotiate the process for termination of the agreement. Typically, the agreement will require that some formal notice be given of a default under the agreement and/or the intent to terminate. In addition, the defaulting party should have an opportunity to correct the problems. The agreement should spell out the time period for and method of these notices, as well as the time period for and method of evaluating the sufficiency of any correction.

If early termination by the developer is permitted under the agreement, the landowner may want to negotiate to receive some kind of early termination payment.<sup>32</sup>

### K. End of Project Life and Remediation of Site

The agreement should address what happens to any remaining wind structures at the end of the agreement term or in the event of an early termination. Specific timelines for compliance should also be included.

At the end of a wind project, the turbines themselves typically retain some scrap metal value that the developer or project owner will not want to abandon. However, the agreement should also spell out what must be done, if anything, to remediate or remove remaining access roads, underground cables, and the cement foundations for various aspects of the project. The wind turbine itself may have a foundation as deep as 30 feet below ground. For agricultural lands, a common practice is to remove all visible traces of the project (except usable roads) and only so much of the underground installations as

#### *Landowner Purchase Option*

In some instances, it may be appropriate for a landowner to negotiate for a right to purchase the entire wind facility from the developer after certain milestones are met. This concept is covered in more detail in the chapters discussing financing (Chapter 8) and business structures (Chapter 10) for commercial-scale wind projects later in this guide.

<sup>31</sup> See also Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 42 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>32</sup> Robert R. Nardi and John H. Daniels, Jr., *Wind Energy Easement and Lease Agreements* 3 (Windustry Sept. 2005), available at [http://www.windustry.com/easements/GuidelinesOutline\\_Sept2005.pdf](http://www.windustry.com/easements/GuidelinesOutline_Sept2005.pdf) (last visited June 5, 2007).

would be required to return the land to farming—being sure to return at least 3 feet of top soil.<sup>33</sup>

The agreement may also detail bonding or escrow requirements for the developer from the outset, requiring him or her to guarantee there will be funds available for this *decommissioning* process at the end of the project. In many places, these requirements are incorporated into state and local permitting laws as well.

Another issue to be addressed regarding the end of the project is removing from the official property records of the county any filed leases or easements that are no longer valid. This may require the cooperation of the developer or project owner.<sup>34</sup>

## **L. Dispute Resolution**

A wind agreement will impose significant obligations on both the landowner and the developer. To minimize disputes during the life of the contract, the agreement should describe how the parties will determine whether specified obligations have been met satisfactorily (for example, land remediation at the end of the contract) and what the consequences will be for failure to meet any contractual obligations.

To deal with potential disputes that cannot be resolved between the parties, the agreement should set out in detail what dispute resolution processes the parties will use. This may include forms of mediation, arbitration, or court action. Some of these processes can be expensive, and a farmer should consult an attorney before including them in an agreement.

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<sup>33</sup> Global Energy Concepts, *Frequently Asked Questions for Large-Scale Wind Energy Projects* 14 (NYS Energy Research & Dev. Auth. Oct. 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/23\\_frequentlyaskedquestions.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/23_frequentlyaskedquestions.pdf) (last visited June 5, 2007).

<sup>34</sup> Robert R. Nardi and John H. Daniels, Jr., *Wind Energy Easement and Lease Agreements* 2, 11 (Windustry Sept. 2005), available at [http://www.windustry.com/easements/GuidelinesOutline\\_Sept2005.pdf](http://www.windustry.com/easements/GuidelinesOutline_Sept2005.pdf) (last visited June 5, 2007).

## M. Other Rights and Obligations of the Parties

There are several other rights and obligations of the parties that should be covered in detail in a wind agreement. Other matters to consider when negotiating the agreement include:

- installing or using power or telephone lines and payment of utility bills.
- installing and maintaining signs.
- permitting the developer to give tours of the project site.
- taking steps to control noise.
- providing notice of construction or improvements.
- employing licensed architects, engineers, and other contractors.
- installing, marking, and enclosing guy wires around wind turbines.
- installing security devices.
- distributing proceeds in the case of condemnation.
- complying with and obtaining necessary siting and permit conditions.<sup>35</sup>

The agreement should include provisions setting out the process for making modifications to it. Other standard contract terms should be discussed with an attorney.

## VI. Eminent Domain

Eminent domain, also known as condemnation, is the government's power to take private property for public purposes—with or without the owner's consent—by paying the owner just compensation and by complying with certain procedures set forth in state or federal law.<sup>36</sup> Eminent domain proceedings may involve a taking of the full use and control of one's property, or they may involve only the occupation of a limited portion of or interest in that property, such as an easement.

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<sup>35</sup> See also Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 43-45 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>36</sup> See, e.g., U.S. Const. amend. V.; Minn. Const. art. I, § 13.

Any farmer faced with impending eminent domain proceedings is advised to consult an attorney; however, this section provides some general information on the subject.

To take land by eminent domain, a public authority must intend to use the land for a public purpose. The courts, both state and federal, have adopted a broad interpretation of *public purpose* and largely defer to the public authority's determination that the land is necessary to further its public purpose.<sup>37</sup>

Both the federal and state governments determine which public authorities within their jurisdictions may exercise the power of eminent domain. Generally, state legislatures give this power to all levels of local government and public service corporations, which often include electric utility companies. But each state's treatment of its eminent domain authority may differ slightly.

In Minnesota, for example, "public service corporations," including electric utilities, enjoy an express delegation of the state's eminent domain power. The utilities still have to abide by the same rules as the state itself.<sup>38</sup> Under the broad definition of public purpose, electric utilities in Minnesota can use eminent domain authority to take land for new transmission lines; it is also conceivable they would assert the authority to take other property rights needed to construct a new wind energy project.<sup>39</sup>

The generally accepted definition of *just compensation* is the fair market value of the land. That is, what a willing buyer would pay a willing seller for the land or for the easement. In the case of eminent domain for a power line easement, for example, the fair market value might be measured by the difference in the value of the land before and after the taking, which would account for any decreased desirability of the land to a buyer because of the easement and utility lines.

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<sup>37</sup> See, e.g., *Kelo v. City of New London*, 545 U.S. 469 (2005).

<sup>38</sup> Minn. Stat. §§ 216E.12, 301B.02 (2006).

<sup>39</sup> Minn. Stat. § 216E.12 (2006). In 2006, Minnesota passed several changes to its eminent domain laws; however, utilities were exempted from most of the reforms. See 2006 Minn. Laws (Ch. 214, § 14) (codified at Minn. Stat. § 117.189). Farmers and their attorneys should monitor any future legislative developments in this area.

Damage to the rest of the landowner's property not subject to the taking is included in calculating the just compensation.<sup>40</sup> Construction of a power line across agricultural land will cause crop damage, compaction of the land used, and potentially other damage to farming operations that must be factored into the compensation.

Landowners should be aware that there is frequently room to negotiate the value of property subject to eminent domain, and that the public authority's first offer need not always be taken. Each state has its own process that must be carefully followed for condemnation, and it may be possible to reach agreements without litigation or other adverse proceedings or appeals.



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<sup>40</sup> See, e.g., *Alexandria Lake Area Serv. Region v. Johnson*, 295 N.W.2d 588, 590 (Minn. 1980).



## Chapter 4

# Siting a Wind Project

Agricultural land is ideal for siting wind turbines because the farmer can continue to use most of the land for crops or grazing with no obstruction of the wind. And because only a small amount of land is required for each turbine, a wind project will generally cause little interference with the farming operation.

Chapter 3 of this guide sets out a detailed discussion of leases and easements related to wind projects on farmland and what farmers should be sure to consider in those property agreements. This chapter discusses a related step in the development process: choosing the best location for the wind project and addressing any regulatory issues involved in developing there.

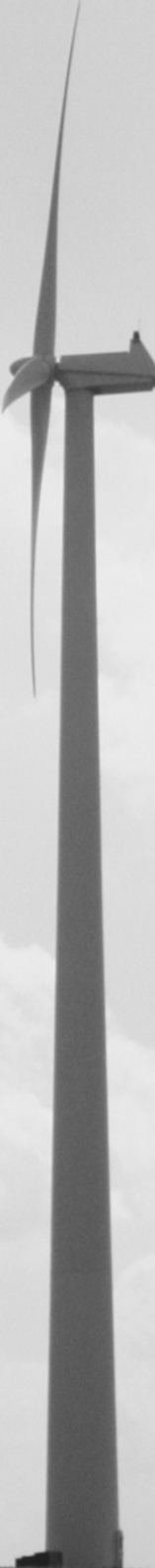
This chapter is divided into four parts. First, practical siting issues are summarized, ranging from ways to ensure access to the electric grid to a consideration of the impact of any development on participation in relevant federal farm programs. The second part covers state and local land use permitting processes. The third part details specific environmental review and permitting issues, and the final part highlights some other site-specific regulations that may affect land with particular sensitivities, such as proximity to military radar installations or special historical places.

## I. Practical Siting Considerations

There are many factors that go into the siting decision for a wind project.

### A. Measuring the Wind Resource

For a wind project to be economically feasible, there must be a good wind resource on the land. More specifically, there must be a good wind resource at the precise location of the wind turbines, because the wind resource can vary significantly on different parts of the land depending on the terrain and the presence of other structures.



Wind speed is the most important factor in determining available power. Generally, a commercial-scale turbine requires average wind speeds of 14 to 16 mph at a height of 50 meters,<sup>1</sup> and small-scale turbines require average wind speeds of at least 10 mph.<sup>2</sup> To begin assessing the land for available wind speed, a farmer should collect some general wind speed data about the area. The Wind Energy Resource Atlas of the United States has mapped wind speed ratings for each state.<sup>3</sup> Wind speed data should also be available from any local airport or weather station. Airport or weather station data will indicate if the land is likely to have a promising wind resource, but it will not be useful for estimating actual power output from a specific site. Airport or weather station data is usually collected at 33 feet off of the ground, often near a building, while a typical wind turbine is unobstructed and stands at around 80 feet off of the ground, where wind speeds are higher.<sup>4</sup>

If a preliminary investigation into wind speeds is favorable, the farmer's next step is to collect wind data at the specific site(s) being considered. An *anemometer* is an instrument that collects data about wind speeds. One should be obtained

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<sup>1</sup> For more detailed information about wind speed measurements, see National Renewable Energy Laboratory, *Dynamic Maps, GIS Data, & Analysis Tools: Wind Maps*, <http://www.nrel.gov/gis/wind.html> (last visited June 22, 2007).

<sup>2</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 15, available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>3</sup> See National Renewable Energy Laboratory, *Wind Energy Resource Atlas of the United States*, available at <http://rredc.nrel.gov/wind/pubs/atlas/> (last visited June 21, 2007). More detailed maps for many individual states are available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/wind\\_maps.asp](http://www.eere.energy.gov/windandhydro/windpoweringamerica/wind_maps.asp) (last visited June 22, 2007). Some states also have information about wind data on their state Web sites, or a university Web site. For example, Iowa State University's Wind Turbine Output Calculator provides estimated wind speed data and expected generated power for over 2,000 sites across Iowa. This resource is available at <http://www.energy.iastate.edu/renewable/wind/as-index.html> (last visited June 21, 2007).

<sup>4</sup> U.S. Department of Energy, *Small Wind Electric Systems: A Colorado Consumer's Guide* 11 (May 2004), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_co.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_co.pdf) (last visited June 16, 2007).

and placed on a tower at the intended location and intended height of the turbine. It is recommended that an anemometer be left in place to collect measurements for at least one year to determine average hourly wind speed and direction data throughout the seasons.<sup>5</sup> There are several ways for a farmer to obtain an anemometer. One option is to purchase and install the anemometer directly. Other farmers may take advantage of state or university anemometer loan programs for landowners who want to assess their wind potential.<sup>6</sup> Farmers should be aware that many of these programs own only a few anemometers, and demand may be high in areas with a promising wind resource. Finally, a developer who wishes to obtain the wind rights to a landowner's property is likely to provide an anemometer to monitor the wind as part of the project's preliminary stages through what is commonly called a meteorological tower (or "MET tower") agreement.<sup>7</sup>

Other factors, including air turbulence, also affect the quality of the wind resource and the energy that can be generated. Turbulence can be reduced by siting the turbine away from any obstructions. Generally, the turbine should be upwind of buildings and trees, and at least 30 feet above anything within 300 feet.<sup>8</sup> It is important to consider whether surrounding trees have reached their full height, or if new buildings are being planned in the area. Typically, a large

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<sup>5</sup> Montana Department of Environmental Quality, *A Landowner's (Informal) Guide to Negotiating for a Wind Farm* 11 (Aug. 15, 2003), available at <http://deq.mt.gov/Energy/Renewable/LandownersGuiToWind.pdf> (last visited June 16, 2007).

<sup>6</sup> For example, both Oregon (<http://me.oregonstate.edu/alp/>) and Colorado (<http://www.state.co.us/oemc/programs/renewable/anemometer.htm>) have anemometer loan programs (both sites last visited June 19, 2007).

<sup>7</sup> Montana Department of Environmental Quality, *A Landowner's (Informal) Guide to Negotiating for a Wind Farm* 1 (Aug. 15, 2003), available at <http://deq.mt.gov/Energy/Renewable/LandownersGuiToWind.pdf> (last visited June 16, 2007). See Chapter 3 (Negotiating Wind and Land Agreements) of this guide for more discussion of meteorological tower agreements.

<sup>8</sup> U.S. Department of Energy, *Small Wind Electric Systems: A Colorado Consumer's Guide* 14-15 (May 2004), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind\\_co.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind_co.pdf) (last visited June 16, 2007).

open flat area or a ridge or hilltop with access to the wind from all directions will have the least turbulence as well as the highest wind speed.<sup>9</sup>

## **B. Access to the Electric Grid**

For any farmer who is building a wind project in order to sell energy back to the electric grid, proximity to a distribution or transmission line capable of carrying the additional electricity is critical. The project must be physically *interconnected* to those lines in order to transmit power, and the cost of building an additional line or upgrading existing lines will affect the economic feasibility of the project.<sup>10</sup> The wind developer must generally pay for many, if not all, of the upgrades needed to complete the interconnection. Therefore, it is important to site the project as close as possible to the point of interconnection with the grid in order to minimize these costs.

## **C. Impact on Neighbors**

Farmers should also consider whether the proposed wind project would be an appropriate addition to the project's surroundings. It is important to consider the proximity to neighbors, and how those neighbors use their land. Depending on the size and number of turbines, neighbors to a wind project may experience the sound of the turbines, the shadow cast by the turning blades, and interference with television reception. Neighbors may also be concerned about the look of the landscape, and effects on wildlife, property values, and safety.<sup>11</sup> Moreover, a landowner who develops a wind project might also prevent neighbors from being able to develop wind projects on their own land.<sup>12</sup>

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<sup>9</sup> Montana Department of Environmental Quality, *A Landowner's (Informal) Guide to Negotiating for a Wind Farm* 8 (Aug. 15, 2003), available at <http://deq.mt.gov/Energy/Renewable/LandownersGuiToWind.pdf> (last visited June 16, 2007).

<sup>10</sup> Iowa Department of Natural Resources, *Iowa Wind Energy Checklist* 6 (2003), available at <http://www.iowadnr.com/energy/renewable/files/windchecklist.pdf>. See Chapter 11 of this guide for a much more detailed discussion of interconnection and transmission requirements.

<sup>11</sup> These and other potential liability issues are discussed in Chapter 5 of this guide.

<sup>12</sup> A wind turbine has a wake of still air behind it which is typically cone-shaped, with the distance from the turbine to the tip of the cone of still air being about 10 times the diameter of the rotor of the wind turbine. Other wind turbines placed in

Because of the possible impacts on others in the area, farmers who are considering a wind project should communicate with neighbors and local community members about the possibility of the development early in the process. This early communication may reduce resistance to the project down the road.<sup>13</sup>

A related matter is ensuring that a wind project's neighbors do not block access to the wind in the future. Ideally this can be achieved through open communication and private arrangements with neighboring landowners, as discussed in Chapter 3 (Negotiating Wind and Land Agreements).<sup>14</sup> For more difficult situations, some states have developed regulatory means for keeping neighbors from blocking the wind to a wind turbine. For example, a Wisconsin law allows the owner of a wind energy project to apply for a permit from the local government that restricts neighboring landowners from creating an impermissible interference with the wind project.<sup>15</sup> If a county or city grants such a permit and gives proper notice to neighboring landowners, the wind project owner could sue for damages for any income loss resulting from prohibited interference.<sup>16</sup> This kind of legal protection is not available in all states, but could be of use where available.

#### **D. Bird, Wildlife, and Other Environmental Impacts**

Birds occasionally collide with wind turbines, as they do with any other tall structures, such as buildings and transmission towers.<sup>17</sup> However, many people

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this area will not receive adequate wind flow. See The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 14 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click "Companion Document" under "Other Publications") (last visited June 17, 2007).

<sup>13</sup> Chris Deisinger, *Lessons from Wind Farm Siting in Kewaunee County*, Presentation at Windustry Community Wind Conference (June 24, 2004).

<sup>14</sup> The primary mechanism through which unobstructed wind is guaranteed into the future is a *wind easement*, a property agreement discussed in more detail in Chapter 3 of this guide.

<sup>15</sup> Wis. Stat. § 66.0403 (2006); see also, *State of Wisconsin ex. rel. Numrich v. City of Mequon Bd. of Zoning Appeals*, 626 N.W.2d 366, 371 (Wis. Ct. App. 2001).

<sup>16</sup> Wis. Stat. § 66.0403(7) (2006).

<sup>17</sup> American Wind Energy Association, *Wind Power Myths vs. Facts*, [http://www.awea.org/pubs/factsheets/050629\\_Myths\\_vs\\_Facts\\_Fact\\_Sheet.pdf](http://www.awea.org/pubs/factsheets/050629_Myths_vs_Facts_Fact_Sheet.pdf); see

have a perception that wind energy projects present a major hazard to bird populations. This is due at least in part to serious bird losses at some early commercial-scale wind projects in California.<sup>18</sup> Since those early California projects were built, improvements in turbine design and siting recommendations have dramatically reduced bird mortality rates associated with wind projects. Today's turbine blades move at a slower rate than previous designs, and the current tubular-tower structure provides far fewer perching opportunities for birds than the previous lattice-tower models.<sup>19</sup>

Proper siting is the best way to reduce the potential for bird collisions; migratory paths and areas that are heavily used by endangered species are probably unsuitable for wind development. Whether or not the applicable permitting process requires a bird impact study, it is a good idea to investigate bird use on the property. The U.S. Fish and Wildlife Service suggests avoiding high bird concentration areas, such as wetlands and bird refuges, and avoiding known daily flyways, such as between roosting and feeding areas.<sup>20</sup> Observing bird use of the land should be done for at least one year to measure patterns across all seasons.

Wind projects also impact other wildlife. For example, the U.S. Fish and Wildlife Service recommends that turbines not be placed near bat populations or in bat migration corridors.<sup>21</sup> It is also important, before proceeding with the project, to

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also American Wind Energy Association, *Wind and Wildlife: Learning from the Past, Changing for the Future*, [http://www.awea.org/pubs/factsheets/050622\\_Wildlife\\_Lessons\\_Fact\\_Sheet.pdf](http://www.awea.org/pubs/factsheets/050622_Wildlife_Lessons_Fact_Sheet.pdf) (both sites last visited June 16, 2007).

<sup>18</sup> U.S. Department of the Interior, Fish and Wildlife Service, *Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* 49 (2003), available at <http://www.fws.gov/habitatconservation/wind.pdf> (last visited June 16, 2007).

<sup>19</sup> U.S. Department of the Interior, Fish and Wildlife Service, *Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* 49 (2003), available at <http://www.fws.gov/habitatconservation/wind.pdf> (last visited June 16, 2007).

<sup>20</sup> U.S. Department of the Interior, Fish and Wildlife Service, *Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* 3 (2003), available at <http://www.fws.gov/habitatconservation/wind.pdf> (last visited June 16, 2007).

<sup>21</sup> U.S. Department of the Interior, Fish and Wildlife Service, *Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* 3 (2003), available at <http://www.fws.gov/habitatconservation/wind.pdf> (last visited June 16, 2007).

assess whether the wind project will disturb any species protected by the federal Endangered Species Act.<sup>22</sup> For a preliminary answer, the local U.S. Fish and Wildlife office can provide a list of endangered species likely to be in the area.<sup>23</sup>

The human elements of the environment are also important considerations when siting a wind project. It is possible that construction of a wind project will uncover fossil or cultural resources, such as those of Native American tribes. As discussed in more detail later in this chapter, if a wind project is receiving federal or state government support or permits, an evaluation of the historical or cultural resources present on the land could be required.

### **E. Prior Commitments**

It will of course be necessary to consider any prior commitments that the landowner may have already made with respect to the desired site. For agricultural land, this might involve a tenant who farms the land under a long-term lease or a company which contracts with the farmer for production on certain acreage. Such prior commitments will not necessarily prevent a project from going forward, but they must be taken into account.

In addition, prior private agreements may restrict a farmer's right to build wind turbines in a particular place. Examples of prior agreements that could affect future wind development include negative easements and restrictive covenants on the proposed project site, which could, for example, guarantee a neighbor the right to unobstructed access to light or a particular scenic view.<sup>24</sup> These types of agreements are discussed in more detail in Chapter 3 (Negotiating Wind and Land Agreements) of this guide.

Farmers should consider in the siting context whether any such agreement already exists, and whether that agreement would restrict the farmer's right to install a new wind project. If the land is restricted by one of these agreements, farmers and their lawyers must review the specific terms of the agreement to

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<sup>22</sup> 16 U.S.C. §§ 1531 et seq. (2006).

<sup>23</sup> U.S. Department of the Interior, Fish and Wildlife Service, *Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* 49 (2003), available at <http://www.fws.gov/habitatconservation/wind.pdf> (last visited June 16, 2007). To find a local Fish and Wildlife Service representative, visit <http://www.fws.gov/endangered/contacts.html#R3/> (last visited June 20, 2007).

<sup>24</sup> See, e.g., *Prah v. Meretti*, 321 N.W.2d 182, 188 (Wis. 1982).



find out the exact areas and structures that are prohibited. It may be possible that a new project is compatible with the existing agreement or that changes could be negotiated.

## **F. Impact on Farm Program Eligibility**

Finally, farmers should take care to consider the impact of any wind project on current or future eligibility for various farm programs.

### **1. Conservation Reserve Program (CRP)**

Highly erodible and environmentally sensitive farmland may be enrolled in the federal Conservation Reserve Program (CRP), taking it out of production for the purposes of environmental conservation.<sup>25</sup> Originally, farmers were not allowed to use land enrolled in CRP for any commercial purpose. But the 2002 Farm Bill changed the program to allow farmers to place wind turbines and wind-monitoring devices on CRP land.<sup>26</sup> Wind projects affecting up to 5 acres per CRP contract may be approved by the Farm Service Agency (FSA) county committee; requests affecting over 5 acres must be approved by FSA's national office.<sup>27</sup>

Before approving the placement of wind turbines on CRP land, FSA officials must consider the environmental impacts of the project.<sup>28</sup> The review and approval process is done on a case-by-case basis.

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<sup>25</sup> 16 U.S.C. §§ 3831 et seq. (2006); 7 C.F.R. pt. 1410 (2007).

<sup>26</sup> 16 U.S.C. § 3832(a)(7)(B) (2006); 7 C.F.R. § 1410.63(c)(3) (2007).

<sup>27</sup> FSA Handbook 2-CRP, page 12-25, ¶ 282 (Nov. 8, 2005), *available at* [http://www.fsa.usda.gov/Internet/FSA\\_File/2-crp.pdf](http://www.fsa.usda.gov/Internet/FSA_File/2-crp.pdf) (last visited June 14, 2007) (“The 5.0-acre per contract threshold is a cumulative figure that is calculated by totaling the square footage of land area devoted to the footprint of the wind-generating device and any firebreak installed around the footprint. Access roads, transformers, and other ancillary equipment will not be considered in calculating the 5.0-acre per contract threshold.”).

<sup>28</sup> *See* FSA Handbook 2-CRP, pages 10-23 to 10-25, ¶ 242.F, page 12-25, ¶ 282 (Nov. 8, 2005), *available at* [http://www.fsa.usda.gov/Internet/FSA\\_File/2-crp.pdf](http://www.fsa.usda.gov/Internet/FSA_File/2-crp.pdf) (last visited June 14, 2007). Guidance as to the environmental review process is found in FSA Handbook 1-EQ, *available at* [http://www.fsa.usda.gov/Internet/FSA\\_File/1-eq.pdf](http://www.fsa.usda.gov/Internet/FSA_File/1-eq.pdf) (last visited June 14, 2007).



If a wind project will involve transfer of land enrolled in CRP from a farmer to a wind developer, the parties should understand that the wind developer must become a participant in the CRP contract with respect to the transferred land within 60 days, or the farmer will risk having to refund CRP payments already received, with interest.<sup>29</sup> Although FSA has some discretion in the amount of the refund that will be demanded, farmers should assume that the entire amount will be at risk.<sup>30</sup> The farmer's CRP contract will remain in effect for acreage not transferred to the wind developer.<sup>31</sup>

## 2. Conservation Security Program (CSP)

The Conservation Security Program (CSP) is a voluntary federal program that provides financial and technical assistance to farmers to promote conservation and improvement of soil, water, air, energy, and plant and animal life, and other conservation purposes.<sup>32</sup> Farmers who enroll land in CSP enter into a contract that restricts the farmer's use of the land in exchange for payments from the U.S. Department of Agriculture (USDA).

USDA is required to permit farmers to implement certain economic uses of land enrolled in CSP as long as the economic use maintains the agricultural nature of the land and is consistent with the natural resource and conservation objectives of CSP, including energy conservation.<sup>33</sup> Wind projects are very likely to be considered an acceptable use of land enrolled in CSP, given that enrolled land is eligible for enhancement payments for energy management activities on the land, including production of renewable energy on the farm.<sup>34</sup>

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<sup>29</sup> 38 U.S.C. § 3832(a)(6) (2006); 7 C.F.R. §§ 1410.32(h), 1410.51 (2007).

<sup>30</sup> 38 U.S.C. § 3832(a)(6)(B) (2006); 7 C.F.R. § 1410.32(h) (2007).

<sup>31</sup> FSA Handbook 2-CRP, page 14-9, ¶ 336.B, pages 14-20 to 14-23, ¶ 343 (Nov. 8, 2005), available at [http://www.fsa.usda.gov/Internet/FSA\\_File/2-crp.pdf](http://www.fsa.usda.gov/Internet/FSA_File/2-crp.pdf) (last visited June 14, 2007).

<sup>32</sup> 16 U.S.C. §§ 3838 et seq. (2006); 7 C.F.R. pt. 1469 (2007).

<sup>33</sup> 16 U.S.C. § 3838a(b)(4) (2006).

<sup>34</sup> 7 C.F.R. § 1469.23(d)(2) (2007); see also Natural Resources Conservation Service, *CSP Energy Job Sheet 1* (Oct. 2005), available at [http://www.nrcs.usda.gov/programs/csp/pdf\\_files/EnergyEnhancementJobSheets/En](http://www.nrcs.usda.gov/programs/csp/pdf_files/EnergyEnhancementJobSheets/En)

A farmer who transfers an interest in land enrolled in CSP must notify USDA of the transfer within 60 days or risk losing the benefits of the contract.<sup>35</sup> For example, USDA must be notified if a farmer sells or rents CSP land to a developer for the purposes of installing a wind turbine. The farmer and developer would have to determine between them which party would receive any future CSP payments.

### 3. Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program (EQIP) provides technical and financial assistance to farmers in order to promote agricultural production and environmental quality as compatible goals.<sup>36</sup> Farmers who enroll land in EQIP enter into a contract that restricts the farmer's use of the land in exchange for payments from USDA.

A farmer who installs wind turbines on EQIP land should first determine if USDA will consider the turbines consistent with the EQIP contract. If the farmer uses the land in a way that tends to defeat the purposes of the program, USDA may terminate the contract and require the farmer to repay amounts that have been received under the program.<sup>37</sup> As an alternative to terminating the EQIP contract, USDA may require the farmer to repay some of the past payments and change the calculation of payments that will be paid to the farmer under the contract in the future.<sup>38</sup> The farmer can also seek a modification of the EQIP contract before installing the turbines to allow the wind project, but the Natural Resources Conservation Service (NRCS) must agree to the modification.<sup>39</sup>

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[Energy Enhancement Activities General Information.pdf](http://www.nrcs.usda.gov/programs/csp/pdf_files/EnergyEnhancementJobSheets/Renewable_Energy_Generation_E-06.pdf); Natural Resources Conservation Service, *CSP Worksheet E-06* (Oct. 2005), available at [http://www.nrcs.usda.gov/programs/csp/pdf\\_files/EnergyEnhancementJobSheets/Renewable\\_Energy\\_Generation\\_E-06.pdf](http://www.nrcs.usda.gov/programs/csp/pdf_files/EnergyEnhancementJobSheets/Renewable_Energy_Generation_E-06.pdf) (referring to "payments to qualified agricultural producers for the first 100 kilowatt hours and each subsequent kilowatt hour equivalent of electricity they generate") (both sites last visited June 14, 2007).

<sup>35</sup> 16 U.S.C. § 3838c(e) (2006).

<sup>36</sup> 16 U.S.C. § 3839aa (2006); 7 C.F.R. pt. 1466 (2007).

<sup>37</sup> 16 U.S.C. § 3839aa-4(3)(A) (2006).

<sup>38</sup> 16 U.S.C. § 3839aa-4(3)(B) (2006).

<sup>39</sup> 7 C.F.R. § 1466.25(a) (2007).

If a farmer sells land subject to an EQIP contract to a wind developer, NRCS must determine whether the developer is eligible for payments under the contract.<sup>40</sup> If NRCS determines that the developer is not eligible, or if the developer refuses to assume responsibility for the EQIP contract, then the developer may not receive payments under the contract, and the farmer may be required to refund all or a portion of the financial assistance received.<sup>41</sup> A farmer with an EQIP contract should carefully consider whether a wind energy project will result in a transfer of land to an ineligible owner, which would risk penalties under the contract.

#### **4. Wildlife Habitat Incentive Program (WHIP)**

The Wildlife Habitat Incentives Program<sup>42</sup> (WHIP) is another voluntary federal program, one which provides technical and financial assistance to “develop habitat for upland wildlife, wetland wildlife, threatened and endangered species, fish and other types of wildlife.”<sup>43</sup> Farmers participating in WHIP agree not to take any action on land under the farmers’ control that would defeat the purposes of the program.<sup>44</sup> To the extent that a wind energy project would defeat the purposes of developing habitat for upland wildlife, wetland wildlife, threatened and endangered species, fish or other types of wildlife, pursuing the wind project would likely be considered a violation of a WHIP agreement.

Farmers participating in WHIP should contact NRCS to determine if a proposed wind project is compatible with the program. A farmer with a WHIP contract may also ask NRCS to approve a modification specifically allowing the wind energy project.<sup>45</sup>

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<sup>40</sup> 7 C.F.R. § 1466.25(b) (2007).

<sup>41</sup> 7 C.F.R. § 1466.25(c) (2007).

<sup>42</sup> 16 U.S.C. § 3839bb-1 (2006); 7 C.F.R. pt. 636 (2007).

<sup>43</sup> 7 C.F.R. § 636.1(a) (2007).

<sup>44</sup> Natural Resources Conservation Service, *Conservation Program Agreement: Wildlife Habitat Incentive Program Appendix Part 4(A)(6), Form CCC-1200-WHIP* (Oct. 2005), available at [http://www.nrcs.usda.gov/programs/whip/WHIP\\_signup/WHIP\\_CCCAgreement&Appendix\\_10\\_24\\_05.pdf](http://www.nrcs.usda.gov/programs/whip/WHIP_signup/WHIP_CCCAgreement&Appendix_10_24_05.pdf) (last visited June 14, 2007).

<sup>45</sup> 7 C.F.R. § 636.9(a), (c) (2007).

## 5. Farmland Protection Program (FPP)

The Farmland Protection Program (FPP),<sup>46</sup> also known as the Farm and Ranch Lands Protection Program (FRPP), provides funds to private entities to purchase conservation easements on farm and ranch lands to prevent conversion to non-agricultural uses.<sup>47</sup> The easement restricts land uses to those in accordance with FPP goals and objectives.<sup>48</sup> FPP easements generally include a restriction against land uses that are inconsistent with the program, but may more specifically prohibit certain kinds of development, such as a wind project.<sup>49</sup>

A wind energy project may, depending on its characteristics, either be consistent or inconsistent with preventing conversion of agricultural land to non-agricultural uses. If it appears that a proposed wind project is prohibited, the farmer may wish to request a modification of the easement, which must be approved by USDA.<sup>50</sup>

If a farmer violates an FPP easement, perhaps by constructing turbines that are inconsistent with the program, either the easement holder or USDA may take action against the farmer to enforce the easement.<sup>51</sup>

## 6. Grassland Reserve Program (GRP)

The Grassland Reserve Program (GRP) assists landowners in restoring and conserving eligible grasslands through conservation easements and rental

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<sup>46</sup> 16 U.S.C. § 3838h-j (2006); 7 C.F.R. pt. 1491 (2007).

<sup>47</sup> 7 C.F.R. § 1491.4(a) (2007).

<sup>48</sup> 7 C.F.R. § 1491.22(a)-(b) (2007).

<sup>49</sup> Natural Resources Conservation Service, *Conservation Programs Manual* Title 440, Pt. 519.65(G), available at [http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M\\_440\\_519\\_g.htm](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M_440_519_g.htm) (last visited June 14, 2007) (stating that the prohibited uses section of the easement “usually begins with a general statement that any activities inconsistent with the purpose of the easement are prohibited, followed by more comprehensive provisions setting forth specific prohibitions.”).

<sup>50</sup> 7 C.F.R. § 1491.23(b) (2007).

<sup>51</sup> 7 C.F.R. § 1491.30 (2007).

agreements.<sup>52</sup> A GRP easement or rental agreement prohibits, among other things, conduct that disturbs the surface of the covered land.<sup>53</sup> Because a wind energy project will disturb the surface of the land, at least in some places, it may constitute a violation of a GRP easement or rental agreement.

A GRP easement or rental agreement may be modified with the mutual agreement of the farmer and USDA.<sup>54</sup> USDA may approve a modification if the modification would facilitate the practical administration and management of the enrolled area without adversely affecting the grassland functions and values of the land or, for easements, adversely affecting other terms of the easement.<sup>55</sup> Farmers interested in developing a wind project on land covered by a GRP easement or rental agreement should carefully review program requirements and discuss the proposal with USDA to determine whether it would be permitted.

## **7. Wetlands Reserve Program (WRP)**

The Wetlands Reserve Program (WRP) assists farmers to restore and protect wetlands through conservation easements.<sup>56</sup> The easement prohibits activities that alter, degrade, or diminish the functional value of the land unless specifically permitted under the easement.<sup>57</sup> Land under the WRP may be used for compatible economic uses, as long as the conservation plan specifically permits it, and the use is “consistent with the long-term protection and enhancement of the wetland resources for which the easement was established.”<sup>58</sup> However, NRCS will only authorize compatible economic uses for a specific period of time, which is not ideal for a wind project which would likely need to be operational for longer than the time period authorized by NRCS.<sup>59</sup> Moreover, NRCS retains the right to

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<sup>52</sup> 16 U.S.C. § 3838n-q (2006); 7 C.F.R. pt. 1415 (2007).

<sup>53</sup> 16 U.S.C. § 3838o(b)(2)(B) (2006).

<sup>54</sup> 7 C.F.R. § 1415.12(a) (2007).

<sup>55</sup> 7 C.F.R. § 1415.12(d), (f) (2007).

<sup>56</sup> 16 U.S.C. §§ 3837 et seq. (2006); 7 C.F.R. pt. 1467 (2007).

<sup>57</sup> 16 U.S.C. § 3837a(b)(2)(A), (C), (D) (2006).

<sup>58</sup> 16 U.S.C. § 3837a(d) (2006); 7 C.F.R. § 1467.10(b)(2) (2007).

<sup>59</sup> Natural Resources Conservation Service, *Conservation Programs Manual* Title 440, Pt. 514.21(a), *available at*

modify or cancel authorization for a compatible economic use if NRCS determines that the use conflicts with the protection and enhancement goals of the program.<sup>60</sup>

## II. Land Use Permitting

If a wind project site still looks promising after investigating the factors discussed above, the wind project developer must begin the process to secure any necessary permits from governmental authorities. Depending on the size and location of the project, the land use permitting process can take anywhere from a few months to more than a year.<sup>61</sup>

In general, land use permitting happens on a local level through zoning, building, and electrical codes. However, some states have state-level processes for permitting wind projects larger than a specified size. In such cases, these state-level processes will usually supersede the local permitting process.

A wide range of issues is likely to be addressed in the wind project permitting process, and requirements vary greatly from one county or state to another. Generally, getting the permits may require compliance with conditions relating to setback requirements—ensuring a specified distance from neighboring property lines, residences, roads, and other sensitive areas; turbine tower height; color, finish, and lighting on turbines; and permissible levels of noise. The permitting process may also require the project owner to make certain guarantees that the turbines will be removed when they are no longer in operation (called *decommissioning*), that other state and federal laws will be complied with, and that roads and other local infrastructure will not be damaged in the construction process. Certain electrical safety certifications and standards will also likely need to be satisfied.

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[http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M\\_440\\_514\\_D.htm](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M_440_514_D.htm) (last visited June 14, 2007).

<sup>60</sup> Natural Resources Conservation Service, *Conservation Programs Manual* Title 440, Pt. 514.21(a), available at [http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M\\_440\\_514\\_D.htm](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M_440_514_D.htm) (last visited June 14, 2007).

<sup>61</sup> National Wind Coordinating Committee, *Permitting of Wind Energy Facilities: A Handbook* 10 (Aug. 2002), available at <http://www.nationalwind.org/publications/siting/permitting2002.pdf> (last visited June 19, 2007).

To determine exactly what will be required for any given project, the farmer should identify the proper government authorities and permitting processes based on the size and location of the project. All relevant permitting agencies and authorities should be contacted early in the planning process to identify the requirements and timelines of the permitting process. Early communication also allows the developer to establish a good working relationship with permitting authorities and interested community members.<sup>62</sup>

### **A. Local Land Use Permitting of Wind Projects**

As stated earlier, it will generally be a local land use permitting process that regulates siting and operation of a wind project. For example, Iowa, like most states, has no state laws regulating the land use permitting process for wind turbines; therefore, the land use permitting of all wind facilities in Iowa occurs at the local level. Those states that do have state-level permitting processes typically use it only for projects above a certain size, such as Minnesota's state-level process for permitting most wind projects of 5 MW or greater. In that case, wind projects below the size threshold for the state process will likely be governed by a local permitting process.<sup>63</sup>

#### **1. Overview of Local Land Use Permitting Concepts**

At the local level, land use planning decisions are made by city and county authorities. Because wind projects on agricultural land will typically be outside city limits, it is the county authorities (that is, the county board of supervisors, county commissioners, planning board, or zoning board) who will most likely make the land use permitting decisions.

Local land use regulation generally classifies each parcel of land into a particular *zone*. Within each zone category, there will be a range of permissible activities. That is, for any given zoning designation, there will be some uses for the land that are always permissible, some that are usually

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<sup>62</sup> National Wind Coordinating Committee, *Permitting of Wind Energy Facilities: A Handbook* 14 (Aug. 2002), available at <http://www.nationalwind.org/publications/siting/permitting2002.pdf> (last visited June 19, 2007).

<sup>63</sup> Timothy L. McMahan, "Siting and Permitting Wind Projects," 3-1 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 5, 2007).

permissible, some that are permissible but only with conditions, and some that are hardly ever permissible.

Farmers wishing to build wind projects will likely use land zoned for agricultural uses. Land uses that are *expressly permissible* in an agricultural zone typically include agriculture, horticulture, stock raising, dairy farming, single-family residences, and home occupations.<sup>64</sup> It is highly unlikely that wind turbines would be specifically listed as a primary land use in an agricultural zone.

At the next level of the land use permitting spectrum are *accessory uses*. Accessory land uses are uses that support the primary use of the land and are therefore permissible without special approval by the county zoning authorities. For example, to be a permitted accessory use in one Iowa county, a wind system must be “necessarily and customarily associated with” and “appropriate, incidental, and subordinate” to primary uses in the agricultural district.<sup>65</sup> A single small wind turbine that is used to provide electricity directly to a farm operation might fit under a general definition of accessory use or be specifically listed as an allowed accessory use, depending on the local zoning law.<sup>66</sup>

Local zoning laws typically also allow for approval of another category of land use called a *conditionally permitted use* (also called an *exception*, *special*

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<sup>64</sup> See, e.g., Becker County, Minn., Zoning Ordinance § 6, subd. 1 (2006), available at <http://www.co.becker.mn.us/2005%20ordinance/PDFs/SECTION%206%20Land%20Use%20District%20Requirements%202005.pdf> (last visited June 20, 2007); Marshall County, Ia., Zoning Ordinance art. VI (2006), available at <http://www.co.marshall.ia.us/departments/zoning/zoningordinance/article1/> (last visited June 20, 2007); Mequon, Wis., Zoning Code § 58-264(b), (c) (2006), available at <http://www.municode.com/Resources/gateway.asp?pid=13876&sid=49> (last visited June 20, 2007); Steele County, Minn., Zoning Ordinance § 7 (2006), available at [http://www.co.steele.mn.us/PLANZONE/zonord5\\_7.html#sec7](http://www.co.steele.mn.us/PLANZONE/zonord5_7.html#sec7) (last visited June 20, 2007).

<sup>65</sup> Buena Vista County, Ia., Zoning Ordinance § 6.1.9.101(2) (2003), available at [http://www.co.buena-vista.ia.us/auditor/2003\\_Code\\_of\\_Ordinances\\_2000.pdf](http://www.co.buena-vista.ia.us/auditor/2003_Code_of_Ordinances_2000.pdf) (last visited June 20, 2007).

<sup>66</sup> Katherine Daniels, *The Role of Government Agencies in the Approval Process* 6 (NYS Energy Research & Dev. Auth. Oct. 2005), available at [http://www.powernaturally.org/Programs/Wind/toolkit/16\\_rolegovernmentagencies.pdf](http://www.powernaturally.org/Programs/Wind/toolkit/16_rolegovernmentagencies.pdf) (last visited June 16, 2007).



*exception, or special use*). A conditionally permitted land use is a use that typically would not disrupt the primary use of the land, but because it is not related to a primary land use (like an accessory use would be) the permitting authorities need to ensure compatibility with the primary land use in the zone.<sup>67</sup> The authorities do this by requiring that the land use be examined and specifically approved, and they may set conditions on how the conditionally permitted use is performed, such as requiring setbacks from boundary lines and public roads. In Minnesota, a conditional use permit must be granted if the project meets certain specifications in the county zoning law.<sup>68</sup> In other states, the county zoning authorities may have a great amount of discretion in deciding whether to approve a conditional use, taking into account the overall health, welfare, safety, and general conditions in the affected area.<sup>69</sup>

Obtaining a conditional use permit can cost as little as a few hundred dollars and a few months for a small project, but larger and more complex projects can cost much more and take a year or longer. Typical requirements in conditional use permits that apply to wind systems are discussed in more detail in the next section of this chapter.

If the applicable land use law does not permit development of a wind project as a permitted, accessory, or conditional use in the zone selected for the site, the landowner must seek a *variance* from the land use authorities. A variance authorizes a land use that is normally not allowed in the zone. A variance may be granted in individual cases where the land use law would create a unique hardship to the landowner.<sup>70</sup> It is generally harder to get a variance than it is to get a conditional use permit.<sup>71</sup>

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<sup>67</sup> Matthew Bender, 3-20 *Zoning Law & Practice* § 20-12 (2006 ed.).

<sup>68</sup> Dunnell Minn. Digest, *Municipal Corporations* § 7.16 (b) (4th ed. 2006).

<sup>69</sup> See Matthew Bender, 3-20 *Zoning Law & Practice* § 20-12 (2006 ed.); *State of Wisconsin ex. rel. Numrich v. City of Mequon Bd. of Zoning Appeals*, 626 N.W.2d 366, 368-69 (Wis. Ct. App. 2001) (conditional use permits for wind projects in residential zone denied by city authorities on grounds of health, safety, and disharmony with surrounding neighborhood characteristics).

<sup>70</sup> Matthew Bender, 3-20 *Zoning Law & Practice* § 20-12 (2006 ed.).

<sup>71</sup> Dunnell Minn. Digest, *Municipal Corporations* § 7.16(b) (4th ed. 2006).

### *Common Land Use Planning Terms*

**Permitted Use:** A land use allowed in the zone that does not require government approval. A primary land use for the zone.

**Accessory Use:** A land use that supports the primary land use and does not require special government approval.

**Conditionally Permitted Use** (also *Conditional Use, Exception, Special Use, or Special Exception*): A land use that is generally appropriate in the zone, but requires approval by government authorities who may set conditions to ensure compatibility with the primary land use in the zone.

**Variance:** If approved, allows for a land use that is not normally allowed in the zone.

## **2. The Permitting Process**

The first step in getting land use approval for a wind project is to determine whether wind turbines are a permitted use, accessory use, or conditionally permitted use in the zone where the project will be located. Typically, no special approval is necessary if wind turbines are a permitted use or accessory use in the zone. However, as noted earlier, it is not likely a wind project would be an expressly permitted or accessory use in an agricultural zone unless it is a small-scale turbine for on-farm use.

If wind turbines are a conditionally permitted use in the zone, the landowner must apply for a conditional use permit for the project (or exception, depending on the specific term used in the county). If wind turbines are not a conditionally permitted use in the zone, the landowner must apply for a zoning variance. Wind developers and their attorneys should investigate the local permitting process, rules, and timelines early in the development process.<sup>72</sup>

After an application for a conditional use permit or variance is submitted, county planning department staff typically will review the application and make a recommendation to the county authority regarding approval or disapproval, and any conditions that should be imposed. A hearing to allow public participation and feedback on the project is also typically part of the

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<sup>72</sup> Iowa Department of Natural Resources, *Iowa Wind Energy Checklist 6* (2003), available at <http://www.iowadnr.com/energy/renewable/files/windchecklist.pdf>.

permitting process—placing further emphasis on the need for maintaining good working relationships with interested community members.

### **3. Obtaining a Conditional Use Permit—The Most Likely Land Use Permitting Requirement**

This section discusses local conditional use permitting in more detail because it is the most likely way that wind turbines will be addressed in local land use laws, and the process can be quite complicated.

The conditional use permitting process for a wind project will vary depending on whether the local land use law specifically addresses wind development. Both scenarios—where a local land use law does address wind turbines and where the local law does not—will be discussed here.

#### **a. Conditional use permitting laws that address wind projects**

Some counties have enacted specific land use regulations for wind power development. Such laws can considerably simplify the siting and permitting process, since the requirements for a wind project should be relatively clear. However, this is not to say that the requirements for obtaining a conditional use permit for a wind project will not be extensive, as the examples here demonstrate. Wind-specific laws range from permissive and encouraging of wind projects to quite restrictive.

One example of a wind-specific land use law is from Murray County, Minnesota, which has a wind power development law that applies to all wind energy projects under 5 MW in the county.<sup>73</sup> Murray County's law requires all wind projects in an agricultural district to apply for a conditional use permit.<sup>74</sup> The law sets out standards that the wind project must satisfy to receive the permit, including setbacks, safety and design specifications, and compliance with other local, state, and federal

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<sup>73</sup> Murray County, Minn., Zoning Ordinance § 7, subd. 3(14), § 12 (2007), *available at* <http://www.murray-countymn.com/php/pdfs/mczoning05-08-07.pdf> (last visited June 20, 2007). Permitting of wind facilities with capacity of 5 MW or more is governed by Minnesota's state-level siting process. Minn. Stat. §§ 216F.01 to 216F.07 (2006).

<sup>74</sup> Murray County, Minn., Zoning Ordinance § 12, subd. 2 (2007), *available at* <http://www.murray-countymn.com/php/pdfs/mczoning05-08-07.pdf> (last visited June 20, 2007).

laws. For example, turbines must be located at least 750 feet from residences and 300 feet from the property line and public roads; tubular towers are required (as opposed to lattice structures); and the towers must have a uniform, unobtrusive color and minimal lighting other than security lighting or that required by the Federal Aviation Administration.<sup>75</sup>

While Murray County, Minnesota, regulates all wind facilities *under* 5 MW, Union County, Oregon, has enacted a land use law requiring a conditional use permit for all commercial wind power facilities, defined as facilities with a combined generating capacity of *over* 3 MW.<sup>76</sup> Obtaining a conditional use permit under the Union County ordinance involves an application and public hearing.<sup>77</sup> The application must include a description of the property and project, along with other information, including a transportation plan for construction, an avian plan to determine the project's impact on birds, an erosion control plan and weed control plan, and a socioeconomic impact assessment to determine the project's effects on the social, economic, visual, and recreational aspects of the surrounding community.<sup>78</sup> If the conditional use permit is approved, the wind project must obtain all other necessary

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<sup>75</sup> Murray County, Minn., Zoning Ordinance § 12, subd. 3, subd. 4(6), subd. 7 (2007), available at <http://www.murray-countymn.com/php/pdfs/mczoning05-08-07.pdf> (last visited June 20, 2007).

<sup>76</sup> Union County, Or., Wind Facility Permitting Ordinance art. 52 (2006), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section\\_52\\_02\\_Definitions](http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section_52_02_Definitions) (last visited June 20, 2007). As discussed in the next section, wind facilities in Oregon of up to 105 MW have the choice of being permitted by the local government or through a consolidated state-level process. See John G. White, *Oregon's Siting Process for Large Wind Energy Facilities* (Oregon Office of Energy), available at <http://www.oregon.gov/ENERGY/SITING/docs/WindSite.PDF> (last visited June 15, 2007). Wind facilities of 105 MW or more must use the state-level process.

<sup>77</sup> Union County, Or., Wind Facility Permitting Ordinance § 52.03(1) (2006), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section\\_52\\_02\\_Definitions](http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section_52_02_Definitions) (last visited June 20, 2007).

<sup>78</sup> Union County, Or., Wind Facility Permitting Ordinance § 52.04 (2006), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section\\_52\\_02\\_Definitions](http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section_52_02_Definitions) (last visited June 20, 2007).

permits before beginning construction and comply with state law setting specific safety standards for wind facilities.<sup>79</sup> The turbine must be sited at least 1,500 feet away from any property zoned for residential use, and attempts must be made to minimize the aesthetic and environmental impact on the surrounding land.<sup>80</sup>

**b. Conditional use permitting laws that do not address wind projects**

Most local land use laws do not specifically address wind energy development. In such cases, the landowner can apply for a conditional use permit for the wind project under a related general purpose conditional use, such as those for electrical systems. The wind project will also have to satisfy whatever general conditions, such as setback requirements and height restrictions, are imposed for conditionally permitted uses in the zone.

For example, Buena Vista County, Iowa, has no specific provisions in its land use law for the permitting of wind facilities. Instead, commercial-scale wind projects fall under a local law allowing a *special exception* (another term for a conditional use permit) in that county's agricultural districts for major utility facilities, including electrical generation equipment.<sup>81</sup> Height and setback restrictions also apply to structures in the county's agricultural districts, including a 40-foot height limit for structures in a prime agricultural district.<sup>82</sup> A wind project would have to obtain a variance if it would be taller than 40 feet.

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<sup>79</sup> Union County, Or., Wind Facility Permitting Ordinance § 52.05(2) & (3)(H) (2006), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section\\_52\\_02\\_Definitions](http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section_52_02_Definitions) (last visited June 20, 2007) (referring to Or. Admin. R. 345-024-0010).

<sup>80</sup> Union County, Or., Wind Facility Permitting Ordinance § 52.05(3) (2006), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section\\_52\\_02\\_Definitions](http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section_52_02_Definitions) (last visited June 20, 2007).

<sup>81</sup> Buena Vista County, Ia., Zoning Ordinance § 6.1.2.102(4) (2003), available at [http://www.co.buena-vista.ia.us/auditor/2003\\_Code\\_of\\_Ordinances\\_2000.pdf](http://www.co.buena-vista.ia.us/auditor/2003_Code_of_Ordinances_2000.pdf) (last visited June 20, 2007).

<sup>82</sup> Buena Vista County, Ia., Zoning Ordinance § 6.1.3.103 (2003), available at [http://www.co.buena-vista.ia.us/auditor/2003\\_Code\\_of\\_Ordinances\\_2000.pdf](http://www.co.buena-vista.ia.us/auditor/2003_Code_of_Ordinances_2000.pdf) (last visited June 20, 2007).

Controversy can arise when the local land use law does not specifically address wind energy development.<sup>83</sup> In such cases, it might be helpful for the landowner to provide examples of land use laws that do have special provisions for wind systems to demonstrate the types of reasonable conditions that the county could set when considering whether to approve the project. The Association of Minnesota County Planning and Zoning Administrators and the American Wind Energy Association both have model ordinances for counties that wish to specifically address wind projects in their land use laws.<sup>84</sup> It may be helpful to make county authorities aware of these resources if there is little guidance in the local land use law for consideration of a wind project.

## B. State Land Use Permitting of Wind Projects

Several states have taken an active role in siting wind energy facilities.<sup>85</sup> These state efforts are generally intended to encourage wind energy development. States generally take one of two approaches: (1) restricting local authorities' power to exclude wind projects within local land use permitting processes; and (2) creating a separate state-level land use permitting process, particularly for larger wind projects. Both types of laws are discussed here.

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<sup>83</sup> See, e.g., National Wind Coordinating Committee, *Permitting of Wind Energy Facilities: A Handbook* 39-43 (Aug. 2002), available at <http://www.nationalwind.org/publications/siting/permitting2002.pdf> (last visited June 19, 2007) (describing a series of wind project permitting controversies in Wisconsin).

<sup>84</sup> Association of Minnesota County Planning and Zoning Administrators, *Wind Energy Conversion System Ordinance* (June 14, 2005), available at <http://www.mncounties3.org/macpza/OrdinanceLinks/Dist%20D%20modelwindordinancefinal.pdf>; American Wind Energy Association, *Permitting Small Wind Turbines: A Handbook* 29 (Sept. 2003), available at <http://www.awea.org/smallwind/documents/permitting.pdf> (both sites last visited June 19, 2007).

<sup>85</sup> See National Wind Coordinating Committee and the National Conference of State Legislatures, *State Siting and Permitting of Wind Energy Facilities* (2006), available at [http://www.nationalwind.org/publications/siting/Siting\\_Factsheets.pdf](http://www.nationalwind.org/publications/siting/Siting_Factsheets.pdf) (last visited June 15, 2007) (summarizing state mandatory and voluntary permitting guidelines and processes).

## 1. State Laws that Limit Local Authorities' Power to Exclude Wind Projects

Some states have taken a middle road to wind project permitting that does not go as far as establishing a statewide permitting process, but also does not leave permitting entirely to local authorities. Counties under such laws may still require conditional use permits for wind projects, and may still deny those permits if the conditions are not met, but they are limited by the requirements of the state statute.

In some cases, a state law limitation on local land use authority is rather general, still leaving almost all of the decision-making power with the local government. For example, Oregon law authorizes local permitting authorities to issue land use permits for wind projects under 105 MW, but limits local authorities' power by expressly identifying wind turbines as an authorized use for land zoned agricultural.<sup>86</sup> As a result, individual Oregon counties may limit the size of wind projects that are considered an authorized use and may impose specific requirements on wind projects, but they cannot completely exclude wind facilities from the authorized uses of agricultural land in their community.

Other state laws impose more specific limitations on the ability of a local government to exclude wind projects. For example, under a Wisconsin law, local restrictions on land use permits for wind projects are only allowed if the restrictions are based on public health or safety, do not significantly increase the cost or decrease the efficiency of the wind project, or permit the developer to install an alternative system of comparable cost and efficiency.<sup>87</sup> This means that consideration of any community concerns about decreased property values or aesthetics of the structures would not be allowed in the permitting process.<sup>88</sup>

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<sup>86</sup> Or. Admin. R. 660-033-0120 (2007); *see also* Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 40-42 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf) (last visited June 15, 2007) (land zoned as exclusive Farm Use or Grazing/Farming is considered agricultural land).

<sup>87</sup> Wis. Stat. § 66.0401(1) (2006).

<sup>88</sup> *See State of Wisconsin ex. rel. Numrich v. City of Mequon Bd. of Zoning Appeals*, 626 N.W.2d 366, 372 (Wis. Ct. App. 2001).

Knowing whether state law affects local land use authority with respect to wind projects will be an important part of seeking approval for a project site. This will be particularly true in areas where wind energy development is relatively new or rare, since the local authorities may themselves be uncertain about state requirements.

## 2. State Laws that Create State-Level Permitting of Wind Projects

Several states have created state-level permitting processes for larger wind projects that replace local land use decision-making. For example, Minnesota has developed a statewide zoning law for projects of 5 MW or more.<sup>89</sup> In Oregon, wind facilities with up to 105 MW of peak capacity may choose to use either the local permitting process or a consolidated state process; projects with a peak capacity of 105 MW or more must use the state-level process.<sup>90</sup> For projects with a peak capacity of less than 300 MW, the state siting process is expedited.<sup>91</sup>

For the purposes of describing a state-level land use permitting process, Minnesota's wind project permitting process will be discussed in detail. In Minnesota, most wind projects of 5 MW and more must receive a site permit from the Minnesota Public Utilities Commission (PUC).<sup>92</sup> The applicant must pay an application fee to the PUC to cover the cost of processing the permit application. The final fee will be estimated by the PUC after it receives the

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<sup>89</sup> Minn. Stat. §§ 216F.01 to 216F.07 (2006).

<sup>90</sup> John G. White, *Oregon's Siting Process for Large Wind Energy Facilities* 1 (Oregon Office of Energy), available at <http://www.oregon.gov/ENERGY/SITING/docs/WindSite.PDF> (last visited June 15, 2007).

<sup>91</sup> See John G. White, *Oregon's Siting Process for Large Wind Energy Facilities* 11 (Oregon Office of Energy), available at <http://www.oregon.gov/ENERGY/SITING/docs/WindSite.PDF> (last visited June 15, 2007).

<sup>92</sup> Minn. Stat. §§ 216F.01 to 216F.07 (2006); see also Next Generation Energy Act, 2007 Minn. Laws (Chap. 136, art. 4, § 12) (to be codified at Minn. Stat. § 216F.011(a)) (effective Jan. 15, 2008) (adding instructions on how to determine what constitutes a single project for purposes of measuring total project size for permitting jurisdiction).



application, and any amount paid in excess of the actual processing expenses will be refunded to the applicant.<sup>93</sup>

The application under Minnesota's state-level site permitting process must include information about the location of the proposed site; wind characteristics and other weather conditions; wind rights to the land; and design of the project, including a map of turbine placement and a description of the turbines and associated electrical equipment.<sup>94</sup> Potential impacts of the project and proposed mitigation must also be included in the application, including impacts on nearby homes and businesses, infrastructure, public health and safety, cultural and archaeological resources, soils, water resources, vegetation, wildlife, aesthetics, and land-based economic activity.<sup>95</sup> Permit applicants must also plan for construction, operation, decommissioning, and restoration of the site.<sup>96</sup> The applicant must also identify all other federal, state, and local permits required for the project.<sup>97</sup>

***Important Changes to Minnesota's Wind Permitting Law***

Minnesota's wind permitting law has recently been amended. Beginning January 15, 2008, county governments may assume responsibility for processing permit applications for wind projects under 25 MW. If a county pursues this option, the county may issue, deny, modify, impose conditions upon, or revoke permits based on standards established by the PUC or based on the county's own standards, if they are more stringent than the PUC's permit standards. For wind projects that remain under the PUC's jurisdiction in counties that choose to adopt more restrictive standards, the PUC must consider and apply those standards unless there is good cause not to.

Next Generation Energy Act, 2007  
Minn. Laws (Chap. 136, art. 4, §§ 13-14) (to be codified at Minn. Stat. §§ 216F.08, 216F.081).

<sup>93</sup> Minn. R. 4401.0800, subp. 1, 2 & 5 (2006).

<sup>94</sup> Minn. R. 4401.0450, subp. 4 to subp. 6 (2006).

<sup>95</sup> Minn. R. 4401.0450, subp. 7 (2006).

<sup>96</sup> Minn. R. 4401.0450, subp. 8 to subp. 13 (2006).

<sup>97</sup> Minn. R. 4401.0450, subp. 14 (2006). One benefit of the state-level permitting process is that the environmental information required in the siting application satisfies Minnesota's other environmental review requirements, discussed in the next

The PUC must give notice of the proposed wind project to the local government and local residents in the county where the project will be located.<sup>98</sup> The local government and members of the public may submit comments on the project to the PUC, and at least one public hearing must be held.<sup>99</sup>

A final decision on a site permit for a wind project under Minnesota's state-level process must be made within 180 days after the PUC accepts the permit application, unless there is good cause to extend the deadline or the applicant agrees to an extension.<sup>100</sup> If the permit is approved, the PUC may include any necessary conditions, including requirements for siting, turbine design, or operation, or any terms necessary to protect the environment.<sup>101</sup>

Even after a wind project has received a site permit under Minnesota's state-level process, the project is not authorized to begin construction until all other necessary permits have been obtained and the project has a power purchase agreement with a utility company.<sup>102</sup> A site permit obtained through the state-level process is valid for 30 years, and may be renewed upon request.<sup>103</sup> The permit may be amended if there are reasonable changes to the project, and may be revoked if the permit holder violates the terms of the agreement or the wind project poses unexpected dangers that cannot be resolved.<sup>104</sup>

### III. Environmental Permitting and Review

In addition to obtaining a land use permit, wind project developers may be required by local, state, and federal authorities to obtain additional permits or satisfy other review requirements for environmental purposes.

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section of this chapter. Minn. R. 4401.0450, subp. 7 (2006); *see* Minn. Stat. § 116D.04 (2006) (requiring Environmental Impact Statements).

<sup>98</sup> Minn. R. 4401.0550, subp. 1 & 2 (2006).

<sup>99</sup> Minn. R. 4401.0550, subp. 3 & 4 (2006).

<sup>100</sup> Minn. R. 4401.0600, subp. 2 (2006).

<sup>101</sup> Minn. R. 4401.0600, subp. 4 (2006).

<sup>102</sup> Minn. R. 4401.0610, subp. 3 (2006).

<sup>103</sup> Minn. R. 4401.0600, subp. 5 (2006).

<sup>104</sup> Minn. R. 4401.0700 (2006).

## A. Activities Affecting Wetlands

Federal and state laws protect wetlands from damaging activities. Wetlands generally include swamps, marshes, bogs, and similar areas that are saturated by surface or ground water.<sup>105</sup> While this definition may seem to include rather limited areas, a parcel need not have standing water to be considered a wetland, and many seemingly dry properties can be covered by wetlands protections.

Although wind projects are generally not likely to be sited on a wetland—the desire to maximize wind power will usually lead to siting on high ground—the land preparation and construction activities needed for a wind facility may affect adjacent wetlands. It is important for farmers developing a wind project to be certain that all wetlands protection requirements are satisfied. Violation of these requirements, even if unintentional, can bring serious penalties.

Farmers should contact the state agency responsible for wetland regulation or the U.S. Army Corps of Engineers (Corps) district in the area to determine if any wetlands are present on a site selected for a wind project.<sup>106</sup>

### 1. Federal Wetlands Protection Permits

Section 404 of the federal Clean Water Act prohibits any “discharge” into waters of the United States, including wetlands, without a permit from the Corps.<sup>107</sup> For this purpose, discharge may include draining or filling wetlands for development, grading or pushing material around within a wetland, and disturbing wetland soil during land clearing. A wetland is also

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<sup>105</sup> Wetlands are defined by the federal Clean Water Act regulations as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” 33 C.F.R. § 328.3 (2006).

<sup>106</sup> Contact information for Corps district offices is available on the Internet. See U.S. Army Corps of Engineers, *Regulatory Program: District Offices*, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/district.htm> (last visited June 16, 2007).

<sup>107</sup> 33 U.S.C. § 1344 (2006).

affected if any return water, dredged material, or other fill material from an activity ends up in the wetland.<sup>108</sup>

If a proposed wind project will be constructed near a wetland, the farmer or developer should contact the Corps district office in the area to determine whether a Section 404 permit is needed.

The Corps may issue a letter of permission rather than a permit in certain circumstances.<sup>109</sup> Standardized “general permits” are also available for routine activities, such as utility line activities, commercial developments, and agricultural activities, that will have only minimal adverse effects on a wetland, provided that the conditions for the general permit are met.<sup>110</sup>

If a wind project does not qualify for a letter of permission or general permit, the landowner must obtain an individual Section 404 permit, reflecting a potential for significant impacts on wetlands. The Corps project manager for the district where the project is located will review the wetlands permit application and determine whether to issue a permit. The Corps project manager may solicit public comment about a permit application, conduct environmental and other reviews, and negotiate modifications to the project

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<sup>108</sup> 33 C.F.R. § 323.2 (2007); U.S. Army Corps of Engineers, *Regulatory Program: Overview*, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/oceover.htm> (last visited June 16, 2007).

<sup>109</sup> 33 C.F.R. § 325.2(e) (2007). For sample letter of permission (LOP) standards, see U.S. Army Corps of Engineers – St. Paul District, *Issuance of Letter of Permission Procedure, LOP-05-MN, Applicable in the State of Minnesota Except within the Exterior Boundaries of Indian Reservations, LOP-05-MN (2005-825-RJA)* (July 31, 2006), available at <http://www.mvp.usace.army.mil/docs/regulatory/Special%20Notices/2005000825lop05mn.pdf> (last visited June 21, 2007).

<sup>110</sup> Nationwide general permits are found at 33 C.F.R. pt. 330, Appendix A (2007). National general permits cover certain categories of activities, including utility line activities (NWP 12), state-administered general permits (NWP 24), residential, commercial, and institutional developments (wind facilities are not specifically named) (NWP 39), and agricultural activities (wind facilities are not specifically named) (NWP 40). In place of national general permits, the local Army Corps of Engineers District Office may offer regional or state general permits. See, e.g., U.S. Army Corps of Engineers – St. Paul District, *Permit Information*, <http://www.mvp.usace.army.mil/regulatory/> (last visited June 21, 2007).

in order to issue a permit.<sup>111</sup> If a state permit is also required, the Corps and the state may use joint permit processing procedures.<sup>112</sup> Individual permits can take 2 to 4 months for processing.<sup>113</sup> The fee for a Section 404 permit application is \$10 or \$100, depending on whether the planned project is commercial.<sup>114</sup>

If a Section 404 permit application is denied or issued with conditions the wind developer objects to, that decision may be appealed.<sup>115</sup> Appeals are typically allowed only within a short time after the adverse decision, and farmers should pay particular attention to instructions on the Notification of Appeal Process form that should be attached to the decision. As is true for all aspects of wind development, timely and experienced legal assistance is strongly recommended.

## 2. State and Local Wetlands Protections

The permitting requirements under Section 404 of the Clean Water Act, discussed above, are directed at protecting waters and adjacent wetlands that fall under federal jurisdiction. Another part of the Clean Water Act, Section 401, authorizes states and tribal governments to protect waters and adjacent wetlands under their jurisdiction by imposing their own wetlands protection standards in the federal permitting process.<sup>116</sup> If a state chooses to exercise this authority, any persons required to obtain one of a variety of federal permits—including Section 404 permits, discussed above, and Rivers

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<sup>111</sup> U.S. Army Corps of Engineers, *Regulatory Program: Overview*, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/oceover.htm> (last visited June 16, 2007).

<sup>112</sup> U.S. Army Corps of Engineers, *Regulatory Program: Overview*, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/oceover.htm> (last visited June 17, 2007).

<sup>113</sup> U.S. Army Corps of Engineers, *Regulatory Program: Overview*, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/oceover.htm> (last visited June 17, 2007).

<sup>114</sup> 33 C.F.R. § 325.1(f) (2007).

<sup>115</sup> See generally 33 C.F.R. pt. 331 (2007).

<sup>116</sup> 33 U.S.C. § 1341 (2006); 33 C.F.R. § 320.3(a) (2007). See generally U.S. Environmental Protection Agency, *Section 401 Certification and Wetlands*, <http://www.epa.gov/owow/wetlands/facts/fact24.html> (last visited June 21, 2007).

and Harbors Act permits, discussed below—for their activities will also have to obtain state certification that the activities meet state water quality standards.<sup>117</sup> The federal permit cannot be issued unless the state certification is granted or waived. To minimize the administrative burdens on permit applicants, states which exercise their certification authority under Section 401 generally coordinate their review with the Corps, often using a joint permitting process.<sup>118</sup>

In addition to their certification authority under Section 401 of the Clean Water Act, states and tribes are authorized to assume some portions of the Corps' responsibilities for the Section 404 permitting program.<sup>119</sup> The state then becomes the processing agency for Section 404 permits, applying the same standards that would be used by the Corps.

Some states also have their own laws for the protection of wetlands and require a state permit for covered activities. For example, Minnesota's Wetland Conservation Act (WCA) prohibits draining, filling, or excavating wetlands unless the activity in question is exempt from the law, or wetlands of equal public value are created to replace those that are lost.<sup>120</sup> Local

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<sup>117</sup> 33 U.S.C. § 1341 (2006); U.S. Environmental Protection Agency, *Section 401 Certification and Wetlands*, <http://www.epa.gov/owow/wetlands/facts/fact24.html> (last visited June 21, 2007).

<sup>118</sup> U.S. Environmental Protection Agency, *Section 401 Certification and Wetlands*, <http://www.epa.gov/owow/wetlands/facts/fact24.html> (last visited June 21, 2007). For example, a state may waive certification under Section 401 if the activities qualify for a letter of permission or general permit from the Corps, indicating limited environmental impact. See U.S. Army Corps of Engineers – St. Paul District, *Issuance of Letter of Permission Procedure, LOP-05-MN, Applicable in the State of Minnesota Except within the Exterior Boundaries of Indian Reservations*, LOP-05-MN (2005-825-RJA) 2 (July 31, 2006), available at <http://www.mvp.usace.army.mil/docs/regulatory/Special%20Notices/2005000825lop05mn.pdf> (last visited June 21, 2007) (stating that the Minnesota Pollution Control Agency has waived Section 401 water quality certification for projects authorized under LOP-05-MN).

<sup>119</sup> 40 C.F.R. pts. 232, 233 (2007). To date, only New Jersey and Michigan have assumed authority for Section 404 permitting. U.S. Environmental Protection Agency, *State or Tribal Assumption of the Section 404 Permit Program*, <http://www.epa.gov/owow/wetlands/facts/fact23.html> (last visited June 21, 2007).

<sup>120</sup> Minn. Stat. §§ 103G.222 et seq. (2006); Minn. R. 8420 et seq. (2006).

governments, typically counties, are primarily responsible for administering the WCA for wetlands in their area.<sup>121</sup> The Minnesota Department of Natural Resources' Public Waters Permit Program (MnDNR PWPP) also requires permitting of projects that affect any public waters, including public wetlands.<sup>122</sup> Finally, Minnesota watershed districts and local governments may also have their own regulations for wetlands within their jurisdiction.<sup>123</sup> Minnesota uses a combined application process if permits are required, but other states may require individual applications for each permit.<sup>124</sup>

As the Minnesota example demonstrates, wetland protection requirements may be imposed by many different agencies and levels of government. If a wind project will affect wetlands in any way, it is important to contact state and local agencies involved with wetland protection early in the process to determine which, if any, permits will be required.

### 3. Federal Farm Program Restrictions

Farmers who own or manage wetlands are also affected by the Swampbuster provision of the federal Food Security Act, which denies certain farm program benefits to farmers who produce agricultural commodities on converted or modified wetlands.<sup>125</sup> Although most land changes related to a wind project will be for the purpose of building turbine towers and related structures, farmers should be aware that, if wetlands are converted or modified during the construction process, even inadvertently, it can have serious consequences for their future eligibility for federal farm

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<sup>121</sup> Minn. R. 8420.0110, subp. 30 (2006).

<sup>122</sup> Minn. Stat. §§ 103G.005, subd. 15a, 103G.24 (2006); Minn. R. 6115 (2006); Minnesota DNR, *PWI [Public Waters Inventory] Maps Download*, [http://www.dnr.state.mn.us/waters/watermgmt\\_section/pwi/download.html](http://www.dnr.state.mn.us/waters/watermgmt_section/pwi/download.html) (last visited June 16, 2007).

<sup>123</sup> See Minn. Stat. § 103D (2006).

<sup>124</sup> See Minnesota Board of Water & Soil Resources, *Permit Application Forms*, <http://www.bwsr.state.mn.us/wetlands/wcaforms/index.html> (last visited June 16, 2007).

<sup>125</sup> 99 Pub. L. 198, Title XII, Subtitle C (Dec. 23, 1985) (codified as amended at 16 U.S.C. §§ 3821 to 3823). This provision of the Food Security Act has become known as the "Swampbuster" law. Further discussion of Swampbuster requirements can be found in Chapter 5 (Liability Concerns) of this guide.

programs. Farmers are encouraged to communicate with USDA's Farm Service Agency and Natural Resources Conservation Service about any proposed wind project and take potential effects on farm program income into account when considering the economics of the project.

## **B. Activities Affecting Bodies of Water**

Wind projects may occasionally run up against federal and state regulation of activities affecting bodies of water. For example, if a wind project requires construction of access roads or power lines that will cross a stream or river, or sometimes even a drainage ditch, water protection laws may be triggered. Construction of a wind facility may itself occasionally raise water protection concerns, if debris or runoff from the construction site might enter protected waters.

### **1. Federal Water Protection Permits**

If a wind project will affect a body of water under federal jurisdiction,<sup>126</sup> such as a river or a stream, Section 10 of the federal River and Harbors Act requires a permit from the U.S. Army Corps of Engineers.<sup>127</sup> Activities requiring permits include construction of any structure in a body of water or any deposit of materials in a body of water as a result of the construction.<sup>128</sup> If a proposed wind project will be constructed near a river or other body of water, the farmer should contact the local Corps district office to determine whether a Section 10 permit is needed.

As is true for Section 404 wetlands protection permits, the Corps may issue a letter of permission rather than a Section 10 water protection permit where the work would be minor, would not have a significant impact on environmental values, and is unlikely to encounter significant opposition.<sup>129</sup> Section 10 permit regulations also define categories of projects that are pre-approved for nationwide or regional general permits because of their likely

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<sup>126</sup> The jurisdiction of the Corps extends to the "navigable waters" of the United States, which have been interpreted quite broadly. The relevant regulations can be found at 33 C.F.R. pt. 329 (2007).

<sup>127</sup> 33 U.S.C. § 403 (2006); 33 C.F.R. § 322.1 (2007).

<sup>128</sup> 33 C.F.R. § 322.2(b), (c) (2007).

<sup>129</sup> 33 C.F.R. § 325.2(e)(1)(i) (2007).



limited impact on protected waters.<sup>130</sup> All other projects require an individual permit, which can take 2 to 4 months for processing.<sup>131</sup>

The fee for a Section 10 permit application will be \$10 or \$100, depending on whether the planned project is commercial in nature. Adverse decisions on Section 10 permit applications may be administratively appealed.<sup>132</sup>

In addition to concern about direct effects on public waters, any pollution from runoff and erosion at construction sites is a serious water-quality issue that may arise as part of a wind project. To address this concern, permitting of construction activities under the National Pollutant Discharge Elimination System (NPDES) may be required.<sup>133</sup> Construction sites that will disturb 1 acre or more of land will be subject to NPDES requirements for stormwater permits.<sup>134</sup> These permits are typically administered by the states, as discussed below, but may also be issued by the U.S. Environmental Protection Agency.<sup>135</sup>

## 2. State-Issued Water Protection Permits

Some states have water protection laws, and permit requirements, which track the federal Rivers and Harbors Act, discussed above. For example, the Minnesota Department of Natural Resources' Public Waters Permit Program (MnDNR PWPP) requires a permit for projects that affect any public waters.<sup>136</sup>

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<sup>130</sup> 33 C.F.R. § 325.5(c) (2007). Nationwide general permits are found at 33 C.F.R. pt. 330, Appendix A (2007). Regional or state general permits are available from the local Army Corps of Engineers District Office. *See, e.g.*, U.S. Army Corps of Engineers – St. Paul District, *Permit Information*, <http://www.mvp.usace.army.mil/regulatory/> (last visited June 21, 2007).

<sup>131</sup> U.S. Army Corps of Engineers, *Regulatory Program: Overview*, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/oceover.htm> (last visited June 16, 2007).

<sup>132</sup> 33 C.F.R. pt. 331 (2007).

<sup>133</sup> 40 C.F.R. § 122.26 (2007).

<sup>134</sup> 40 C.F.R. § 122.26(b)(15), Exhibit 1 (2007).

<sup>135</sup> 40 C.F.R. § 122.26 (2007).

<sup>136</sup> Minn. Stat. § 103G.24 (2006); Minn. R. 6115 (2006).

As mentioned above, many states will also require permitting of construction projects under the NPDES.<sup>137</sup> Although the NPDES was created under the federal Clean Water Act, states implement the system by issuing permits through a state agency, such as the Department of Natural Resources (in Iowa), the Pollution Control Agency (in Minnesota), the Department of Environmental Quality (in Oregon), or the Department of Health Division of Water Quality (in North Dakota).

In Minnesota, the owner or operator of construction activity must obtain water pollution permits from the Minnesota Pollution Control Agency (PCA), which issues both the federal NPDES permit and a state Stormwater Disposal System permit.<sup>138</sup> An application must include a Stormwater Pollution Prevention Plan to identify how water pollution and erosion will be controlled at the site.<sup>139</sup> There are additional erosion and pollution control requirements in Minnesota if a project will use more than 10 acres of land, is within 200 feet of surface water, or discharges into wetlands or specially protected waters.<sup>140</sup>

There can be significant variation in the water protection permitting process from state to state. For example, in Minnesota, the application fee for a water protection permit is \$400 and construction may begin 7 days after the

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<sup>137</sup> 40 C.F.R. § 122.26 (2007); *see, e.g.*, Minnesota Pollution Control Agency, *Overview of Minnesota's MPDES/SDS Construction Stormwater Permit* (Nov. 2005), available at <http://www.pca.state.mn.us/publications/wq-strm2-05.pdf> (last visited June 16, 2007).

<sup>138</sup> Minnesota Pollution Control Agency, *Overview of Minnesota's MPDES/SDS Construction Stormwater Permit* (Nov. 2005), available at <http://www.pca.state.mn.us/publications/wq-strm2-05.pdf> (last visited June 16, 2007).

<sup>139</sup> Minnesota Pollution Control Agency, *Overview of Minnesota's MPDES/SDS Construction Stormwater Permit* (Nov. 2005), available at <http://www.pca.state.mn.us/publications/wq-strm2-05.pdf> (last visited June 16, 2007).

<sup>140</sup> *See* Minnesota Pollution Control Agency, *Overview of Minnesota's MPDES/SDS Construction Stormwater Permit* (Nov. 2005), available at <http://www.pca.state.mn.us/publications/wq-strm2-05.pdf> (last visited June 16, 2007).

application is filed.<sup>141</sup> In Oregon, the permit fee is \$560 and processing may take several months.<sup>142</sup> Because of these variations and the importance of these permits to a wind project's ability to go forward, it is important to contact the responsible state agencies well before the planned start date for construction.

## C. Environmental Review

Additional federal and state laws require review of a project for other types of environmental impacts, including effects on natural resources, wildlife, cultural and historical resources, and social and economic activity.

### 1. National Environmental Policy Act

If a wind project is located on federal land or requires approval from federal agencies, it must comply with the National Environmental Policy Act (NEPA).<sup>143</sup> For example, NEPA review is required if the project requires an easement or lease on federally owned or managed land or requires a wetlands permit from the Army Corps of Engineers.

If NEPA review is required, the responsible federal agency must conduct the review with the cooperation of the project owner. The first level of review requires an Environmental Assessment, which can take 2 to 6 months.<sup>144</sup> If the agency issues a "finding of no significant impact," the NEPA review process is complete.<sup>145</sup> If the agency finds that there is a possibility of significant environmental impact, a full Environmental Impact Statement

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<sup>141</sup> Minnesota Pollution Control Agency, *Overview of Minnesota's MPDES/SDS Construction Stormwater Permit* (Nov. 2005), available at <http://www.pca.state.mn.us/publications/wq-strm2-05.pdf> (last visited June 16, 2007).

<sup>142</sup> Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 55 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf) (last visited June 16, 2007).

<sup>143</sup> 42 U.S.C. §§ 4321 to 4347 (2006); 40 C.F.R. § 1500.3 (2007).

<sup>144</sup> Timothy L. McMahan, "Siting and Permitting Wind Projects" 3-3 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 5, 2007).

<sup>145</sup> 40 C.F.R. § 1508.9 (2007).

(EIS) is required, which can take over a year.<sup>146</sup> If another state or federal agency is already conducting an EIS, the agencies may use the same documentation.<sup>147</sup>

The NEPA environmental review process is exhaustive, and includes consideration of impacts on natural resources and social and economic activity.<sup>148</sup> An EIS requires a full consideration of not only the impacts of the proposed project, but also an assessment of alternatives to the proposed action to be sure that the proposed project is the best use of resources.

In general, the NEPA process for wind projects has ended in a “finding of no significant impact.”<sup>149</sup> It is therefore anticipated that the NEPA requirements will not be a significant impediment to future wind projects.

Farmers who are considering participating in a wind project that would involve siting or rights-of-way on land managed by the federal Bureau of Land Management (BLM) should review that agency’s “Programmatic Environmental Impact Statement (PEIS) on Wind Energy Development on BLM-Administered Lands in the Western United States.”<sup>150</sup> Through this document, BLM has established the policies and best management practices that will be the minimum requirements for management of all individual wind energy projects on BLM-administered land. Certain projects may

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<sup>146</sup> Timothy L. McMahan, “Siting and Permitting Wind Projects” 3-3 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 21, 2007).

<sup>147</sup> Timothy L. McMahan, “Siting and Permitting Wind Projects” 3-3 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 5, 2007).

<sup>148</sup> 42 U.S.C. § 4332(C) (2006).

<sup>149</sup> Kim R. York and Richard L. Settle, *Symposium on Energy Issues in the Pacific Northwest: Potential Legal Facilitation or Impediment of Wind Energy Conversion System Siting*, 58 Wash. L. Rev. 387, 408 (1983).

<sup>150</sup> U.S. Department of the Interior, Bureau of Land Management, *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (June 2005), available at <https://www.eh.doe.gov/nepa/otheragency/fes0511/index.html> (last visited June 19, 2007).

require individual review, but because such review need only address site-specific concerns, the process should be considerably expedited, reducing costs and delays.<sup>151</sup>

## 2. State and Local Environmental Review

About half of the states have enacted a State Environmental Policy Act that closely mirrors NEPA, discussed above.<sup>152</sup> These laws require state or local authorities to conduct an environmental review before taking any action that may significantly affect the environment, such as issuing any type of permit to a wind project.<sup>153</sup>

To use Minnesota's law as an example, any state or local government agency that is taking an action with potential for significant environmental effects must prepare an environmental review.<sup>154</sup> First, the agency will work with the project developer to complete an Environmental Assessment Worksheet (EAW), which is a 6-page questionnaire about the project's environmental effects. EAWs take 2 to 3 months to complete, and there is a 30-day public comment period. The agency will then determine whether a full Environmental Impact Statement will be required.<sup>155</sup>

For wind projects in Minnesota that are capable of operating at 50 MW or more, the environmental review process is a part of Minnesota PUC's

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<sup>151</sup> U.S. Department of the Interior, Bureau of Land Management, *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* ES.5, ES.6 (June 2005), available at <https://www.eh.doe.gov/nepa/otheragency/fes0511/index.html> (last visited June 19, 2007).

<sup>152</sup> Percival, Schroeder, Miller & Leape, *Environmental Regulation: Law, Science and Policy* 783 (4th ed. 2004); see, e.g., Minn. Stat. § 116D (2006); Minn. R. 4410.4300 (2006).

<sup>153</sup> Timothy L. McMahan, "Siting and Permitting Wind Projects" 3-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 5, 2007). Minnesota, California, and Washington are examples of states that require local authorities to also conduct an environmental review.

<sup>154</sup> Minn. Stat. § 116D.04, subd. 2a (2006).

<sup>155</sup> Minnesota Pollution Control Agency, *Background on: Minnesota's Environmental Review Program 2* (Jan. 2005), available at <http://www.pca.state.mn.us/publications/gp5-03.pdf> (last visited June 16, 2007).

Certificate of Need decision-making process, discussed in the last section of this chapter.<sup>156</sup> The applicant is responsible for paying the costs of that process, with a \$5,000 payment required at the time of application and additional amounts due as billed.<sup>157</sup> Wind projects in Minnesota of at least 25 MW but less than 50 MW are not required to get a Certificate of Need, discussed below, but are required to complete an EAW.<sup>158</sup> Minnesota wind projects of at least 5 MW but less than 25 MW are not automatically required to prepare an EAW, but the regulating government authorities may require review.<sup>159</sup> And wind projects in Minnesota under 5 MW are exempt from completing an EAW.<sup>160</sup>

Minnesota's law is considered to be more stringent than other state laws or the federal environmental review law.<sup>161</sup> However, wind project developers in all states should be aware that some form of environmental review may be required.

## IV. Other Permitting and Review Issues

### A. Local Building and Electrical Codes

Before approving a conditional use permit or other land use permission to build wind facilities, local authorities typically require the applicant to secure needed building, electrical, and road permits to ensure compliance with local structural and electrical codes.<sup>162</sup>

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<sup>156</sup> Minn. R. 4410.4300, subp. 3, 4410.7010 to 4410.7070 (2006).

<sup>157</sup> Minn. R. 4410.7070 (2006).

<sup>158</sup> Minn. R. 4410.4300, subp. 3 (2006).

<sup>159</sup> Minn. R. 4410.4500 (2006).

<sup>160</sup> Minn. R. 4410.4600, subp. 3 (2006).

<sup>161</sup> Minnesota Pollution Control Agency, *Background on: Minnesota's Environmental Review Program 2* (Jan. 2005), available at <http://www.pca.state.mn.us/publications/gp5-03.pdf> (last visited June 16, 2007).

<sup>162</sup> National Wind Coordinating Committee, *Permitting of Wind Energy Facilities: A Handbook* 11 (Aug. 2002), available at <http://www.nationalwind.org/publications/siting/permitting2002.pdf> (last visited June 19, 2007); see, e.g., Union County, Or., Wind Facility Permitting Ordinance, § 52.05(2) (2006), available at

Even if wind facilities are a permissible use in the area and require no special land use permission, local building codes typically make it unlawful to do any construction work without a building permit.<sup>163</sup> A building permit application generally requires detailed plans and a location for the structure. Fees may be based on the value of the proposed project, and the permit may be valid for only a specific period of time.<sup>164</sup>

## **B. Notice to the Federal Aviation Administration**

For any new structures higher than 200 feet, and shorter structures within certain distances of an airport, landowners are required to file a notice of construction with the Federal Aviation Administration (FAA).<sup>165</sup> The owner of a wind project must file a Notice of Proposed Construction or Alteration (Form 7460-1) with the FAA.<sup>166</sup> This notice must be filed at least 30 days before beginning construction.<sup>167</sup> To notify the FAA of actual construction, the owner must file a

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[http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section\\_52\\_02\\_Definitions](http://www.oregon.gov/ENERGY/RENEW/Wind/Permitting-UnionCountyOregon.shtml#Section_52_02_Definitions) (last visited June 20, 2007).

<sup>163</sup> See, e.g., Marshall County, Ia., Zoning Ordinance, art. XIX, § 1 (2006), *available at* <http://www.co.marshall.ia.us/departments/zoning/zoningordinance/article1/>; Steele County, Minn., Zoning Ordinance, § 402(3)(a) (2006), *available at* [http://www.co.steele.mn.us/PLANZONE/zonord5\\_7.html#sec7](http://www.co.steele.mn.us/PLANZONE/zonord5_7.html#sec7) (both sites last visited June 20, 2007).

<sup>164</sup> See, e.g., Marshall County, Ia., Zoning Ordinance, art. XIX, § 3 (2006), *available at* <http://www.co.marshall.ia.us/departments/zoning/zoningordinance/article1/> (last visited June 20, 2007).

<sup>165</sup> 14 C.F.R. § 77.13 (2007). The distance restrictions depend on the characteristics of the airport and surrounding area.

<sup>166</sup> Federal Aviation Administration, Advisory Circular, *Proposed Construction or Alternation of Objects that May Affect the Navigable Airspace*, AC 70/7460-2K, at 1-4 (Mar. 1, 2000), *available at* [http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/22990146db0931f186256c2a00721867/\\$FILE/ac70-7460-2K.pdf](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/22990146db0931f186256c2a00721867/$FILE/ac70-7460-2K.pdf) (last visited June 16, 2007).

<sup>167</sup> Federal Aviation Administration, Advisory Circular, *Proposed Construction or Alternation of Objects that May Affect the Navigable Airspace*, AC 70/7460-2K, at 4 (Mar. 1, 2000), *available at* [http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular).



Notice of Actual Construction or Alteration (Form 7460-2) with the Air Traffic Division of the FAA Regional Office for the area.

It is possible that the FAA would not allow the project to be built as proposed if it deems the project a risk to air safety. However, the project developer and FAA may redesign the project so that it is not a danger to air safety.<sup>168</sup> The FAA may also require markings and lighting on the structure as necessary for air safety.<sup>169</sup>

Although FAA regulations have not historically posed an impediment to wind project siting, the FAA was recently involved in what was presumably only a temporary obstacle to wind energy development. Beginning in early 2006, the FAA began issuing a “Notice of Presumptive Hazard” to wind facilities in response to a Department of Defense (DOD) and Department of Homeland Security (DHS) policy opposing construction of any wind turbine in sight of Air Force or Homeland Security radars until the completion of a congressionally mandated study of wind turbine impacts on radar.<sup>170</sup> At least 12 Midwestern

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[nsf/0/22990146db0931f186256c2a00721867/\\$FILE/ac70-7460-2K.pdf](http://www.faa.gov/air_traffic/obstruction/markings/notice_of_presumptive_hazard/022990146db0931f186256c2a00721867/$FILE/ac70-7460-2K.pdf) (last visited June 16, 2007).

<sup>168</sup> Federal Aviation Administration, Advisory Circular, *Obstruction Marking and Lighting*, AC 70/7460-1K (Feb. 1, 2007), available at [http://www.airweb.faa.gov/Regulatory and Guidance Library/rgAdvisoryCircular.nsf/0/b993dcdcf37fcdc486257251005c4e21/\\$FILE/AC70\\_7460\\_1K.pdf](http://www.airweb.faa.gov/Regulatory%20and%20Guidance%20Library/rgAdvisoryCircular.nsf/0/b993dcdcf37fcdc486257251005c4e21/$FILE/AC70_7460_1K.pdf) (last visited June 16, 2007).

<sup>169</sup> Federal Aviation Administration, Advisory Circular, *Obstruction Marking and Lighting*, AC 70/7460-1K (Feb. 1, 2007), available at [http://www.airweb.faa.gov/Regulatory and Guidance Library/rgAdvisoryCircular.nsf/0/b993dcdcf37fcdc486257251005c4e21/\\$FILE/AC70\\_7460\\_1K.pdf](http://www.airweb.faa.gov/Regulatory%20and%20Guidance%20Library/rgAdvisoryCircular.nsf/0/b993dcdcf37fcdc486257251005c4e21/$FILE/AC70_7460_1K.pdf) (last visited June 16, 2007).

<sup>170</sup> The National Defense Authorization Act for Fiscal Year 2006 required the DOD to study and report on the effects of wind turbines on military readiness and military radar by May 8, 2006. 109 Pub. L. 163, Div. A, Title III, Subtitle F, § 358, 119 Stat. 3208 (Jan. 6, 2006). Due to concerns about the impact of wind turbines on military radar, the DOD and the DHS circulated an “Interim Policy on Proposed Windmill Farm Locations” on Mar. 21, 2006. See American Wind Energy Association, *Wind Turbines and Radar: An Informational Resource*, available at [http://www.awea.org/pubs/factsheets/060602\\_Wind\\_Turbines\\_and%20 Radar Fact Sheet.pdf](http://www.awea.org/pubs/factsheets/060602_Wind_Turbines_and%20Radar_Fact_Sheet.pdf) (last visited June 16, 2007); Sierra Club, *Sierra Club Calls on Rumsfeld, DOD to Stop Blocking Wind Farms*, (June 28, 2006), available at



wind facilities received a “Notice of Presumptive Hazard” from the FAA as a result of this policy.<sup>171</sup>

The congressionally mandated study of the impact of wind turbines on military radar was to be issued by May 8, 2006.<sup>172</sup> The DOD missed this deadline, prompting a Sierra Club lawsuit to compel completion of the study.<sup>173</sup> On September 27, 2006, the DOD finally released its report, concluding that although wind turbines can adversely affect radar units, the magnitude of the impact varies with circumstances.<sup>174</sup>

The FAA has resumed approving wind development near radar facilities, putting to rest some worries that the DOD would use its participation in the FAA review process to inhibit new wind development.<sup>175</sup> It is, however, certainly possible that the DOD, DHS, or even the FAA will impose further restrictions on the siting of wind facilities in the future, and farmers should stay abreast of any developments on this matter.

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<http://www.sierraclub.org/pressroom/releases/pr2006-06-28.asp> (last visited June 16, 2007).

<sup>171</sup> See Kari Lydersen, *Wind-Power Projects Halted*, Wash. Post A02 (June 10, 2006), available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/06/09/AR2006060901420.html>; Marcus Wohlsen, *Sierra Club Sues Pentagon Over Wind Farms*, Common Dreams News Center (June 29, 2006), available at <http://www.commondreams.org/cgi-bin/print.cgi?file=/headlines06/0629-09.htm> (both sites last visited June 16, 2007).

<sup>172</sup> 109 Pub. L. 163, Div. A, Title III, Subtitle F, § 358, 119 Stat. 3208 (Jan. 6, 2006).

<sup>173</sup> Sierra Club, *A Win for the Wind Industry*, <http://www.sierraclub.org/environmentallaw/lawsuits/0318.asp> (last visited June 22, 2007).

<sup>174</sup> United States Department of Energy, *Wind Radar Frequently Asked Questions* (Oct. 5, 2006), [http://www.eere.energy.gov/windandhydro/windpoweringamerica/filter\\_detail.asp?itemid=1368](http://www.eere.energy.gov/windandhydro/windpoweringamerica/filter_detail.asp?itemid=1368) (last visited June 18, 2007).

<sup>175</sup> United States Department of Energy, *Wind and Radar* (Oct. 5, 2006), [http://www.eere.energy.gov/windandhydro/windpoweringamerica/issues\\_radar.asp](http://www.eere.energy.gov/windandhydro/windpoweringamerica/issues_radar.asp); Letter from Department of Defense to Senator Richard Durbin (Sept. 29, 2006), available at <http://www.senate.gov/~durbin/record.cfm?id=264170> (both sites last visited June 18, 2007).

## C. Historic Preservation

### 1. National Historic Preservation Act

Proposed wind projects subject to federal authority—due, for example, to participation in federal programs—will also have to undergo a historic preservation review. Section 106 of the National Historic Preservation Act (NHPA) requires all federal agencies to take into account the effects of their actions on historic properties.<sup>176</sup> Federal actions that trigger this review include such things as issuing Clean Water Act permits or providing financial assistance, including loans.<sup>177</sup> The agency whose action triggers the NHPA review must consult the Advisory Council on Historic Preservation, the state, and any federally recognized Native American tribes in the area to preserve any historical or cultural artifacts on the site.<sup>178</sup> The agency must try to avoid, minimize, or mitigate any adverse effects the proposed wind project would have on historic properties.<sup>179</sup>

Traditionally, only the footprint of a project and the immediate surrounding area have been the subject of review under NHPA. However, because large commercial wind turbines can be seen from a great distance, the Advisory Council on Historic Preservation may broaden the range of historic properties that it feels may be negatively impacted by the changed visual landscape. This type of challenge to proposed projects is becoming more common.<sup>180</sup>

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<sup>176</sup> 36 C.F.R. pt. 800 (2007).

<sup>177</sup> 16 U.S.C. § 470 (2006); Advisory Council on Historic Preservation, at <http://www.achp.gov/index.html> (last visited June 17, 2007). USDA Rural Development, *Letter to Applicants to the Renewable Energy Systems and Energy Efficiency Improvement Program*, available at <http://www.windustry.org/farmbill/windenvironmental.doc> (last visited June 17, 2007).

<sup>178</sup> See United States Department of the Interior, *Native American Consultation Database*, <http://home.nps.gov/nacd/> (last visited June 21, 2007). This resource can help identify tribes in the vicinity of a project.

<sup>179</sup> 36 C.F.R. § 800.1(a) (2007).

<sup>180</sup> Andrea J. Kirk, *The Area of Potential Effect under Regulations Promulgated by the American Council for Historic Preservation*, Ag. Law Update Vol. 23, No. 5, at 4 (May 2006).

Artifacts from Native American cultures are also protected by the NHPA, and Native American tribes are becoming more active in the NHPA review process.<sup>181</sup>

## 2. State Historic Preservation

Some states have laws that require review and mitigation measures if a project funded or licensed by the state will affect a designated historic site. In Minnesota, for example, an agency making a permitting or funding decision must consult with the Minnesota Historical Society about ways to mitigate impacts on historic sites before a project can be approved.<sup>182</sup>

Some states, including Minnesota, also have laws that make it illegal to disturb any burial grounds, including unmarked Native American burial grounds.<sup>183</sup> It is therefore advisable to check with local tribes or a state archeologist before construction if the presence of such grounds is a possibility on the land. If any Native American artifacts are found in the course of preparing a wind turbine site, it is advisable to contact the state historic office to get guidance about how to proceed.<sup>184</sup>

## D. State Utility Planning Requirements for Large Energy Facilities

States may require a separate permitting process to determine the need for a new large energy facility. Minnesota is one state that has such a requirement: If a planned wind project will have a capacity of 50 MW or more, it must get both a site permit from the Pollution Control Agency, discussed above, and a *Certificate of Need* from the Minnesota Public Utilities Commission (PUC).<sup>185</sup> (A joint

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<sup>181</sup> Andrea J. Kirk, *The Area of Potential Effect under Regulations Promulgated by the American Council for Historic Preservation*, Ag. Law Update Vol. 23, No. 5, at 4 (May 2006).

<sup>182</sup> Minn. Stat. § 138.665 (2006).

<sup>183</sup> See, e.g., Minn. Stat. § 307.08 (2006) (amended by 2007 Minn. Laws Ch. 115).

<sup>184</sup> Andrea J. Kirk, *The Area of Potential Effect under Regulations Promulgated by the American Council for Historic Preservation*, Ag. Law Update Vol. 23, No. 5, at 4 (May 2006).

<sup>185</sup> Minn. Stat. §§ 216B.243, subd. 2 & 4, 216B.2421, subd. 2 (2006). A Certificate of Need is also required for the construction of certain power lines in Minnesota: (1) lines over 1,500 feet long with a capacity of 200 kilovolts or more; and (2) lines with a

hearing will be held unless it is not feasible to do so.) Other states may also have a similar requirement.

To illustrate this type of certification process, Minnesota's rules will be discussed here. There are some exceptions to Minnesota's Certificate of Need requirement. For example, several large wind projects in the state have not been required to complete the full Certificate of Need process because they were built specifically to meet a unique statutory requirement that Xcel Energy, a large investor-owned Minnesota utility, obtain additional energy from wind sources.<sup>186</sup> The legislative mandate for wind energy was considered sufficient evidence of need for these wind projects. In addition, if a wind project of 50 MW or more sells its generated energy at retail rates to meet Minnesota's Renewable Energy Objective, and gets at least 10 percent of its capacity from Community-Based Energy Development projects, a Certificate of Need is not required.<sup>187</sup> *Qualifying Facilities* under the Public Utility Regulatory Policies Act (PURPA), discussed in more detail in the selling power chapter of this guide (Chapter 9), are also exempt from the requirement to obtain a Certificate of Need.<sup>188</sup> An independent wind project of 50 MW or more in Minnesota that does not qualify for one of these exceptions must obtain a Certificate of Need from the Public Utilities Commission.

Minnesota law explicitly prefers renewable energy when determining whether a Certificate of Need will be issued, so a wind facility owner should not have a difficult time meeting the criteria.<sup>189</sup> However, it is not an insignificant process. The application must include: general information about the project;<sup>190</sup> alternatives to the proposed facility, with detailed information about cost, service life, availability, effect on rates,<sup>191</sup> and environmental data;<sup>192</sup> major factors that

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capacity of 100 kilovolts or more which extend over more than 10 miles in Minnesota or cross state boundaries.

<sup>186</sup> See Minn. Stat. § 216B.2422, subd. 5(d) (2006).

<sup>187</sup> Minn. Stat. § 216B.243, subd. 8(1) (2006); see also Minn. Stat. § 216B.1691, subd. 6 (2006) (mandate on Xcel Energy).

<sup>188</sup> Minn. Stat. § 216B.243, subd. 8(7) (2006).

<sup>189</sup> Minn. Stat. § 216B.243, subd. 3a (2006).

<sup>190</sup> Minn. R. 7849.0250 (2006).

<sup>191</sup> Minn. R. 7849.0250(C) (2006).

<sup>192</sup> Minn. R. 7849.0310 (2006).

justify need for the facility, including the social and environmental benefits of the project, promotional activity that gave rise to a demand for the facility, and the effects of the facility in inducing future development;<sup>193</sup> information about the service area, including electrical consumption and peak demand, with a breakdown of different kinds of end users for each forecast year;<sup>194</sup> the amount of land used; traffic generated; noise characteristics; work force needed for construction and operation; and transmission facilities needed.<sup>195</sup> A detailed environmental report is also required along with the application, to satisfy the state environmental review requirement, discussed above.<sup>196</sup>

The basic processing fee for a Certificate of Need application is \$10,000, plus \$50 for each megawatt of capacity of the proposed project, 25 percent of which is due with the application and the balance due in three equal installments thereafter.<sup>197</sup> The ultimate fee is equal to the cost of processing the application, so any costs that accumulate in excess of the basic processing fee will be billed to the applicant, with a maximum application fee of \$100,000.<sup>198</sup> A certificate will not be issued until all fees have been paid.<sup>199</sup>

An applicant for a Certificate of Need must supply copies of the application to all state agencies with regulatory responsibility over the project and to other interested persons who request a copy.<sup>200</sup> A public hearing must be held, including notification to all other interested government agencies. If the project is sited on agricultural land, the Minnesota Department of Agriculture must be notified, and the Agriculture Commissioner will have the lead role in developing

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<sup>193</sup> Minn. R. 7849.0240 (2006).

<sup>194</sup> Minn. R. 7849.0270 (2006).

<sup>195</sup> Minn. R. 7849.0320 (2006).

<sup>196</sup> Minn. R. 7849.0230 (2006).

<sup>197</sup> Minn. R. 7849.0210 (2006).

<sup>198</sup> Minn. R. 7849.0210 (2006), Minn. Stat. § 216B.243, subd. 6 (2006).

<sup>199</sup> Minn. Stat. § 216B.243, subd. 6 (2006).

<sup>200</sup> Minn. R. 7849.0200, subp. 1 (2006).

an agricultural mitigation plan if required for the project.<sup>201</sup> A final decision on a Certificate of Need application must be made within 12 months.<sup>202</sup>



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<sup>201</sup> Minn. Stat. § 216B.243, subd. 7 (2006).

<sup>202</sup> Minn. Stat. § 216B.243, subd. 5 (2006).

## Chapter 5

# Liability Concerns for Wind Development

This chapter discusses potential legal liabilities that might arise from wind power production on agricultural land. Many of these issues are mentioned elsewhere in this guide, but they are brought together here to review the types of risks farmers face when developing wind power on their land and how to deal with those risks. Where the distinction is important, this discussion will differentiate between a farmer who owns and operates the turbine and a farmer who leases land to a developer or utility.

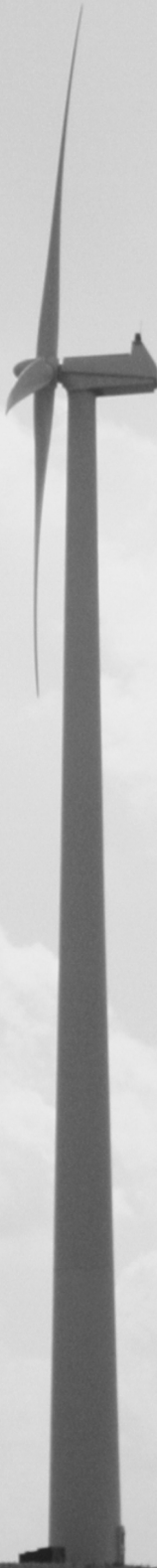
## I. Contract Liability

Developing a wind energy resource requires a farmer to enter into several contracts with different parties. A farmer entering into these agreements will presumably do so intending to fully carry out his or her obligations. However, circumstances may arise that prevent a farmer from fulfilling contract commitments. In many cases, such circumstances will be external events beyond the farmer's control—such as storms or other natural events, or actions by other people. In other cases, the farmer may become unable to satisfy the contract, for example, as a result of unexpected financial difficulties. Finally, once the project is underway, the other party to the contract may turn out to have a different understanding of the contract's requirements and may claim that the farmer has failed to satisfy those requirements to the other party's expectations.

In any case where one party to a contract believes that another party has failed to meet its commitments, there is a possibility that there will be a claim for breach of contract. Depending on the terms of the specific contract and the laws that govern it, a party who has breached a contract may be required to pay the other party a reasonable pre-set amount (called *liquidated damages*), or an amount based on the other party's actual losses as a result of the breach.<sup>1</sup> If the contract so

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<sup>1</sup> See Restatement (Second) of Contracts §§ 347, 356 (1981). For a more general description of contract law, Cornell University Law School maintains an on-line



requires, the breaching party might also be required to pay the other party's legal costs. In rarer cases, the party claiming breach of contract may be able to force the breaching party to take certain actions that were promised but not fulfilled.<sup>2</sup>

### **A. Contract Disputes**

Contract disputes can be quite expensive, and they divert everyone's attention and efforts away from the desired goal. One way to minimize contract disputes is to be sure from the beginning that each contract clearly and thoroughly addresses all of the issues related to the parties' commitments. It may seem that the discussions in other chapters of this guide about what should be included in different types of agreements are somewhat lengthy, but it is important to be sure that every factor that affects the parties' interests is addressed. It is equally important that the parties agree about the meaning of the contract terms, and that any uncertainties are addressed in the written contract. Farmers should always have an attorney draft and review contracts related to a wind project. It is better to spend the time and money needed to make sure that the agreement is right from the beginning, than it is to face a dispute in the future.

If a contract dispute does arise, the terms of the contract itself should provide guidance for pursuing a resolution. The contract might address: (1) which specific events or actions will result in termination of the contract; (2) whether the party seeking termination of the contract must provide notice and an opportunity to correct the situation before termination; (3) what time period and form are required for notice of a breach; (4) what time period, if any, is allowed for correction of a breach before termination can occur; (5) how the parties will determine whether the problems have been corrected; and (6) what payment may be due as a result of early termination, including attorney fees and the amount of any liquidated damages. A contract might also require that the parties use a particular dispute resolution method, such as mediation or arbitration. Farmers are strongly advised to seek experienced legal counsel for any contract dispute.

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resource at [http://www.law.cornell.edu/wex/index.php/Contracts#menu\\_of\\_sources](http://www.law.cornell.edu/wex/index.php/Contracts#menu_of_sources) (last visited June 19, 2007).

<sup>2</sup> See Restatement (Second) of Contracts § 357 (1981).



## **B. Potential Liability Under Specific Types of Contracts**

### **1. Easements or Covenants Prohibiting Wind Development**

Before starting a wind project or working with a developer, a farmer should make sure that there are no agreements tied to the property that would prohibit the farmer from putting wind turbines and related structures on the land. Types of agreements that might include such restrictions are discussed in Chapters 3 and 4 of this guide, related to wind property agreements and wind project siting considerations.

A title search for the farmer's property should reveal if there are any easements, covenants, or other agreements restricting how the farmer may use the land. The necessary records are typically located at the county records office, but a title search can be a complicated process. Farmers who are considering making the sizeable investment of developing a wind energy project are advised to get the assistance of an experienced attorney or title search company to do the title search.

If a farmer attempts to develop a wind project despite the existence of a binding agreement not to do so, the farmer will be in breach of contract. In such a case, the other party to the agreement could seek an injunction to prohibit the farmer from building or operating the wind project. A farmer who breaches an agreement that prohibits wind development might also be sued for money damages.<sup>3</sup>

### **2. Wind Development Contracts**

As discussed throughout this guide, wind development requires farmers to enter into several contractual arrangements, including a lease or easement with a developer, an interconnection agreement with a utility, and several possible types of financing agreements. These contracts create obligations for the farmer and may place restrictions on the farmer's future use of the property, such as whether the farmer may allow a lien to be attached to the property. Farmers must be sure to understand all of the commitments they are making through the various wind development contracts and take steps to avoid actions that would be a breach of contract.

The consequences of breaching a wind development contract will depend on the circumstances and the terms of the particular contract. These

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<sup>3</sup> See Restatement (Third) of Property: Servitudes § 8.3 (2000).

consequences typically might include termination of the contract, a demand for money damages, or a requirement to take certain actions.<sup>4</sup> However, there is such a wide range of contracts involved that the obligations imposed are often quite different, and therefore the liability the farmer faces for each will be quite different as well. For example, if a farmer breaches a financing contract, the creditor might demand immediate full repayment, payment of penalty fees, or seizure of collateral given as security for the debt. Other types of wind development contracts usually do not put the farmer at a direct risk of losing any property. Instead, an action for breach of those contracts would typically be aimed at compensating the other party for economic losses suffered due to the farmer's breach. A farmer's property may be indirectly at risk in such actions if a damages award is more than the farmer can pay and a judgment lien is placed on the property.

Common terms found in wind power development agreements are described in this guide in Chapter 3 (Wind and Land Agreements), Chapter 6 (Turbine Purchase), Chapter 8 (Financing), Chapter 9 (Selling Power), and Chapter 11 (Interconnection and Transmission). These discussions are intended to help farmers understand terms that are likely to appear in wind power development agreements. However, what will be actually required of a farmer pursuing wind development will be controlled by the terms of the specific agreements entered into. Farmers are urged to seek assistance from experienced attorneys and consultants to be sure that they understand and can comply with all contract terms.

### **3. Pre-Existing Credit Agreements**

Security agreements used to ensure repayment of a debt, such as a mortgage, often contain restrictions on the owner's use of the security property. Common restrictions prohibit the property owner from (1) transferring any interest in the property, which would typically include a mortgage, easement, or lease; (2) allowing a third party to obtain a lien on the property; or (3) modifying the property. It is also common for lenders to require that the borrower protect property from decreases in value while the security agreement is in place.<sup>5</sup>

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<sup>4</sup> See Restatement (Second) of Contracts § 345 (1981).

<sup>5</sup> David R. Moeller and Stephen Carpenter, *Farmers' Guide to Minnesota Lending Law* 43 (FLAG, 2d ed. 2003), available at <http://www.flaginc.org/topics/pubs/index.php#Lending> (last visited June 19, 2007).

Entering into a lease or easement with a developer for a wind project could violate such restrictions in a farmer's existing security agreements. Even if there is no express restriction against leasing or giving an easement on the property, the lender may claim that doing so threatens the short-term or long-term value of the property and is therefore prohibited.

A restriction against allowing a lien to be placed on the property might also be violated when developing a wind project. Depending on state law, anyone who contributes labor, materials, or machinery for improving real estate (that is, making a permanent change that increases the usefulness or value of the property)<sup>6</sup> can get a mechanic's lien on property for the reasonable value of the work.<sup>7</sup> This might arise in a wind development project if bills related to construction, installation, or maintenance of the wind facility are not paid. Depending on the structure of the wind project, the farmer on whose land the turbines are located might not be directly responsible for paying the bills, but he or she could face the risk of such a lien attaching to the property.

Restrictions in a security agreement on the use of the security property only apply until the underlying debt is paid off. It might also be possible to negotiate with the lender for a written release from such restrictions in order to allow a wind development project to go forward.

Violating the restrictions in a mortgage or loan agreement could place the farmer in default, which may allow the lender to demand immediate payment or foreclose on the loan.<sup>8</sup> Before entering any agreements allowing wind development on the land, the farmer should be sure an attorney reviews existing mortgages or loans secured by the land to ensure compliance with restrictions or to begin negotiations for release from the restrictions.

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<sup>6</sup> See, e.g., *Phillips-Klein Cos. v. Tiffany Partnership*, 474 N.W.2d 370, 374 (Minn. App. 1991) ("The Minnesota Supreme Court has found that an 'improvement' is any permanent addition to or betterment of real property that increases its capital value and that involves the expenditure of labor or money and is designed to increase the usefulness or value of the property.") (citation omitted).

<sup>7</sup> See, e.g., Minn. Stat. § 514.01 (2006).

<sup>8</sup> David R. Moeller and Stephen Carpenter, *Farmers' Guide to Minnesota Lending Law* 43-44 (FLAG, 2d ed. 2003), available at <http://www.flaginc.org/topics/pubs/index.php#Lending> (last visited June 19, 2007).

## II. Tort Liability

Contract liability, discussed above, involves claims of harm based on a party's failure to fulfill its obligations under an agreement. Tort liability, discussed in this section, involves claims of harm between parties who do not have any pre-existing contractual relationship, or do not have a contractual relationship that is related to the harm that occurred.

Because there are no agreed-upon contract terms to govern resolution of a tort claim, the outcome will be determined by applicable state law. Tort liability is most commonly thought of in the context of personal injuries and damage to property, but it can also involve harm to economic interests. In very general terms, the goal of tort liability is to require a responsible party to compensate a person who is harmed with an amount that would make the damaged person "whole"; that is, a tort award is intended to as nearly as possible put the damaged person back in the position he or she was in before the tort occurred.

Not all claims of injury and harm will result in a damages award. Tort law establishes standards of care that all people are expected to meet in going about their lives. These standards vary depending on the situation, but are usually referred to as what a "reasonable person" would do. If the applicable standard of care is satisfied, a person will generally not be liable for tort damages, even if harm occurs.

### A. Negligence

Negligence means that a person has failed to exercise the degree of care that a reasonable person would have exercised under similar circumstances. This might involve taking dangerous actions or failing to protect or warn others from dangerous property that is owned by the person or is otherwise in his or her control.<sup>9</sup>

To make a successful negligence claim, a person who suffers harm must usually prove that: (1) the defendant did not exercise the degree of care that a reasonable person would have exercised under similar circumstances; (2) the defendant's action (or failure to act) was a direct cause of the harm; and (3) the harm suffered is of a type that is eligible for compensation.

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<sup>9</sup> Restatement (Second) of Torts, §§ 341, 341A, 343, 343A (1965).

If a negligence claim is successful, the defendant must usually compensate the injured person for his or her actual damages, including physical injury, emotional distress, lost wages or earning capacity, and replacement or repair of damaged property.<sup>10</sup> Punitive damages may be awarded if the defendant's actions were done with reckless indifference to the safety or rights of others.<sup>11</sup>

### **1. Negligence Liability for Farmer as Wind Project Owner-Operator**

A farmer who owns and operates a wind turbine can protect himself or herself from negligence liability by taking reasonable care in its operation and having sufficient liability insurance to cover all claims that could reasonably be expected. The farmer has a legal duty to act reasonably to prevent and warn of dangers that he or she knows of or should know of, and that are not obvious to others. Even if a dangerous condition is obvious, the farmer could be held partially liable for injuries to another because the farmer has the most detailed knowledge of the property's condition and is ultimately responsible for its maintenance.<sup>12</sup>

If a farmer who owns and operates a wind facility hires an independent contractor to maintain the equipment, the farmer will generally not be liable for injuries caused by improper maintenance as long as the farmer exercised reasonable care in hiring the contractor, giving directions, supervising, and inspecting the work.<sup>13</sup> However, some states may consider that wind energy generation is inherently dangerous, in which case the farmer would be "strictly" liable for any injuries caused by wind equipment, even if the farmer exercised reasonable care in all of his or her actions.<sup>14</sup>

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<sup>10</sup> See Restatement (Second) of Torts §§ 901, cmt. a; 905; 906 (1979) (damage award attempts to put injured person in a position as nearly equal to position prior to the tort).

<sup>11</sup> See Restatement (Second) of Torts § 908 (1979).

<sup>12</sup> See Restatement (Second) of Torts, §§ 343, 343A (1965); Vincent F. O'Flaherty, *The Legal Landscape when a Tower Collapses*, 57 J. of the Mo. Bar 180, 180-81 (2001) (discussing cases involving communications and broadcast towers).

<sup>13</sup> See Restatement (Second) of Torts §§ 409 to 415 (1965); *Sutherland v. Barton*, 570 N.W.2d 1, 7 (Minn. 1997) (reasonable for owner to believe that independent electrical contractor and its employee would follow proper safety guidelines).

<sup>14</sup> Restatement (Second) of Torts §§ 422, 423, cmt. a (1965).

A farmer who owns and operates a wind facility should keep all records of work done on the equipment as evidence of proper maintenance over the years. The farmer should also carry sufficient liability insurance to cover damage to property, structures, equipment, livestock, and crops; and personal injury, property damage, and compensable economic losses suffered by others.<sup>15</sup> Depending on the size, location, and purpose of the wind facility, it might be covered as an “appurtenant structure” on the farmer’s current insurance, similar to coverage for other farm structures.<sup>16</sup> Commercial-scale wind projects will almost certainly need to obtain separate insurance coverage. It is important for farmers to discuss a wind development project with their insurance providers to determine the proper levels of coverage and get coverage in place before there is any potential for an injury to occur. It is advisable to begin these discussions early on in the process, since it is likely that not all farm insurers will want to take on liability coverage for a wind project, and the farmer may need to find a new provider for this coverage.

## **2. Negligence Liability for Farmer as Landlord to Wind Developer**

A farmer who leases land to a wind developer or utility will generally not be held to the same standard of care that an owner-operator would be.<sup>17</sup> However, any person who suffers harm caused by a wind facility will likely sue both the landowner and the turbine owner. Accordingly, the farmer should require that the contract with the developer include a provision requiring the developer to carry sufficient liability insurance, to defend the farmer against claims by third parties arising from the developer’s use of the land for the wind project, and to indemnify the farmer for any amounts the farmer is required to pay.<sup>18</sup>

It is important for farmers to understand that a developer’s duties to defend the farmer (that is, arrange and pay for the farmer’s legal defense) and

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<sup>15</sup> Nancy Lang and William Grant, *Landowner’s Guide to Wind Energy in the Upper Midwest* 45 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>16</sup> Mick Sagrillo, *Advice from an Expert: Insuring Your Wind System* (Am. Wind Energy Assoc. 2000), available at [http://www.awea.org/faq/sagrillo/ms\\_insur1.html](http://www.awea.org/faq/sagrillo/ms_insur1.html) (last visited June 14, 2007).

<sup>17</sup> Restatement (Second) of Torts § 355 (1965).

<sup>18</sup> Eugene L. Grant, *Avoiding the Risks: Subrogation, Indemnification, and Exculpation in the Context of Commercial Leases*, 21 Real Estate L.J. 255, 262 (1991).

indemnify the farmer (that is, compensate the farmer for any amounts he or she is required to pay out) are a matter of contract between the farmer and developer. They are not a complete shield against liability. If the developer does not have adequate resources to defend the suit, or if the defense is unsuccessful, the farmer may still be held liable; if the developer does not have adequate resources to compensate the farmer for any damages awarded, the farmer may still face a significant financial burden.<sup>19</sup> To protect against this, the farmer's agreement with the developer should require the developer to buy liability insurance of a sufficient amount that lists both the developer and the farmer as insured parties. The agreement should require the developer to provide proof of insurance and should give the farmer an opportunity to pay the premiums (and maintain the coverage) if the developer does not do so.<sup>20</sup>

## B. Nuisance

Nuisance is a tort that involves interference with another person's right to use and enjoy his or her property or public space. One typically thinks of nuisance as not involving direct physical damage to property, but rather intangible interference such as noise, odors, or loss of light or view. The remedy for a nuisance is generally that the offending activity must stop; in some cases, money damages might also be awarded.

A claim for *private nuisance* will arise if an activity, such as operating a wind turbine, substantially and unreasonably interferes with another person's use and enjoyment of his or her own land.<sup>21</sup> The court will balance the usefulness of the alleged nuisance against the interference with the neighboring land.<sup>22</sup> There are very few cases examining whether a wind turbine is a private nuisance. A North Dakota case found that a turbine in a residential area was not a nuisance,<sup>23</sup> while

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<sup>19</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 45 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>20</sup> Nancy Lang and William Grant, *Landowner's Guide to Wind Energy in the Upper Midwest* 45 (Izaak Walton League of America, 2nd prtg. 2001).

<sup>21</sup> Restatement (Second) of Torts § 822 (1979); Minn. Stat. § 561.01 (2006).

<sup>22</sup> Restatement (Second) of Torts § 826 (1979).

<sup>23</sup> *Rassier v. Houim*, 488 N.W.2d 635, 638 (N.D. 1992).

a New Jersey court found that a wind turbine in a residential area was a nuisance.<sup>24</sup>

*Public nuisance* is an unreasonable interference with a right that is common to the general public or which affects an entire community.<sup>25</sup> Conduct is unreasonable if it interferes with public health, safety, comfort, or convenience or is illegal, or the person responsible for the nuisance has reason to know that it will have a continuing or long-lasting effect on a public right.<sup>26</sup> Most states, including Minnesota, specifically define certain activities to be public nuisances, but operating a wind turbine is not one of them.<sup>27</sup> None of the reported cases involving nuisance claims against wind turbines have used the public nuisance theory.

For a wind project, the best defense against a nuisance claim is careful preparation in planning the site and scrupulous attention to all permit requirements. Through the process of obtaining the permits needed for a wind project, many of the problems that could be a nuisance will be examined.<sup>28</sup> Because installation and operation of a wind turbine is regulated by the government through several mechanisms, courts will be reluctant to step in and impose further regulation through a nuisance case.<sup>29</sup> The issuance of a permit also reflects a governmental recognition that the wind project would be useful, which should lead to a finding that the operation offers benefits to the public. These factors make it unlikely that operation of a properly sited and permitted wind turbine would be considered a nuisance.

However unlikely a finding of nuisance might be, the fact that a wind project has been properly permitted would not prevent a court from finding the facility to be a nuisance. The possibility, though slight, always remains. If a court should find that a wind turbine is a nuisance, the farmer could be liable for damages to the

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<sup>24</sup> *Rose v. Chaikin*, 453 A.2d 1378, 1384 (N.J. 1982).

<sup>25</sup> Restatement (Second) of Torts § 821B (1979); *see also* N.D. Cent. Code § 42-01-06 (2005); S.D. Codified Laws § 21-10-3 (2006).

<sup>26</sup> Restatement (Second) of Torts § 821B (1979).

<sup>27</sup> Restatement (Second) of Torts § 821B, cmt. c (1979).

<sup>28</sup> *See* Gregory H. Birne, Annotation, *Tower or Antenna as Constituting Nuisance*, 88 A.L.R.5th 641 (2001).

<sup>29</sup> Restatement (Second) of Torts § 821B, cmt. f (1979).



affected party, could have limits placed on the operation of the turbine, or could be ordered to stop operating the wind turbine altogether.<sup>30</sup>

### **C. Specific Aspects of Wind Power Production that Could Lead to Tort Liability**

Operation of a wind project carries the potential for personal injury, property damage, or interference with the property rights of neighbors. Although most of the negative effects of wind power production can be reduced through proper siting and permitting, the impacts of the project may be more significant than expected. Potential problems associated with wind turbines include noise; interference with communication, radio, or television signals; obstruction of view or altering the landscape; obstruction of light; and obstruction of wind and electromagnetic radiation. As the discussions below indicate, some of these impacts present very little risk of liability for a farmer developing a wind project, while others can present significant risk that the farmer may face a question of liability at some point.

#### **1. Personal Injury or Property Damage**

As with any operation involving large machinery and electricity, wind facilities present a risk of serious personal injury and property damage. Damage could range from the catastrophic—collapse of a tower—to the mundane—a visitor tripping on a guy wire. Although it is uncommon for a tower to collapse or for a blade to become detached and thrown, it is not unheard of.<sup>31</sup> Furthermore, the electrical components and wiring could cause personal injury to a contractor or other third party who comes in contact with the equipment. There is also the potential for liability as an “attractive nuisance” if a child becomes interested in the turbine, comes onto the property to get a closer look, and is injured as a result.<sup>32</sup>

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<sup>30</sup> Restatement (Second) of Torts §§ 821B, cmt. i; 822, cmt. d (1979).

<sup>31</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 7 (2005), available at <http://www.cleanenergyresource teams.org/publications.html> (click “Companion Document” under “Other Publications”) (last visited June 17, 2007) (noting that a tower collapse has not occurred in Minnesota, but a blade throw event did happen at a project in Lake Benton, Minnesota).

<sup>32</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 9 (2005), available at

Other potential risks are less likely, but cannot be entirely dismissed. For example, the likelihood of damage caused by ice thrown from or shed by a wind turbine is extremely low, but it is possible if someone is directly under the blades while ice is melting off.<sup>33</sup> Lightning strikes have also caused damage to wind turbines, causing debris to be thrown from the site.<sup>34</sup>

The best way to minimize the risk of personal injury and property damage from a wind facility is to follow all setback and safety requirements and to be sure the facility is properly maintained over the years. A security fence around the turbine will also protect against trespassers who might come to harm.

## 2. Noise

Noise may constitute a private nuisance if it interferes with the health and comfort of ordinary people in the area.<sup>35</sup> Characteristics considered include the noise's nature, volume, duration, time, and locale.

Noise was the main issue in three reported cases in which a wind turbine was accused of being a private nuisance. In these instances, the turbines were located in residential areas. In a relatively old New Jersey case, the turbine was held to be a nuisance because, among other factors, it produced a distinctive sound that exceeded the limits set by the local zoning ordinance.<sup>36</sup> In North Dakota 10 years later, a turbine was held not to be a

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<http://www.cleanenergyresourceteams.org/publications.html> (click "Companion Document" under "Other Publications") (last visited June 17, 2007) (stating that no such problems have been reported in Minnesota, and schools have been among the sites of on-site wind turbine installation).

<sup>33</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 8 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click "Companion Document" under "Other Publications"); Mick Sagrillo, *Advice from an Expert: Wind Turbines and Flying Ice* (Am. Wind Energy Assoc. 2003), available at [http://www.awea.org/faq/sagrillo/ms\\_ice\\_0306.html](http://www.awea.org/faq/sagrillo/ms_ice_0306.html) (last visited June 14, 2007).

<sup>34</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 7 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click "Companion Document" under "Other Publications").

<sup>35</sup> Alois Valerian Gross, Annotation, *Windmill as Nuisance*, 36 A.L.R.4th 1159 (1985).

<sup>36</sup> *Rose v. Chaikin*, 453 A.2d 1378, 1384 (N.J. 1982).

nuisance because, among other things, the complaining neighbor “came to the nuisance,” and the city did not have sound limits established.<sup>37</sup> Finally, in a 2007 West Virginia case, the court allowed a private nuisance claim against a wind development to proceed without yet deciding specific issues.<sup>38</sup>

Today, the noise from a wind project should be of less concern as a possible source of liability. With advances in wind turbine technology has come a decrease in the sound produced by the turbines. At a commercial wind farm, for example, the sound of the turbines at 750 to 1,000 feet away is said to be comparable to that of a refrigerator.<sup>39</sup> Thus, proper siting of a wind turbine away from residential areas and dwellings would make it highly unlikely that it would be held to be a nuisance.

### 3. Signal Interference

Tall objects on the landscape can cause interference with television, telecommunications, and radio reception by blocking or reflecting the signals. Commercial-scale wind turbines have been known to interfere with television reception, while small-scale turbines for on-site use do not create interference problems.<sup>40</sup>

Courts in Illinois, Massachusetts, and New Mexico have held that the right to build on one’s own land outweighs any right of a neighbor to television or

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<sup>37</sup> *Rassier v. Houim*, 488 N.W.2d 635, 638 (N.D. 1992).

<sup>38</sup> *Burch v. Nedpower Mount Storm, LLC*, No. 33201, slip op. (W.Va. June 8, 2007) (not yet published).

<sup>39</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 13 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click “Companion Document” under “Other Publications”) (last visited June 17, 2007).

<sup>40</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 11 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click “Companion Document” under “Other Publications”) (last visited June 17, 2007); Mick Sagrillo, *Advice from an Expert: Telecommunication Interference from Home Wind Systems*, (Am. Wind Energy Assoc. 2003), available at [http://www.awea.org/faq/sagrillo/ms\\_telint\\_0304.html](http://www.awea.org/faq/sagrillo/ms_telint_0304.html) (last visited June 14, 2007).

radio reception.<sup>41</sup> Based on this precedent, it is unlikely that a court would find that a wind facility's interference with television or radio reception constitutes a private nuisance. Those who experience such interference can address it by adding a reception booster to their television antennas.

#### 4. View Obstruction

Some people feel that wind turbines can ruin a view. It is unlikely, however, that such persons would be able to bring a successful case claiming damage to their view. Courts have proven reluctant to recognize a right to an unobstructed view.<sup>42</sup> In general, whenever a court has found a tower of some type to be a nuisance, it was because the tower violated zoning laws. A tower's size or appearance alone has not been deemed a substantial interference with the property rights of a neighbor.<sup>43</sup>

A neighbor might also claim that he or she has an implied easement giving the right to an unobstructed view, but this claim is also not likely to succeed. Courts typically only recognize an implied easement if a clear intention to create the easement is apparent or the maintenance of the view comes from "long, continued, obvious or manifest use."<sup>44</sup> While the view of a farmer's land may be enjoyed by many, enjoying a view is not normally considered a "use" of neighboring property.

#### 5. Light

A wind facility must be properly sited so as not to disturb the light to adjacent residences. While a turbine itself will not cast a substantial shadow, the shadow of the rotating blades has a "blinking" or "flicker" effect that could affect neighbors' use and enjoyment of daytime living or working space. Courts have been reluctant to imply an easement requiring access to

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<sup>41</sup> See *Public Serv. Co. v. Catron*, 646 P.2d 561, 564-65 (N.M. 1982); *People ex rel. Hoogasian v. Sears, Roebuck & Co.*, 287 N.E.2d 677, 679-80 (Ill. 1972); *Richmond Bros., Inc. v. Hagemann*, 268 N.E.2d 680, 682-83 (Mass. 1971); see also Joseph T. Bockrath, Annotation, *Interference with Radio or Television Reception as Nuisance*, 58 A.L.R.3d 1142 (1974).

<sup>42</sup> 28A C.J.S. *Easements* § 87 (2007).

<sup>43</sup> Gregory H. Birne, Annotation, *Tower or Antenna as Constituting Nuisance*, 88 A.L.R.5th 641 (2001).

<sup>44</sup> 28A C.J.S. *Easements* § 87 (2007); see also *Hwy. 7 Embers, Inc. v. Northwestern Nat'l Bank*, 256 N.W.2d 271, 276 (Minn. 1977).

light and would presumably also be reluctant to hold that restricting access to light is a nuisance.<sup>45</sup> Nevertheless, it is recommended that wind turbines be sited far enough away from houses and workplaces to avoid casting a shadow.

A recent West Virginia case indicates that the alleged unsightliness of a wind turbine resulting from this “flicker” effect would not be enough by itself to constitute a valid private nuisance claim.<sup>46</sup> However, the court in that case did suggest that if the unsightliness was combined with other nuisance factors, such as noise and being located in a residential area, a court might award a remedy for the unsightliness concerns.<sup>47</sup>

## 6. Wind Shadow

A *wind shadow* is an area of still air created behind a wind turbine. It is typically a cone whose length across the land is 10 times the diameter of the wind turbine rotor.<sup>48</sup> No wind turbines may be erected in this area of still air, because they would not have enough wind to operate. This could present a problem for a neighbor who wishes to install his or her own turbines in an area that falls in the wind shadow of the farmer’s current turbines. However, it seems unlikely that the farmer would face any liability in this situation. The courts’ reluctance to recognize an implied easement requiring access to air suggests that they would also resist holding that it is a nuisance to restrict air even though it would decrease the adjacent land’s value.<sup>49</sup>

With proper siting, there should be no problem with wind shadow. It is not uncommon to site many turbines in close proximity and get adequate

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<sup>45</sup> 28A C.J.S. *Easements* § 85 (2007).

<sup>46</sup> *Burch v. Nedpower Mount Storm, LLC*, No. 33201, slip op. (W.Va. June 8, 2007) (not yet published).

<sup>47</sup> *Burch v. Nedpower Mount Storm, LLC*, No. 33201, slip op. (W.Va. June 8, 2007) (not yet published).

<sup>48</sup> See The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 14 (2005), available at <http://www.cleanenergyresource teams.org/publications.html> (click “Companion Document” under “Other Publications”) (last visited June 17, 2007).

<sup>49</sup> 28A C.J.S. *Easements* § 85 (2007).

wind.<sup>50</sup> Nonetheless, a farmer or developer may want to prevent disputes about wind shadows and neighbors' wind development interests by getting easements to the airspace on neighboring land that is in the wind shadow of the proposed turbines. The landowner who is in the wind shadow of the turbines is then compensated for the loss of his or her wind development potential. Wind easements are discussed in more detail in Chapter 3 of this guide.

## 7. Electromagnetic Fields

A wind turbine generates electricity and thus produces an electromagnetic field. Negligence and nuisance claims have been brought against electric companies for property damage and personal injury resulting from electromagnetic fields, usually associated with high-voltage power lines; however, most such claims that have gone to trial have been unsuccessful.<sup>51</sup> Courts have generally rejected these claims because it has not been proven that the fields cause harm. No studies have yet been able to establish a connection between health problems and the electromagnetic fields associated with the generation of electricity.<sup>52</sup>

Even if electromagnetic fields were a notable liability risk, a farmer's possible liability for a wind project would be slight. Because the wind facility is located on the farmer's land, other persons are unlikely to have significant exposure to the electromagnetic fields created by the turbines. Any claims related to the transmission lines carrying the power from the turbine to a utility are likely to be brought against the utility, as the owner and operator of the lines.

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<sup>50</sup> See The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 14 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click "Companion Document" under "Other Publications") (last visited June 17, 2007).

<sup>51</sup> Michael C. Anibogu, *The Future of Electromagnetic Field Litigation*, 15 Pace Env'tl. L. Rev. 527, 565 (1998).

<sup>52</sup> Michael C. Anibogu, *The Future of Electromagnetic Field Litigation*, 15 Pace Env'tl. L. Rev. 527, 565 (1998). For a general overview of the issue of electromagnetic radiation and health effects, see Wisconsin Public Service Commission, *EMP—Electric & Magnetic Fields*, available at <http://www.atcllc.com/pdf/PSCWEMFpublication.pdf> (last visited June 14, 2007).

## 8. Stray Voltage

Stray voltage is caused by inadequate or degraded wiring at the location that is experiencing the stray voltage. It is not a problem related to energy generation.<sup>53</sup> Stray voltage occurs when the ground wire in a structure (for example, a barn) allows a small amount of current to flow to other conductive materials in the structure, such as water pipes. This results in a constant low-level electric current being present in the materials of the structure. People or animals may feel a light shock when making contact with the charged structure. This has been a particular concern in dairy barns, as cows are far more sensitive to electric current than humans are.<sup>54</sup>

Any liability for stray voltage should lie with the utility or electrician responsible for the improper wiring or distribution of power within the affected structure.<sup>55</sup> A farmer who merely generates power that is then purchased and distributed by a utility would not have any connection to the cause of the stray voltage and therefore should not need to be concerned about liability in most cases.

## III. Regulatory Liability

The previous sections of this chapter have discussed liability arising under formal agreements between people (contract liability) and liability arising under state law for harm done to a person or property outside a contractual relationship (tort liability). The third general category of liability that is of concern to farmers interested in wind development is regulatory liability.

Regulatory liability involves claims (usually by the government) of harm due to actions that are specifically prohibited (or failure to perform actions that are

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<sup>53</sup> Mick Sagrillo, *Advice from an Expert: Residential Systems and "Stray Voltage"* (Am. Wind Energy Assoc. 2000), available at [http://www.awea.org/faq/sagrillo/ms\\_strayvoltage\\_0406.html](http://www.awea.org/faq/sagrillo/ms_strayvoltage_0406.html) (last visited June 14, 2007).

<sup>54</sup> Mick Sagrillo, *Advice from an Expert: Residential Systems and "Stray Voltage,"* (Am. Wind Energy Assoc. 2000), [http://www.awea.org/faq/sagrillo/ms\\_strayvoltage\\_0406.html](http://www.awea.org/faq/sagrillo/ms_strayvoltage_0406.html) (last visited June 14, 2007).

<sup>55</sup> See Marjorie A. Shields, Annotation, *Recovery from Electric Utility for Personal Injury or Property Damage Resulting from Stray Voltage*, 91 A.L.R.5th 517 (2001).

specifically required) by law. These are actions that would typically not raise any question of liability under tort or contract law but are specifically addressed in federal or state statutes and regulations.

As a general matter, if a wind project does not fulfill all of the siting and operation requirements imposed by federal and state statutes and regulations, the project could be prohibited from operating, either permanently or until the requirement is met. Even if all of these requirements are met, however, there can be circumstances where issues of regulatory liability, and penalties, arise. Therefore, it is important for farmers to be aware not only of the specific permitting requirements that a project must satisfy, but also the various additional regulations that apply to—and could create liability issues for—wind projects.

## **A. Wildlife Protection**

As discussed in Chapter 4 of this guide (Siting a Wind Project), birds occasionally collide with wind turbines, as they do with all other tall structures such as buildings and transmission towers.<sup>56</sup> Proper siting of a wind project is the best way to reduce the potential for bird collisions, but even with careful planning, an occasional bird death will be inevitable.

Three federal statutes are implicated if wind turbines interfere with wildlife, particularly birds. The Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act make it a crime to kill protected birds. The Endangered Species Act makes it a crime to kill any endangered species or interfere with designated critical habitat.

### **1. Migratory Bird Treaty Act**

If migratory birds are killed by colliding with a turbine, there is a possibility of criminal prosecution under the Migratory Bird Treaty Act (MBTA).<sup>57</sup> The

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<sup>56</sup> The Minnesota Project, *Companion Document to the Minnesota Model Wind Energy Conversion Ordinance—2005*, at 15 (2005), available at <http://www.cleanenergyresourceteams.org/publications.html> (click “Companion Document” under “Other Publications”) (last visited June 17, 2007); American Wind Energy Association, *The Most Frequently Asked Questions About Wind Energy* 17 (2002), available at <http://www.awea.org/pubs/documents/FAQ2002%20-%20web.PDF> (last visited June 14, 2007).

<sup>57</sup> 16 U.S.C. § 703 (2006).



MBTA is a strict liability statute, meaning that a person can be found guilty of causing a protected bird's death, regardless of whether the person intended to kill the bird.<sup>58</sup> Some cases of bird killings have been prosecuted under MBTA, for example, illegal hunting, ingestion of pesticides or poisons, and electrocution. Other bird deaths have not been prosecuted, including collisions with automobiles, airplanes, and towers.<sup>59</sup> Even if an MBTA case is prosecuted, courts have shown reluctance to find that collisions with towers are a foreseeable cause of bird deaths.<sup>60</sup> Therefore, if a wind project is properly sited and permitted, it is rather unlikely that the farmer or developer would face liability for the occasional bird death from collision with a wind turbine. That may be particularly true if the farmer or developer can demonstrate that steps were taken to avoid bird collisions.<sup>61</sup>

Nonetheless, if a person is prosecuted and found guilty of a violation of the MBTA, the crime is a misdemeanor punishable by a fine of up to \$15,000, six months in prison, or both.<sup>62</sup>

## **2. Bald and Golden Eagle Protection Act**

Like the MBTA, the Bald and Golden Eagle Protection Act (BGEPA) makes it a crime to kill a Bald or Golden Eagle.<sup>63</sup> However, liability under the BGEPA

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<sup>58</sup> See *United States v. Moon Lake Elec. Ass'n, Inc.*, 45 F. Supp. 2d 1070, 1074 (D. Colo. 1999) (“[W]hether Moon Lake intended to cause the deaths of 17 protected birds is irrelevant to its prosecution under [16 U.S.C. §] 707(a).”).

<sup>59</sup> Larry Martin Corcoran, *Migratory Bird Treaty Act: Strict Criminal Liability for Non-hunting, Human Caused Bird Deaths*, 77 Denv. U.L. Rev. 315, 316 (1999); but compare Victoria Sutton & Nicole Tomich, *Harnessing Wind Is Not (by Nature) Environmentally Friendly*, 22 Pace Env'tl. L. Rev. 91, 108 (2005) (arguing that collisions with towers should be prosecuted, as migratory bird studies make the collisions foreseeable).

<sup>60</sup> Larry Martin Corcoran, *Migratory Bird Treaty Act: Strict Criminal Liability for Non-hunting, Human Caused Bird Deaths*, 77 Denv. U.L. Rev. 315, 339-341 (1999).

<sup>61</sup> See *United States v. Moon Lake Elec. Ass'n, Inc.*, 45 F. Supp. 2d 1070, 1071 (D. Colo. 1999). Moon Lake did not take steps to avoid harm to birds. It was charged under the MBTA when it failed to install inexpensive protective devices on 2,450 power poles, causing migratory birds to die when they collided with the towers and the tower guy wires.

<sup>62</sup> 16 U.S.C. § 707 (2006).

<sup>63</sup> 16 U.S.C. § 668(a) (2006).

is both narrower and broader than under the MBTA. Liability is narrower under the BGEPA because it does require knowing or wanton behavior; accidental bird killings are not covered.<sup>64</sup> Liability under the BGEPA is broader than under the MBTA because it covers bird killings “at any time or in any manner,” and has been interpreted to include eagle deaths by electrocution on electric power poles and lines.<sup>65</sup> Taking these two differences together, it seems that farmers are unlikely to face liability under the BGEPA for wind projects if the farmer or developer took reasonable protective measures, including steps to properly site the turbines to avoid interference with protected birds.<sup>66</sup>

If a person is prosecuted and found guilty under the BGEPA, it is a misdemeanor punishable by a fine of up to \$5,000, one year in prison, or both.<sup>67</sup> Civil penalties of up to \$5,000 for each violation are also possible.<sup>68</sup>

### 3. Endangered Species Act

The Endangered Species Act (ESA) makes it a crime to kill, harm, or harass any animal species designated as endangered.<sup>69</sup> The ESA prohibits not only harm to the animal itself, but also damage to a protected animal's critical habitat.<sup>70</sup> ESA also prohibits removal of or damage to endangered plants.<sup>71</sup> If a wind project is likely to impact an endangered species, it could run into problems under the ESA.

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<sup>64</sup> 16 U.S.C. § 668(a) (2006).

<sup>65</sup> 16 U.S.C. § 668(a) (2006); *United States v. Moon Lake Elec. Ass'n, Inc.*, 45 F. Supp. 2d 1070, 1086-88 (D. Colo. 1999).

<sup>66</sup> *But see* Victoria Sutton & Nicole Tomich, *Harnessing Wind Is Not (by Nature) Environmentally Friendly*, 22 Pace Env'tl. L. Rev. 91, 111 (2005) (arguing that eagle deaths resulting from collisions with a wind turbine may be prosecuted under the BGEPA).

<sup>67</sup> 16 U.S.C. § 668(a) (2006).

<sup>68</sup> 16 U.S.C. § 668(b) (2006).

<sup>69</sup> 16 U.S.C. § 1538(a)(1) (2006).

<sup>70</sup> Victoria Sutton & Nicole Tomich, *Harnessing Wind Is Not (by Nature) Environmentally Friendly*, 22 Pace Env'tl. L. Rev. 91, 114 (2005); *see also* *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 692 (1995).

<sup>71</sup> 16 U.S.C. § 1538(a)(2)(B) (2006).

However, it is possible to be relieved of the ESA prohibitions if the potentially harmful project obtains a permit from the U.S. Fish and Wildlife Service.<sup>72</sup> Any federal agency involved in permitting or funding a project is required under ESA to ensure that the project is not likely to put an endangered or threatened species in danger, or impact their critical habitat.<sup>73</sup>

The ESA allows private parties to bring an action against any person who is in violation of the Act, or against the Secretary of the Interior for approving an action in violation of the ESA.<sup>74</sup> Courts have the power to issue a permanent injunction against a project that is in violation of the ESA. Courts have issued injunctions under the ESA against road construction, mining operations, commercial development, and other projects.<sup>75</sup>

Knowing violations of the ESA are punishable by civil penalties of up to \$25,000 per violation.<sup>76</sup> Criminal penalties include fines of up to \$50,000 per violation and one year in prison, or both.<sup>77</sup>

Once again, a thorough siting and permitting process is the best way to discover potential sources of liability for a wind project under the ESA, and to plan to avoid those sites or obtain needed permissions before construction begins.

## **B. Federal Farm Program Restrictions**

Enrollment in some federal farm programs places restrictions on farmers' use of their land. Violating the rules of the programs could mean a loss of benefits or serious financial penalties. Other federal laws prohibit certain activities on farmland, punishable by a loss of federal farm program benefits.

Because these restrictions and exceptions can be somewhat complicated and can change as statutes and policies are amended, farmers should always consult with the Farm Service Agency before siting wind turbines on any land that is enrolled

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<sup>72</sup> 16 U.S.C. § 1539 (2006).

<sup>73</sup> 16 U.S.C. § 1536(a)(2) (2006).

<sup>74</sup> 16 U.S.C. § 1540(g) (2006).

<sup>75</sup> Victoria Sutton & Nicole Tomich, *Harnessing Wind Is Not (by Nature) Environmentally Friendly*, 22 Pace Envtl. L. Rev. 91, 114 (2005).

<sup>76</sup> 16 U.S.C. § 1540(a) (2006).

<sup>77</sup> 16 U.S.C. § 1540(b) (2006).

in a federal farm program. Farmers should also consider including a provision in their wind development contracts requiring the developer to compensate the farmer for any government payments lost or penalties imposed if the developer's activities result in violation of farm program land use restrictions.

### **1. Commodity Payment Programs**

The federal commodity payment programs are a significant source of income for many farmers. In recent years, Congress has authorized temporary commodity payment programs as part of the so-called Farm Bills, statutes which set national agricultural policy for a period of 5 to 7 years. For example, from 1996 to 2002, eligible farmers received commodity payments under Production Flexibility Contracts authorized by the 1996 Farm Bill.<sup>78</sup> Beginning in 2002, eligible farmers could enroll in the Direct and Counter-cyclical Payment program (DCP), a commodity payment program authorized by the 2002 Farm Bill.<sup>79</sup>

Authority for DCP will expire in late 2007, and the general expectation is that Congress will authorize another temporary commodity payment program as part of the Farm Bill that is being drafted as this book is published. Although the specifics of the new program, if there is to be one, are not known, it is reasonable to make some predictions based on the characteristics of the previous commodity payment programs.

One characteristic that is important for farmers who are considering wind development is the DCP prohibition on making nonagricultural use of acreage enrolled in the program, that is, acreage used to determine what level of DCP payments the farmer can receive.<sup>80</sup> It is likely that any commodity payment program offered under a new Farm Bill will also prohibit farmers from using acreage enrolled in the program for non-agricultural uses.

This is particularly significant for farmers who would want to enroll in any new commodity payment program and who are also considering a wind development project that would begin in the next 5 to 7 years. These farmers will want to pay particular attention to the specific requirements and restrictions of any new commodity program that is offered. Questions to

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<sup>78</sup> 7 U.S.C. §§ 7201 et seq. (2006).

<sup>79</sup> 7 U.S.C. §§ 7911 et seq. (2006).

<sup>80</sup> 7 U.S.C. § 7915 (a)(1)(D) (2006).

consider include: Would it be possible to enroll all of the farmer's acreage in the program in the beginning and later withdraw any acreage needed for a wind project? Would there be a penalty for withdrawing acreage from the program for this purpose? What would the penalty be? Is there a limit on how much acreage could be withdrawn?

Depending on how the program would be structured, risks that a farmer might face as a result of using enrolled land for a wind project could include: loss of eligibility for future payments in proportion to the amount of acreage used; loss of eligibility for all future payments under the program; a demand for return of payments already received in proportion to the amount of acreage used; a demand for return of all payments received under the program; fines; and ineligibility for other farm programs. Because some of these penalties are quite severe, it will be very important for a farmer interested in wind development to learn as much as possible about the program requirements before enrolling.

## **2. Swampbuster**

As discussed in Chapter 4 of this guide, if wetlands are damaged during the construction or operation of a wind project, even accidentally, it can have serious consequences for the farmer's future eligibility for federal farm programs. The "Swampbuster" provision of the Food Security Act denies future eligibility for certain federal farm program benefits to farmers who produce agricultural commodities on converted or modified wetlands.<sup>81</sup> The Natural Resources Conservation Service (NRCS) determines if a farmer's land is subject to the Swampbuster provisions, and farmers should have opportunities to work with USDA and local wetland conservation authorities to mitigate wetland damage.

Although Swampbuster arguably would not apply if only a wind turbine is placed on the altered wetlands, it likely would apply if crops are later planted on some of the affected land. It is recommended that farmers check with NRCS before beginning any kind of work that might impact wetlands.

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<sup>81</sup> See Natural Resources Conservation Service, *Wetland Conservation Provisions (Swampbuster)*, <http://www.nrcs.usda.gov/programs/compliance/WCindex.html> (last visited June 14, 2007).

### **3. Conservation Security Program (CSP)**

As discussed in Chapter 4 of this guide, farmers who enroll land in the Conservation Security Program (CSP) enter into a contract that restricts their use of the land in exchange for payments from USDA. If a farmer uses the land in a way that violates the CSP contract or interferes with the conservation purposes of the contract, the contract can be terminated.<sup>82</sup> Termination would result in a loss of future payments and possibly a demand to refund payments already received.<sup>83</sup> It is likely that a wind project would be an acceptable use of land enrolled in CSP, but farmers participating in CSP should confirm this before proceeding with wind development.

### **4. Environmental Quality Incentives Program (EQIP)**

As discussed in Chapter 4 of this guide, entering into a contract under the Environmental Quality Incentives Program (EQIP) will restrict a farmer's use of the land.<sup>84</sup> It appears that the compatibility of wind energy development with EQIP will be determined on a case-by-case basis. If the farmer uses land in a way that tends to defeat the purposes of the EQIP contract, USDA may terminate the contract and require the farmer to repay amounts that have already been received.<sup>85</sup> Or, USDA may require the farmer to repay some of the past payments and change the calculation of future payments owed to the farmer under the contract.<sup>86</sup> Furthermore, if a farmer transfers an interest in the land to a wind developer or other party who is unable or unwilling to assume responsibility for the EQIP contract, the farmer may be required to refund all or a portion of the financial assistance received.<sup>87</sup>

### **5. Wildlife Habitat Incentives Program (WHIP)**

As discussed in Chapter 4 of this guide, a farmer participating in the Wildlife Habitat Incentives Program (WHIP) agrees not to take any action on

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<sup>82</sup> See 16 U.S.C. § 3838b(3), (4) (2006); 7 C.F.R. § 1469.21(e)(3)(ii) (2007).

<sup>83</sup> 16 U.S.C. § 3838b(4)(A)-(B) (2006).

<sup>84</sup> 16 U.S.C. § 3839aa (2006).

<sup>85</sup> 16 U.S.C. § 3839aa-4(3)(A) (2006).

<sup>86</sup> 16 U.S.C. § 3839aa-4(3)(B) (2006).

<sup>87</sup> 7 C.F.R. § 1466.25(c) (2007).

land under his or her control that would defeat the purposes of the program.<sup>88</sup> To the extent that a wind energy project would defeat the purposes of developing habitat for upland wildlife, wetland wildlife, threatened and endangered species, fish, and other types of wildlife, pursuing the wind project would likely be considered a violation of a WHIP agreement. In such cases, the farmer may receive reduced WHIP payments in the future or may be required to refund WHIP payments already received.

## **6. Farmland Protection Program (FPP)**

As discussed in Chapter 4, land in the Farmland Protection Program (FPP) is subject to an easement restricting non-agricultural land uses.<sup>89</sup> Depending on the characteristics of a particular parcel of land and a specific wind project, wind development may or may not be prohibited under these restrictions. If a farmer constructs a wind project that is in violation of an FPP easement, either the private easement holder or USDA may take action to enforce the easement.<sup>90</sup> This would most likely involve an injunction to cease construction and operation of the project and perhaps to remove structures already installed.

## **7. Grassland Reserve Program (GRP)**

As described in Chapter 4 of this guide, the Grassland Reserve Program (GRP) assists landowners in restoring and conserving eligible grasslands.<sup>91</sup> A GRP easement or rental agreement prohibits, among other things, conduct that disturbs the surface of the covered land.<sup>92</sup> Because a wind energy project will disturb the surface of the land, at least in some places, it may constitute a violation of GRP. Farmers who violate a GRP agreement may be required

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<sup>88</sup> Natural Resources Conservation Service, *Conservation Program Agreement: Wildlife Habitat Incentive Program Appendix Part 4(A)(6)*, Form CCC-1200-WHIP (Oct. 2005), available at

[http://www.nrcs.usda.gov/programs/whip/WHIP\\_signup/WHIP\\_CCCAgreement&Appendix\\_10\\_24\\_05.pdf](http://www.nrcs.usda.gov/programs/whip/WHIP_signup/WHIP_CCCAgreement&Appendix_10_24_05.pdf) (last visited June 14, 2007).

<sup>89</sup> 7 C.F.R. pt. 1491 (2007).

<sup>90</sup> 7 C.F.R. § 1491.30 (2007).

<sup>91</sup> 16 U.S.C. § 3838n-q; 7 C.F.R. pt. 1415 (2007).

<sup>92</sup> 16 U.S.C. § 3838o(b)(2)(B) (2006).

to refund all or a portion of the payments received under the program, as USDA deems appropriate.<sup>93</sup>

## **8. Wetlands Reserve Program (WRP)**

The Wetlands Reserve Program (WRP) assists farmers to restore and protect wetlands through conservation easements.<sup>94</sup> The easement prohibits activities that alter, degrade, or diminish the functional value of the land unless specifically permitted under the easement.<sup>95</sup> Land under the WRP may be used for compatible economic uses, as long as the conservation plan specifically permits it, and the use is “consistent with the long-term protection and enhancement of the wetland resources for which the easement was established.”<sup>96</sup>

If a farmer participating in WRP pursues development of a wind facility in violation of the WRP easement, USDA is authorized to withhold further payments under the program, enter the farmer’s property to remedy the violation, and pursue all other available remedies, which presumably also includes seeking an injunction against the completion and/or operation of the wind facility.<sup>97</sup>

## **V. Conclusion**

This chapter identifies many areas of potential liability for farmers considering wind development. Later chapters in this guide cover still other specific areas of potential liability. For example, depending on how the wind project entity is structured, farmers may need to consider specific securities law requirements and some states’ prohibitions on corporate ownership of certain agricultural interests. The potential liability risks that arise from these laws are discussed in more detail in Chapter 10 (Business Structures). Moreover, while this chapter outlines basic contract principles, parties to specific types of contracts, such as power purchase agreements and interconnection agreements, will encounter specific liability issues that will need to be addressed in those contracts, as

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<sup>93</sup> 16 U.S.C. § 3838o(e) (2006).

<sup>94</sup> 16 U.S.C. §§ 3837 et seq. (2006); 7 C.F.R. pt. 1467 (2007).

<sup>95</sup> 16 U.S.C. § 3837a(b)(2)(A), (C), (D) (2006).

<sup>96</sup> 16 U.S.C. § 3837a(d) (2006); 7 C.F.R. § 1467.10(b)(2) (2007).

<sup>97</sup> 7 C.F.R. § 1467.14 (2007).



discussed in Chapters 9 (Selling Power) and 11 (Interconnection and Transmission).

The areas of potential liability from wind development may seem overwhelming. Farmers should certainly be aware of these potential risks and take steps to adequately protect themselves and their projects. However, with sufficient information and protective measures, the chance of facing any significant liability can be greatly reduced.





## Chapter 6

# Turbine Purchase and Installation

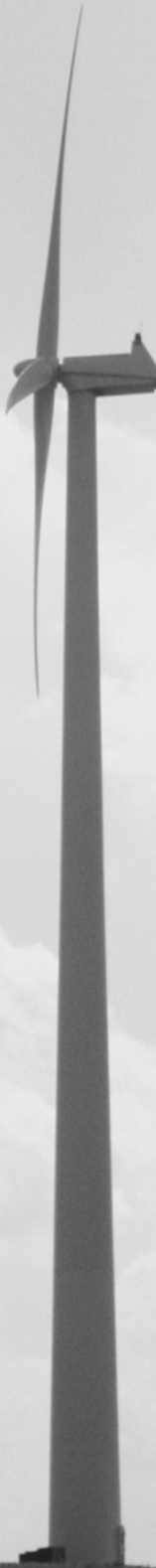
Selecting and installing the turbines and other equipment needed for a wind energy project may seem like a straightforward part of the development process, one that does not present notable legal issues. However, there is a critical relationship between timely installation of properly functioning equipment and farmers' ability to meet their contractual obligations to lenders, investors, and power purchasers. And the success of a wind project will ultimately depend on the performance of the turbines and related equipment. It is therefore important for farmers to understand where there are legal risks in the purchase and installation of wind energy equipment, and what legal protections may be available to minimize those risks.

Other parties' failures to keep their commitments can be ruinous to a wind project that has been planned on a specific budget and timeline. As is true for all aspects of the wind development process, if a farmer is relying on a particular promise or assurance from another party, the farmer should insist that it be in writing. As discussed in this chapter, these assurances may include warranties about the performance and life of a turbine or other equipment, delivery commitments, construction timelines, or service contracts, among other things.

The issues that arise in the turbine purchase and installation process will vary greatly depending on the size of the intended wind project. Not surprisingly, the process can be significantly more complex for large commercial-scale wind turbines. Therefore, where appropriate, this chapter will distinguish small-scale and commercial-scale turbine purchase and installation issues.

## I. Equipment Selection and Purchase

In many ways, buying wind energy equipment is similar to buying any other major piece of equipment. Farmers should first determine what the generation capacity of the desired wind project is—that is, will it be a single small turbine for on-farm use, several very large turbines for generation and sale of energy to a utility, or something in between? Farmers should then research the types of



turbines available that would meet those requirements. A good place to start may be the American Wind Energy Association's list of Small Wind Turbine Equipment Providers or Windustry's list of Commercial-Scale Turbine Providers, both available on the Internet.<sup>1</sup> However, it is best to gather information from as many sources as possible. Interested farmers can learn more about the various wind energy products and the companies that manufacture them by asking for recommendations from wind development organizations and consultants, or looking for product reviews on-line.<sup>2</sup> Farmers installing commercial-scale projects should also ask the wind consultants or engineers working on the project for recommendations and technical advice.

Various aspects of each product should be considered, including cost, ease of installation and maintenance, capacity, durability, availability of replacement parts, reliability, compatibility with other project equipment, and any warranties or service contracts offered.<sup>3</sup> Choosing the right equipment for a particular location involves ensuring that service and parts are readily available, as well as considering the equipment's technical merits. Some turbines also are designed to suit a particular climate or specific wind resource characteristics.

In some markets, smaller-scale used turbines may be available from a variety of sources. There can be significant cost savings with used equipment, but farmers should carefully consider the extent to which the turbines have been refurbished or remanufactured. Important questions to ask include whether there are reliable

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<sup>1</sup> American Wind Energy Association, <http://www.awea.org/faq/smsyslst.html>; Windustry, *Commercial-Scale Turbine Providers*, [http://windustry.org/resources/companies\\_manufacturers.htm](http://windustry.org/resources/companies_manufacturers.htm) (both sites last visited June 15, 2007).

<sup>2</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 8 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind\\_small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind_small_wind_guide.pdf) (last visited June 15, 2007); see also Mick Sagrillo and Ian Woofenden, "Wind Turbine Buyer's Guide" 38 from *Home Power Magazine* No. 119 (June/July 2007), available at <http://www.homepower.com/files/featured/TurbineBuyersGuide.pdf> (last visited June 15, 2007).

<sup>3</sup> See generally, Alan R. Merkle, "Engineering, Construction, and Turbine Purchase Agreements" from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

sources of parts available, which companies are qualified to perform maintenance and repairs, and whether a used turbine seller offers a warranty or right to pre-purchase inspection. A used turbine might have a shorter lifespan than a new turbine, which could have implications for the economics of a project. Quality used wind energy equipment is available, but farmers should use caution in any purchases.<sup>4</sup>

### A. Possible Supply Limitations

Among the many challenges of developing a commercial-scale wind project is actually procuring wind turbines. Not only are they frequently the most expensive part of the project, but in recent years, commercial-scale wind turbines have been in short supply.<sup>5</sup> The U.S. wind industry has been reluctant to expand its manufacturing capacity in the face of unreliable government incentives for wind energy, discussed in the chapters on project financing (Chapter 8) and government incentives (Chapter 12) of this guide.

Combined with the booming global wind market of recent years, the shortage of turbines produced in America has resulted in long lead times for obtaining turbines—waits of well over a year in some cases. Commercial-scale projects that are relatively small, meaning they need no more than a few turbines, fare poorly in such market conditions, because manufacturers typically prefer the efficiency of working with a few large customers to working with many smaller ones. As a result, in many cases turbine availability within a suitable timeframe becomes one of the most influential factors in determining which turbine to purchase.

In some cases, large businesses that are interested in investing in commercial-scale wind projects may have guarantees for future availability of turbines from a particular manufacturer. The fact that a potential investor can bring turbines to the negotiating table may be part of the selection process for farmers looking to partner with large investors to build a project. Investment models are discussed

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<sup>4</sup> See Mick Sagrillo, *Advice from an Expert: Buying Used Wind Equipment* (Am. Wind Energy Ass'n 2002), available at [http://www.awea.org/faq/sagrillo/ms\\_used\\_0211.html](http://www.awea.org/faq/sagrillo/ms_used_0211.html) (last visited June 15, 2007).

<sup>5</sup> See, e.g., Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 77 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf) (last visited June 15, 2007) (providing expense examples for a 3 MW and a 10 MW wind project).

in more detail in the chapters on project financing (Chapter 8) and wind business structures (Chapter 10). Farmers should work with an attorney before entering into any investment agreement as there are many details, contingencies, and obligations that must be addressed.

## **B. Negotiating a Turbine Purchase Agreement**

Wind equipment purchase agreements might be limited to procurement of the turbine and associated hardware or be part of a package of related agreements for other services like construction and maintenance. Any purchase agreement should detail the scope of work provided and the exact specifications of the product promised.

Because of the expense and demand involved, commercial-scale wind turbine manufacturers usually require farmers to put down a substantial deposit in order to reserve a turbine and often require a schedule of additional payments leading up to the actual delivery of the turbine. Farmers should carefully examine whether these deposits are refundable and, if so, under what circumstances. The long wait that can be involved in getting a commercial-scale wind turbine often requires farmers to put a deposit down before they are absolutely certain of all of the details of the wind project, or even before they are certain that they will be able to interconnect the project and secure a contract with a willing purchaser of the electricity. The risk that a project will ultimately prove not feasible should be carefully considered when entering into turbine purchase agreements and making pre-payment arrangements.

Farmers should also examine whether their turbine is guaranteed to be delivered in a particular timeframe. Delays can be costly, especially if the project is relying on a government incentive that will expire or requires the project to be operational by a particular date. Any promises made by the manufacturer should be had in writing.

## **C. Product Warranties**

Reputable wind equipment manufacturers will offer a warranty for their products. Farmers should carefully review any warranties provided for a turbine and other wind equipment.

More information about product warranties and warranty disputes in general should be available from the consumer protection division of each state Attorney General's office.<sup>6</sup>

### 1. Factors to Consider

Having a turbine of any size, but particularly commercial-scale turbines, out of operation due to a defect or failure can be very costly, making it essential to understand exactly what is covered by a turbine warranty, and what the procedure and timeline are for repairs and obtaining replacement parts. Thus, important factors to consider when reviewing a written warranty include:<sup>7</sup>

- What specific types of defect or damage are covered?
- Are any parts of the equipment or types of problems excluded from coverage?
- What actions by the farmer or another party might void the warranty?
- What remedy does the warranty provide if there is a problem—that is, will the company repair or replace the equipment, or refund the purchase price? Does the warranty cover labor costs for repair? Is repair or replacement guaranteed within a certain period of time after a warranty claim is made?
- Who will provide warranted service and maintenance, and who will pay the costs of shipping the equipment to the service location, if needed?
- How long will the warranty last? Is an extended warranty available?

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<sup>6</sup> General contact information for each state's Attorney General can be found at [http://www.naag.org/attorneys\\_general.php](http://www.naag.org/attorneys_general.php) (last visited June 21, 2007).

<sup>7</sup> Federal Trade Commission, *Consumer Alert: Warranties* (Oct. 2001), available at <http://www.ftc.gov/bcp/online/pubs/products/warrant.shtm>; see also Mick Sagrillo and Ian Woofenden, "Wind Turbine Buyer's Guide" 38 from *Home Power Magazine* No. 119 (June/July 2007), available at <http://www.homepower.com/files/featured/TurbineBuyersGuide.pdf> (discussing warranties and indicators of quality in small wind turbines) (both sites last visited June 15, 2007).

Typically, manufacturer warranties cover defects in materials or workmanship but do not cover improper installation or use. As discussed below, however, in many cases the supplier of wind energy equipment will also install the equipment. In such cases, any damage occurring during installation and testing is more likely to be covered by the product warranty or installation agreement with the supplier.

## 2. Consequential Damages

A very important issue for warranties on turbines and other wind energy equipment is whether the warranty covers the farmer's *consequential damages* from an equipment failure. Most consumer warranties and many commercial warranties cover only the product itself; that is, the purchaser will only be entitled to a refund of the purchase price or a repaired or replacement product. Any "consequential" damage to other property caused by the defective product, and any financial losses resulting from down time while the product is repaired or replaced, are generally excluded from coverage.

However, if defective equipment or delayed delivery prevents a wind project owner from satisfying its obligations to a power purchaser or making payments on scheduled debt, the viability of the entire project can be threatened. Therefore, coverage for consequential damages from equipment failure can be a necessity for wind projects, particularly coverage for the inability to generate electricity while the equipment is repaired or replaced.

Coverage for some consequential damages may also be referred to as an *availability guarantee*—that is, a guarantee that the turbine will be operational at least a specified percentage of the time—or a *performance guarantee*—that is, a guarantee that the turbine will produce at least a specified amount of electricity under certain conditions. These kinds of guarantees are most likely to be offered for commercial-scale wind turbines. If this coverage cannot be negotiated as part of the equipment warranty, farmers should seek separate insurance coverage for this risk.

## 3. Implied Warranties

If a particular problem with wind energy equipment is not covered by the written warranty from the supplier or manufacturer, called an *express warranty*, protection may be provided by an implied warranty. An *implied warranty* is a warranty that is created by state law rather than by an agreement between the buyer and the seller. Every state has enacted some



form of implied warranties for consumer and commercial sales transactions, though some states limit how long the implied warranties will be in effect.<sup>8</sup>

The most common type of implied warranty is the *warranty of merchantability*. Among other things, this means the seller promises that the product is “fit for the ordinary purposes for which such goods are used.”<sup>9</sup> For wind energy equipment, this would mean that the equipment is fit to be used in a wind project.

Another common type of implied warranty is the *warranty of fitness for a particular purpose*. This type of warranty arises when a buyer is relying on the advice of the seller in selecting a product for a particular use, and the seller is aware of the product’s intended use. This warranty means the seller promises that the product will be fit for the particular use intended by the buyer.<sup>10</sup> If a farmer explains the particular characteristics of a wind project (for example, scale of the project, top wind speeds, or extreme weather conditions), and the equipment supplier recommends a particular type of turbine for those characteristics, the implied warranty of fitness for a particular purpose would ensure that the recommended turbine could in fact handle the described conditions.

Although implied warranties are created by law in every state, it is usually possible for the seller to exclude a particular product or sale from an implied warranty by using notice language set out in state law. For example, Minnesota law allows sellers to avoid implied warranties by, among other things, labeling the transaction “as is” or stating, “There are no warranties which extend beyond the description on the face hereof.”<sup>11</sup>

#### 4. Warranty Disputes

In general, problems with wind energy equipment should first be brought to the attention of the equipment supplier. If the supplier’s response is unsatisfactory, the farmer may want to contact the manufacturer directly.

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<sup>8</sup> Federal Trade Commission, *Consumer Alert: Warranties* (Oct. 2001), available at <http://www.ftc.gov/bcp/online/pubs/products/warrant.shtm> (last visited June 20, 2007).

<sup>9</sup> See, e.g., Minn. Stat. § 336.2-314 (2006).

<sup>10</sup> See, e.g., Minn. Stat. § 336.2-315 (2006).

<sup>11</sup> Minn. Stat. § 336.2-316 (2006).

The warranty might itself set out dispute resolution procedures that the parties must use if the situation cannot be satisfactorily resolved. Possible dispute resolution procedures include mediation and arbitration. Depending on the terms of the particular warranty, these procedures might be required before going to court over a dispute, or they might be available *instead of* review by a court.

#### **D. Identifying and Obtaining Other Necessary Equipment**

In addition to the turbines themselves, farmers will need a variety of equipment to generate electricity from wind and allow for the use or transmission of that electricity. Much of this equipment is closely related to the turbine and will likely be purchased as part of the generator package. Other equipment, however, will likely be purchased or at least considered separately, and compatibility can be an important factor.

For a small off-grid project, intended only to provide electricity for farm and home requirements, a battery and charge controller will be needed to store for later use any electricity that is not used as it is generated. An off-grid project will also require an inverter to convert the direct current from the turbine or battery to alternating current for farm and home use.<sup>12</sup>

If a wind project will be connecting to the electric grid, there is no need for battery storage of any excess electricity generated, but an inverter (also called a power conditioning unit) will be required to make the direct current from the generator compatible with the grid's alternating current.<sup>13</sup> Wind projects that will be connected with the electric grid will also need the equipment necessary for the interconnection. Which components the wind project owner is responsible for will be identified during the interconnection process, described in the chapter on small on-farm wind projects (Chapter 7), and, especially for larger projects, the chapter on interconnection and transmission (Chapter 11) in this guide. The interconnecting utility will have requirements and possibly recommendations for

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<sup>12</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 6-7 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>13</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 7 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

these components. The electrical equipment needed for a commercial-scale turbine will be much more extensive and expensive than for a small-scale turbine.

## II. Installation

Most wind system manufacturers and dealers offer installation packages, which might provide more customer support from the company and should include additional warranties against defects in installation. The installation package offered by a manufacturer may differ from the package offered by a dealer, who may operate in the vicinity of the particular wind project and provide additional local services. Small turbine manufacturers generally have prepared information about the different installation options that are available, and can quote prices for their various packages. Commercial-scale turbine manufacturers might not offer this information unless they are responding to a formal request for a quote or bid.

It is important to understand what services are included in any installation package, as well as what is *not* included.<sup>14</sup> Installation by the dealer or manufacturer typically will not include necessary steps such as construction of concrete foundations and access roads and preparation of the facility site.<sup>15</sup> These activities must be performed by a separate contractor. Commercial-scale wind projects are particularly likely to deal with multiple contractors for project design, engineering, and site preparation as the process is significantly more involved.

The manufacturer, dealer, local utility, or a state agency such as the Department of Commerce or Department of Energy may be able to provide a list of

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<sup>14</sup> See Minnesota Department of Commerce, *Hiring a Renewable Energy Dealer*, [http://www.state.mn.us/mn/externalDocs/Commerce/Hiring\\_a\\_Renewable\\_Energy\\_Dealer\\_121302010223\\_How2Hire.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Hiring_a_Renewable_Energy_Dealer_121302010223_How2Hire.pdf) (last visited June 15, 2007) (listing questions to ask before hiring renewable energy dealers and describing what to expect from dealers and installers).

<sup>15</sup> Alan R. Merkle, “Engineering, Construction, and Turbine Purchase Agreements” from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

contractors qualified to install a wind system.<sup>16</sup> A small wind installer, who should be a licensed electrician, may also provide related services, such as obtaining the necessary building or electrical permits. These installers often provide bids that include erecting the tower, assembling and installing the wind generator, connecting all electrical components, and bringing the facility into operation.<sup>17</sup> It will generally still be necessary to hire a separate contractor to construct the facility foundations and roads and do any desired land preparation.

For small on-farm projects, farmers might choose to buy the components and install the facility themselves. This offers both significant savings and hands-on experience with the turbine.<sup>18</sup> Manufacturers of small wind systems typically provide installation manuals, so farmers can review the steps involved before deciding whether they want to install the system themselves. The farmer could also contract out certain portions of the installation, such as constructing the foundation, taking delivery of the turbine, trenching for underground wires, and assembling and wiring the generator.<sup>19</sup>

In contrast, installing a commercial-scale wind turbine is a complex construction project that must be overseen and carried out by professionals. In the planning stages, farmers should keep logistical issues in mind, such as the need to reserve

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<sup>16</sup> See Minnesota Department of Commerce, *Hiring a Renewable Energy Dealer*, [http://www.state.mn.us/mn/externalDocs/Commerce/Hiring\\_a\\_Renewable\\_Energy\\_Dealer\\_121302010223\\_How2Hire.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Hiring_a_Renewable_Energy_Dealer_121302010223_How2Hire.pdf) (last visited June 15, 2007).

<sup>17</sup> Mick Sagrillo, *Harvesting Your Own Wind-Generated Electricity* 3 (Wisc. Focus on Energy 2004), available at [http://www.focusonenergy.com/data/common/dmsFiles/W\\_RI\\_MKFS\\_Wind%20for%20Farms%20.pdf](http://www.focusonenergy.com/data/common/dmsFiles/W_RI_MKFS_Wind%20for%20Farms%20.pdf) (last visited June 15, 2007).

<sup>18</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 8 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>19</sup> Mick Sagrillo, *Harvesting Your Own Wind-Generated Electricity* 3 (Wisc. Focus on Energy 2004), available at [http://www.focusonenergy.com/data/common/dmsFiles/W\\_RI\\_MKFS\\_Wind%20for%20Farms%20.pdf](http://www.focusonenergy.com/data/common/dmsFiles/W_RI_MKFS_Wind%20for%20Farms%20.pdf) (last visited June 15, 2007).

a crane and possibly build access roads to provide it and other heavy construction equipment access to the project site.<sup>20</sup>

### A. Safety Requirements and Code Compliance

For small-scale wind turbines, the city, county, or state electrical code that applies to the particular wind project will undoubtedly require proper wiring and components that are certified by an approved testing lab, such as Underwriters Laboratories (UL). Most local electrical codes are based on the National Electrical Code (NEC).<sup>21</sup>

Any inverter purchased with a wind project should include all of the required safety features and certifications. These include the protective relays and circuit breakers needed to synchronize safely and reliably with the electric grid, and to automatically shut down the facility when there is a utility power outage.<sup>22</sup> Most new inverters comply with all recognized safety codes and standards, including the NEC, UL, and the Institute of Electrical and Electronic Engineers (IEEE).<sup>23</sup>

Electrical safety and code compliance issues are much more complex for commercial-scale wind turbines, but also follow many of these standards. Farmers installing a project of this size should get technical assistance to navigate these issues.

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<sup>20</sup> To provide some perspective, Windustry has posted photographs of its efforts to install a single turbine *blade* at the Minnesota State Fair at <http://www.windustry.org/statefair/bladephotos.htm> (last visited June 20, 2007).

<sup>21</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 16 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>22</sup> NorthWestern Energy, *Montana Wind Power: A Consumer's Guide to Harvesting the Wind* 20 (Dec. 2004), available at <http://www.montanagreenpower.com/pdf/montanawindpowerpub.pdf> (last visited June 15, 2007).

<sup>23</sup> NorthWestern Energy, *Montana Wind Power: A Consumer's Guide to Harvesting the Wind* 20 (Dec. 2004), available at <http://www.montanagreenpower.com/pdf/montanawindpowerpub.pdf> (last visited June 15, 2007).

## B. Insurance

As soon as a wind facility is installed, it will be important to have it covered by appropriate insurance. This includes: (1) insurance for harm that may be caused *by* the wind facility, and (2) insurance for harm that may occur *to* the wind facility.

In many cases, a home or farm liability insurance policy that covers the structures on the farm can be extended to cover any damage caused by a small on-farm wind facility as an *appurtenant structure*. Larger wind projects that are intended to be operated for profit will likely have to be insured separately from the farm. In either case, farmers can reduce their liability insurance costs by adopting safety precautions, such as a setback from other structures equal to the height of the tower, and building a safety fence around the turbine.<sup>24</sup> Liability issues are discussed in more detail in Chapter 5 of this guide.

Similarly, coverage for damage caused to a small on-farm wind facility can probably be included in the farmer's existing property insurance policy, though the premium may be increased, while property insurance for larger wind projects will probably need to be purchased separately. The insurance should cover all likely sources of damage to the wind facility, including fire, lightning, ice, vandalism, and theft.<sup>25</sup> In order to get this coverage, it will be important that the project complies with electrical and other safety codes, discussed above. If a project is not in compliance, the insurance company may refuse a claim related to electrical safety.<sup>26</sup>

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<sup>24</sup> Iowa Energy Center, *Wind Energy Manual: Legal Issues in Wind Energy* (2006), available at [http://www.energy.iastate.edu/renewable/wind/wem/wem-01\\_print.html](http://www.energy.iastate.edu/renewable/wind/wem/wem-01_print.html) (last visited June 15, 2007).

<sup>25</sup> Mick Sagrillo, *Advice from an Expert: Insuring Your Wind System: Potential Insurance Needs/Costs* (Am. Wind Energy Ass'n 2000), available at [http://www.awea.org/faq/sagrillo/ms\\_insur2.html](http://www.awea.org/faq/sagrillo/ms_insur2.html) (last visited June 15, 2007).

<sup>26</sup> Mick Sagrillo, *Advice from an Expert: Residential Wind Turbines and "Code Compliance"* (Am. Wind Energy Ass'n 2004), available at [http://www.awea.org/faq/sagrillo/ms\\_codesnov04.html](http://www.awea.org/faq/sagrillo/ms_codesnov04.html); Mick Sagrillo, *Advice from an Expert: Insuring Your Wind System: Potential Insurance Needs/Costs* (Am. Wind Energy Ass'n 2000), available at [http://www.awea.org/faq/sagrillo/ms\\_insur2.html](http://www.awea.org/faq/sagrillo/ms_insur2.html) (both sites last visited June 15, 2007).

As mentioned in the warranty section of this chapter, farmers might also want to obtain separate insurance coverage for economic losses that would result if the wind facility were unable to operate for an extended period due to equipment failure or damage.

Well in advance of installation, farmers should contact their current insurance agent and other potential insurance providers about the availability and cost of these various types of insurance in order to be prepared for the insurance requirements of their wind project.<sup>27</sup>

### III. Operations and Maintenance

On the whole, most wind systems have a lifespan of about 20 years or longer if properly installed and maintained.<sup>28</sup> Nonetheless, even small wind facilities require some basic annual maintenance, such as monitoring the condition of bolts and electrical connections, checking for corrosion, greasing and oiling bearings and parts, and checking for correct guy wire tension (if applicable). Eventually, blades or bearings may also need to be replaced. Commercial-scale wind projects require more regular monitoring and routine maintenance.

The manufacturer or dealer of the wind energy equipment may offer a service and maintenance program, either alone or as part of an installation package.<sup>29</sup> Maintenance contracts will make sense for some wind projects, while some farmers will opt to do this work themselves or hire it to be done by a third party.

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<sup>27</sup> Iowa Energy Center, *Wind Energy Manual: Legal Issues in Wind Energy* (2006), available at [http://www.energy.iastate.edu/renewable/wind/wem/wem-01\\_print.html](http://www.energy.iastate.edu/renewable/wind/wem/wem-01_print.html) (last visited June 15, 2007). There are several large insurance companies with significant experience working with commercial-scale wind projects, and they can be found within the American Wind Energy Association's member directory, a service available on-line at <http://web.memberclicks.com/mc/page.do?orgId=awea> (last visited June 21, 2007).

<sup>28</sup> Mick Sagrillo and Ian Woofenden, "Wind Turbine Buyer's Guide" 38 from *Home Power Magazine* No. 119 (June/July 2007), available at <http://www.homepower.com/files/featured/TurbineBuyersGuide.pdf> (last visited June 15, 2007).

<sup>29</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 9 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).



Factors that farmers should take into account when considering a maintenance contract for a wind project include:<sup>30</sup>

- What services are specifically offered under the contract? Routine maintenance only? Repairs of incidental damage?
- Which specific components of the wind facility are covered by the contract?
- How often will maintenance services be performed under the contract? If not on a regular schedule, what events will trigger maintenance activities?
- What is the relationship between the services offered under the maintenance contract and the protections of any equipment warranty? Does the warranty require that maintenance or other servicing be performed only by the dealer, manufacturer, or other approved party?
- Does the maintenance agreement satisfy conditions imposed by the project's equity investors, lenders, or power purchaser?
- How does the cost of an ongoing maintenance contract compare to the cost of hiring occasional service providers? Are these costs likely to increase during the term of the maintenance contract?
- How long will the maintenance contract last? Can it be extended? At what cost?
- How is the cost of the maintenance contract determined? An upfront fee? Scheduled payments? Are there surcharges or additional fees of any type?
- What are the farmer's options if he or she is dissatisfied with the service? Are there mechanisms for the farmer to complain, and get needed relief, if the maintenance is not performed satisfactorily?
- May the maintenance contract be terminated early by either party? If so, what circumstances permit termination? Is there a fee for terminating early?
- If a maintenance contract is not entered into when the equipment is purchased, may one be purchased at a later time?

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<sup>30</sup> Federal Trade Commission, *Consumer Alert: Service Contracts* (Oct. 2001), available at <http://www.ftc.gov/bcp/online/pubs/products/servcon.shtml> (last visited June 21, 2007).



Commercial-scale wind projects require a person or team of people with expertise and training to oversee operations and maintenance. Farmers might be able to acquire some of this knowledge for themselves, but almost certainly will need to contract for some portion of the work. As a result, the availability of qualified operations and maintenance teams becomes an especially important consideration when choosing a commercial-scale turbine model. With this in mind, farmers should take note during the project planning stages of which turbine manufacturers have installations in their region. Some manufacturers will not agree to supply a turbine for a location that is too far away from qualified operations and maintenance services.





## Chapter 7

# On-Farm Small Wind Development

Small-scale wind turbines—roughly defined as turbines with a nameplate capacity of 100 kW or less—are intended primarily to generate enough electricity to provide for a single home, farm, or small business.<sup>1</sup> In most cases, small on-farm wind projects will not provide the farmer with a new source of income.

However, small farm wind turbine projects can be economical, especially if located at a site with excellent wind and installed in combination with other energy efficiency measures. Small-scale turbine owners can also seek to improve their project's economics by interconnecting with the electric grid. This enables the farmer to use the utility's electricity as backup power when the wind is not blowing, and in some cases, to sell excess generated electricity back to the utility through the electric grid. The amount of electricity that can be generated and sold from these small turbines is relatively small, though, so a farmer's savings from reduced electricity purchases from the utility are usually the most significant economic benefit.

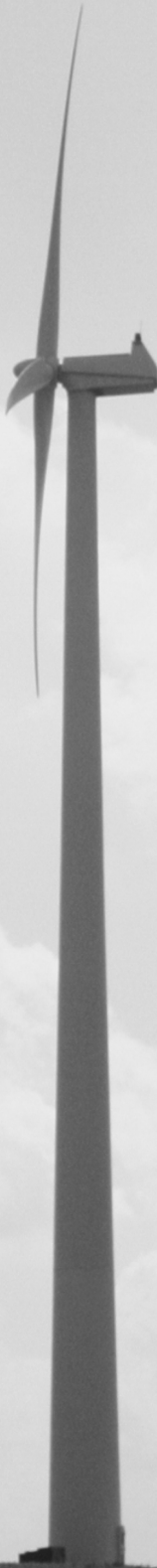
After a brief review of some of the practical considerations that should affect the decision whether to invest in an on-farm turbine, this chapter highlights some of the legal issues involved with installing a wind turbine to offset a farm's use of electricity.

## I. Determining Whether Wind Energy Is Right for Farm Use

Even “small” wind turbines require a substantial investment, and a farmer should carefully consider the costs and benefits of the project before getting too far along in the process. In many cases, it may be more economical to invest in energy efficiency measures than to purchase and install a wind turbine.

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<sup>1</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 3 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).



Because the majority of the benefits of an on-farm turbine come in the form of increased energy independence, farmers should start by analyzing their current electricity use, including average daily consumption, highest and lowest consumption, monthly and yearly consumption, and average daily peak energy use.<sup>2</sup> Any likely changes in the farming operation that could affect energy consumption should also be evaluated.

Farmers should also carefully evaluate the on-farm wind resource. This process is discussed further in the chapter on siting (Chapter 4). Although exact wind measurements may not be required for a project of this size, farmers should be sure there is a sufficient supply of wind to produce consistent amounts of electricity. Roughly 10 mph or more is a general rule of thumb for projects of this size.<sup>3</sup>

With this information in hand, farmers can complete an economic evaluation of the proposed project and compare the viability of different project sizes. There are several on-line worksheets and calculators available to help with this process.<sup>4</sup> Many are designed to calculate how long it will take for a small wind turbine to pay for itself, if it ever will.<sup>5</sup>

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<sup>2</sup> Iowa Department of Natural Resources, *Iowa Wind Energy Checklist 2* (2003), available at <http://www.iowadnr.com/energy/renewable/files/windchecklist.pdf> (last visited June 15, 2007).

<sup>3</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 15 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>4</sup> See, e.g., Iowa Department of Natural Resources, *Iowa Wind Energy Checklist 23* (2003), available at <http://www.iowadnr.com/energy/renewable/files/windchecklist.pdf>; American Wind Energy Association, *The Economics of Small Wind*, [http://www.awea.org/smallwind/toolbox/TOOLS/fs\\_economics.asp](http://www.awea.org/smallwind/toolbox/TOOLS/fs_economics.asp) (both sites last visited June 15, 2007).

<sup>5</sup> The American Wind Energy Association estimates that a well-sited wind turbine can pay for itself in about 15 years, which is less than the expected lifespan of most turbines. American Wind Energy Association, *Wind Web Tutorial: Small Wind Energy Systems: How Much Does a Wind System Cost?*, [http://www.awea.org/faq/wwt\\_smallwind.html#Will%20a%20small%20wind%20turbine%20save%20me%20money](http://www.awea.org/faq/wwt_smallwind.html#Will%20a%20small%20wind%20turbine%20save%20me%20money) (last visited June 15, 2007).

Turbines used on-site by a residence or farm typically range in size from 400 watts to 100 kW, depending on the amount of electricity needed. The cost of a total installed system ranges from \$3,000 to \$5,000 for every kW of capacity; for example, a 10 kW system might cost about \$40,000.<sup>6</sup> Rebates and tax credits are available in some states for small wind systems to help improve the project's economics. State and federal incentives for wind development are discussed in Chapters 12 (Incentives) and 13 (Tax Benefits and Obligations) of this guide.

## II. Siting

In addition to evaluating the available wind resource, a farmer interested in installing an on-farm wind turbine should consider the various siting issues discussed in Chapter 4 of this guide. These include distance from neighbors, the amount of land available to site the turbine, local land use permitting or zoning requirements, and whether there are private restrictions on wind development on the proposed site, such as pre-existing restrictive covenants or negative easements.

Land use permitting issues in particular may affect the choice of turbine for the project. For example, zoning codes may prohibit lattice-structure supports, requiring the farmer to purchase a tubular model instead.<sup>7</sup>

As a general rule, small turbines are less likely to raise some of the other siting concerns, such as noise or television reception interference, that may create obstacles for larger projects. These risks are greatly minimized by the small size of the on-farm turbines.<sup>8</sup>

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<sup>6</sup> American Wind Energy Association, *Wind Web Tutorial: Small Wind Energy Systems: How Much Does a Wind System Cost?*, [http://www.awea.org/faq/wwt\\_smallwind.html#Will%20a%20small%20wind%20turbine%20save%20me%20money](http://www.awea.org/faq/wwt_smallwind.html#Will%20a%20small%20wind%20turbine%20save%20me%20money) (last visited June 15, 2007).

<sup>7</sup> See, e.g., Murray County, Minn., Zoning Ordinance § 12, subd. 4(6) (2007), available at <http://www.murray-countymn.com/php/pdfs/mczoning05-08-07.pdf> (requiring tubular towers but only for wind turbines over 100 kW) (last visited June 20, 2007).

<sup>8</sup> American Wind Energy Association, *Wind Web Tutorial: Small Wind Energy Systems: Do wind turbines make noise or interfere with TV reception?*, [http://www.awea.org/faq/wwt\\_smallwind.html#Do%20wind%20turbines%20make%20noise%20or%20interfere%20with%20TV%20reception](http://www.awea.org/faq/wwt_smallwind.html#Do%20wind%20turbines%20make%20noise%20or%20interfere%20with%20TV%20reception); see also American Wind Energy Association, *Wind Web Tutorial*, <http://www.awea.org/faq/> (providing

### III. Grid-Connected Small Wind Systems

If a farmer chooses to connect a small wind project to the electric grid, at any given time the farm's electricity needs will be supplied by either the wind turbine or the utility, depending on how windy it is. When the wind is not blowing, all of the farm's electricity will come from the utility. When the wind is blowing, the farm's electricity will come from the turbine, with electricity from the utility supplementing the turbine generation as needed.

Farmers with small grid-connected wind turbines have two general options for dealing with the excess electricity available during those times when the turbine is generating more power than the farm is using.

**Single Meter.** The first, and almost always best, option for dealing with excess generation is called *net metering*. Net metering is a method of measuring on a single meter the electricity consumed from the grid and the electricity produced by the turbine. With net metering, any excess electricity produced by the wind turbine spins the farm's existing electric meter backwards, allowing the farmer to bank credits for the excess electricity and offset future amounts of electricity that must be purchased from the utility. In effect, this provides the customer with full retail value for at least a portion of the electricity produced.

**Separate Meters.** If net metering is not available or is not feasible for a given project, farmers with small grid-connected wind turbines may instead seek to install their turbines on a separate meter. In this scenario, the farmer

#### *Off-Grid Small Wind Systems*

The remainder of this chapter focuses exclusively on wind facilities that are connected to the electric grid. An *off-grid wind project*, however, is another option that farmers can consider. Sometimes connecting to the grid will be impractical or impossible due to the remote location of the turbine or other technical barriers. Many of the issues discussed here and in other chapters in this guide—feasibility, siting, turbine purchase, maintenance, insurance, and installation—are equally relevant for on-grid and off-grid wind projects. However, owners of off-grid projects do not need to concern themselves with the interconnection, power sales, and utility issues discussed in this section. Nor do off-grid turbines allow the farmer to sell excess generated electricity to the utility for income.

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information about bird impacts, safety, and property values, none of which are considered major concerns for small turbines) (both sites last visited June 15, 2007).

continues to purchase any of his or her backup electricity from the utility on his or her original meter. Any electricity the turbine produces that the farm cannot use is then fed into the grid and measured on a separate second meter. Unless a better arrangement can be negotiated, the farmer's excess electricity is most likely purchased by the local utility at a rate that is significantly lower than the full or partial retail rate that would be credited through net metering.

Both of these options are discussed in more detail in the remainder of this chapter.

### **A. Net Metering**

A majority of states require net metering for wind systems under a certain size, but the exact terms vary by state. Each state that offers net metering has different rules for who qualifies for net metering, how payments for excess energy are calculated, and details of interconnecting the project to the electric grid.

#### **1. Rights to Net Metering**

Currently, 37 states have rules requiring some or all of the utilities within the state to offer net metering for certain types of small energy generators, including wind projects.<sup>9</sup> These state net metering rules can be established either through the legislative process or by a state regulatory agency, such as the public utilities commission.

It is important to check which utilities are covered by a state's net metering rules. Many states' net metering rules apply only to investor-owned utilities (also called rate-regulated utilities), and not rural electric cooperatives or municipal electric utilities. However, some states, including Minnesota, do extend their net metering rules to rural electric cooperatives and municipal utilities.<sup>10</sup>

One way states regulate net metering is to set limits on the size of facility that is eligible to net meter. The range of maximum facility size eligible for

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<sup>9</sup> See Interstate Renewable Energy Council, *State and Utility Net Metering Rules and Programs Table*, [http://www.irecusa.org/fileadmin/user\\_upload/ConnectDocs/IREC\\_NM\\_table.pdf](http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/IREC_NM_table.pdf); Interstate Renewable Energy Council, *State-by-State Net-Metering Map*, <http://www.irecusa.org/index.php?id=105> (both sites last visited June 15, 2007).

<sup>10</sup> Minn. Stat. § 216B.164, subd. 2 (2006).

net metering includes 15 kW or less in Kentucky,<sup>11</sup> less than 40 kW in Minnesota,<sup>12</sup> 100 kW or less in North Dakota,<sup>13</sup> and 2 MW or less in Colorado.<sup>14</sup>

Farmers should also be aware that some states actually have different net metering limits based on the type of customer installing the generator. For example, in Arkansas, net metering is available for residential renewable energy systems of not more than 25 kW in capacity, but the capacity limit is 300 kW for renewable energy systems for any other use.<sup>15</sup> And both New York and Vermont have specifically established multi-tiered net metering rules, with limits that are higher for farm-based net metering systems.<sup>16</sup>

Iowa's net metering rule is also unique in that it does not limit the size of eligible projects.<sup>17</sup> However, in 1997 and 1998, three customers of MidAmerican, Iowa's largest investor-owned utility, brought complaints before the Iowa Utilities Board challenging MidAmerican's refusal to enter into net metering agreements. After protracted litigation, a settlement was reached in 2002 limiting the capacity of generators that must be net metered by MidAmerican to 500 kW or less.<sup>18</sup> Iowa's other major utility, Interstate Power and Light Company, received a similar size limit change in 2004.<sup>19</sup>

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<sup>11</sup> Ky. Rev. Stat. Ann. § 278.465 (2006).

<sup>12</sup> Minn. Stat. § 216B.164, subd. 3(c) (2006).

<sup>13</sup> N.D. Admin. Code § 69-09-07-09 (2005).

<sup>14</sup> 4 Colo. Code Regs. § 723-3 at R. 3664(a) (2007).

<sup>15</sup> 2007 Ark. Acts 1026 (to be codified at Ark. Code Ann. §§ 23-18-603 and 23-18-604). *See also*, Arkansas Public Service Commission, *In the Matter of a Generic Proceeding to Establish Net Metering Rules*, Docket No. 02-046-R, Order No. 3 (July 3, 2002).

<sup>16</sup> N.Y. Pub. Serv. Law § 66-ℓ (2007) (allowing net metering for on-farm wind systems up to 125 kW); Vt. Stat. Ann. tit. 30, § 219a (2006) (allowing net metering for on-farm systems up to 150 kW).

<sup>17</sup> Iowa Admin. Code r. 199-15.11(5) (2006).

<sup>18</sup> Iowa Utilities Board, *In re: MidAmerican Energy Company*, Docket Nos. TF-01-293, WRU-02-8-156, Order Granting Waiver and Approving, with Clarifications, Tariff (Mar. 8, 2002).

<sup>19</sup> Iowa Utilities Board, *In re: IES Utilities, Inc., and Interstate Power Company n/k/a Interstate Power and Light Company*, Docket Nos. TF-03-180, TF-03-181, WRU-03-30-150, Order Approving Tariffs with Modification and Granting Waiver (Jan. 20, 2004).



These two utilities together serve most of Iowa's electric customers, with the others largely served by cooperatives that are not subject to Iowa's net metering rule. Practically speaking, therefore, net metering in Iowa is now only available to facilities of 500 kW or less.

Farmers in states that do not have net metering rules, or who are served by a

***An Iowa Farmer Fights His Rural Electric Cooperative for Net Metering***

The question of whether rural electric cooperatives must provide net metering in Iowa has been the subject of an historic dispute between an Iowa farmer, Greg Swecker, and his rural electric cooperative, Midland Power Cooperative. In 1998, Mr. Swecker installed a 65 kW wind turbine on his farm. Midland refused to net meter the facility, and there were further disputes about the appropriate fees Midland could charge and the price it would pay for the electricity generated. Mr. Swecker argued that the Public Utility Regulatory Policies Act (PURPA) required Midland to interconnect his system and to offer net metering. Midland responded that, as a rural electric cooperative in Iowa, it is not subject to Iowa's net metering rules. The case has moved among the Iowa Utilities Board, Iowa state courts, federal district court, and the Federal Energy Regulatory Commission (FERC). The latest determination by FERC, which was upheld in March 2007 by the Iowa Court of Appeals, was that the decision whether to net meter should be left to Midland's discretion. *Swecker v. Midland Power Coop.*, 114 FERC ¶ 61,205 (2006); *Windway Tech. v. Midland Power Coop.*, Nos. 6-836, 06-0276, slip op. 11-12 (Iowa Ct. App. Mar. 14, 2007) (not yet published).

rural electric cooperative or municipal electric utility not covered by a state's net metering rules, should nonetheless check with their local utility about the possibility of net metering. Some utilities may voluntarily offer net metering, or the farmer may be able to negotiate a net metering agreement. In addition, the federal Energy Policy Act of 2005 directed state regulatory authorities and unregulated utilities to consider adopting net metering rules if they have not already done so.<sup>20</sup> Therefore, new net metering rules may be developed in the future.

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<sup>20</sup> Energy Policy Act of 2005, 109 Pub. L. 58, Title XII, Subtitle E, § 1251, 119 Stat. 962 (Aug. 8, 2005). Some experts believe that these and other amendments to the Public Utility Regulatory Policies Act (PURPA) could significantly change the net metering

## 2. Credit or Payment for Excess Energy Produced

In most states, the electricity used and electricity generated by the net-metered facility are totaled at the end of each billing cycle, usually monthly.<sup>21</sup> If the wind facility produced more electricity than the farm used in the month, the additional energy is called *net excess generation*.

There is great diversity among states in how a utility must compensate wind facility owners for net excess generation. The most common requirement is that the utility must credit the farmer's account for the net excess generation on a monthly basis at the utility's retail price for electricity. These credits are then used to offset the farmer's future energy demand on the utility; however, any of the farmer's credits that remain unused at the end of each 12-month period typically go back to the utility.<sup>22</sup> Montana has such a law, and the only protection for the farmer is that he or she picks the date that the 12-month accounting period begins—the first day of January, April, July, or October. The astute wind system owner will pick the date that occurs after the least-windy part of the year, so that the credits are at the lowest level.<sup>23</sup>

The next most common arrangement for net metering compensation is to credit the farmer each month for any net excess energy generated and use the credits to offset the farmer's future need for electricity from the utility, but with no limit on the amount of time that the utility can roll the farmer's credits forward to keep them available if needed in the future. In Iowa, for example, the net metering size limits granted to the two regulated utilities also allow them to roll net excess generation forward indefinitely from

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landscape. Future actions at the state and federal levels should be watched closely to see how this develops.

<sup>21</sup> For a table of net metering laws in each state, see Interstate Renewable Energy Council, *State and Utility Net-Metering Rules and Programs* (updated May 2007), available at [http://www.irecusa.org/fileadmin/user\\_upload/ConnectDocs/IREC\\_NM\\_table.pdf](http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/IREC_NM_table.pdf) (last visited June 15, 2007).

<sup>22</sup> See, e.g., Mont. Code Ann. § 69-8-603 (2005).

<sup>23</sup> NorthWestern Energy, *Montana Wind Power: A Consumer's Guide to Harvesting the Wind* 21 (Dec. 2004), available at <http://www.montanagreenpower.com/pdf/montanawindpowerpub.pdf> (last visited June 15, 2007).

month to month, creating a situation where the utility has no real obligation to pay the wind project owner for any excess generation.<sup>24</sup>

Colorado, on the other hand, credits the net excess generation to the farmer's account at the retail rate, but then requires the utility to purchase from the farmer at the utility's *avoided cost rate* any credits remaining at the end of the calendar year.<sup>25</sup> Avoided cost is a concept that derives from the federal Public Utility Regulatory Policies Act (PURPA) and basically reflects the cost the utility would have incurred to generate or purchase an equivalent amount of power but for the customer's contribution of his or her own generation.<sup>26</sup>

A less common arrangement requires the utility to purchase the farmer's net excess generation each month at a defined rate. Some states require the utilities to purchase the excess at avoided cost. In other states, like Minnesota, utilities must purchase or credit a small generator's net excess generation at the utility's average retail rate, which is significantly higher than an avoided cost rate and a strong incentive to net meter.<sup>27</sup> Minnesota's standard net metering contract allows the customer to choose whether the purchased amount will be credited to future electricity bills or paid for by a monthly check.<sup>28</sup>

### 3. Interconnection Procedures for Net Metering

*Interconnection* will also be an important issue for small, on-farm wind projects seeking to connect their turbines to the electric grid. Interconnection

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<sup>24</sup> Iowa Utilities Board, *In re: MidAmerican Energy Company*, Docket Nos. TF-01-293, WRU-02-8-156, Order Granting Waiver and Approving, with Clarifications, Tariff (Mar. 8, 2002).

<sup>25</sup> 4 Colo. Code Regs. § 723-3 at R. 3664(b) (2007) (avoided cost rate is defined as the utility's average hourly incremental cost for the prior 12-month period).

<sup>26</sup> Both PURPA and avoided cost rates are discussed in much more detail in the "Separate Meter" discussion later in this chapter, as well as in the power selling (Chapter 9) and interconnection chapters (Chapter 11) of this guide.

<sup>27</sup> Minn. R. 7835.3300 (2006).

<sup>28</sup> Minn. R. 7835.9910 (2006) ("Uniform Statewide Contract; Form"), *available at* [http://www.state.mn.us/mn/externalDocs/Commerce/Solar\\_Electric\\_Interconnection\\_Packet\\_Other\\_Utility\\_Customers\\_031704115402\\_utilitypacket.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Solar_Electric_Interconnection_Packet_Other_Utility_Customers_031704115402_utilitypacket.pdf) (last visited June 15, 2007).

refers generally to the physical and legal process by which new power generators, like wind turbines, are “plugged in” to the existing electric grid.

To interconnect an on-farm wind turbine with the electric grid, the farmer will need to work closely with the utility that owns the local power lines. Interconnection typically requires satisfaction of a series of technical engineering requirements so that the wind facility can be safely connected to the grid, and an *interconnection agreement* that will articulate the terms and conditions of the legal arrangement. This section focuses on the technical procedures of interconnection, and the next section explains some of the legal agreements needed for net metering.

Interconnection can actually be a very complicated and daunting process for many wind projects. In fact, all of the complexities of interconnection are addressed in a separate chapter later in this guide (Chapter 11). However, farmers seeking to install a small on-farm wind turbine often benefit from simplified and streamlined procedures.

States with net metering can require utilities to implement specific, standardized procedures for interconnection, which determine how the utility must respond to a request for interconnection.<sup>29</sup> As discussed in more detail in the chapter on interconnection (Chapter 11), standardized interconnection procedures typically require a utility to make decisions within a certain timeframe and designate a utility representative responsible for interconnection issues.<sup>30</sup> Standardized interconnection procedures may also set out the technical standards that will determine whether a wind project can be safely interconnected with the electric grid.<sup>31</sup>

Many states' standardized interconnection procedures cover projects up to 10 or 20 MW in nameplate capacity. Those procedures are typically more complex than those necessary for a small net-metered facility; therefore, farmers should investigate whether their states have other, more expedited procedures for smaller turbines.

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<sup>29</sup> See Interstate Renewable Energy Council, *Interconnection Standards for Distributed Generation* (updated May 2007), available at [http://www.irecusa.org/fileadmin/user\\_upload/ConnectDocs/IREC\\_IC\\_Table.pdf](http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/IREC_IC_Table.pdf) (last visited June 15, 2007) (providing a state-by-state list of standards).

<sup>30</sup> E.g., Wis. Admin. Code PSC §§ 119.03, 119.04 (2006) (“Rules for Interconnecting Distributed Generation Facilities”).

<sup>31</sup> See, e.g., Wis. Admin. Code PSC §§ 119.20 to 119.27 (2006).

#### 4. Standard Net Metering Contracts

Most states with net metering require regulated utilities to offer a standard contract to customers who want to net meter a small electric generation facility. These standard contracts are typically filed with the state utility regulatory authority and must conform with state law regarding net metering terms.<sup>32</sup> Standard contracts are beneficial to farmers because they help to minimize the time and expense associated with negotiating individual interconnection and net metering agreements. Even if a particular state does not have a law requiring utilities to develop net metering standard contracts, a utility may nonetheless offer a standard contract. If no standard contract is available, farmers can look at other standard contracts for guidance when negotiating with a utility.

A standard net metering contract typically covers two main topics: (1) interconnection with the utility, and (2) accounting for net excess generation delivered to the utility. Among other things, the interconnection agreement will address necessary improvements to the utility's electric system, and who pays for them, and safety requirements, which are typically based on nationally recognized standards and third-party certification of the wind turbine and interconnection equipment.<sup>33</sup> The interconnection portion of the standard contract will also contain some basic contract terms addressing dispute resolution, assignments, and termination and default.<sup>34</sup>

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<sup>32</sup> See, e.g., 4 Colo. Code Regs. 723-3 at R. 3664(c) (2007) (tariff required); Minn. Stat. § 216B.164, subd. 6 (2006) (uniform contract required); N.D. Admin. Code § 69-09-07-09, subd. 3(b) (2005) (standard contract required).

<sup>33</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 17 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007); see, e.g., Minn. R. 7835.2100 (2006) (requiring the interconnection to comply with the requirements of the National Electrical Safety Code).

<sup>34</sup> See, e.g., Minnesota Public Utilities Commission, *In the Matter of Establishing Generic Standards for Utility Tariffs for Interconnection and Operation of Distributed Generation Facilities under Minnesota Laws 2001, Chapter 212*, Docket No. E-999/CI-01-1023, Attachment 5 (Interconnection Agreement) (Sept. 28, 2004), available at <http://www.puc.state.mn.us/docs/orders/04-0131.pdf> (last visited June 20, 2007).

Insurance and liability can be other major issues in the interconnection agreement. The interconnection agreement will have some terms regarding liability for any injuries arising out of the interconnection, and the state or utility may require farmers to carry a certain amount of liability insurance. For larger commercial-scale projects connecting to the grid, the insurance coverage required may be up to \$1 million or more, but such large policies are considered excessive for smaller projects, which have a good track record for safety. According to the U.S. Department of Energy, there have been no liability claims relating to electrical safety since utilities have been required to allow small wind systems to interconnect with the grid.<sup>35</sup> Some states prohibit utilities from requiring insurance for small systems that are eligible for net metering,<sup>36</sup> and others limit the amount of insurance that utilities can require to a standard residential or commercial property policy (for example, \$100,000 to \$300,000).<sup>37</sup> Minnesota law, for example, prohibits a utility from requiring an indemnity clause as a condition of the interconnection, and allows the utility to require up to \$300,000 of liability insurance.<sup>38</sup>

The part of the net metering contract addressing delivery of electricity to the utility concerns the rate farmers will be credited with for their net excess generation and how payments, if any, will be calculated and structured. As discussed above, in most states the rate for net excess generation is set at the utility's avoided cost, but it may be higher in some states.<sup>39</sup>

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<sup>35</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 17 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>36</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 17 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>37</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 18 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>38</sup> Minn. R. 7835.2400 (indemnity clause), R. 7835.2300 (liability insurance) (2006).

<sup>39</sup> Minn. R. 7835.9910 (2006) ("Uniform Statewide Contract; Form"), available at [http://www.state.mn.us/mn/externalDocs/Commerce/Solar\\_Electric\\_Interconnection](http://www.state.mn.us/mn/externalDocs/Commerce/Solar_Electric_Interconnection)

## 5. Fees and Other Charges

The federal Public Utility Regulatory Policies Act (PURPA) prohibits utilities from imposing discriminatory rates on net metering customers.<sup>40</sup> States have also set out similar rules, but the range of protections offered to net-metered customers varies. California has an example of a very protective state rule, as it prohibits a utility from charging any additional fees that would increase the net-metered customer's costs beyond those of other customers in the same rate class.<sup>41</sup>

Many experts and wind advocates advise small wind turbine owners to challenge net metering fees that may be discriminatory. However, net-metered customers may face some interconnection charges, metering charges, standby charges, and other fees.<sup>42</sup> In general, the net-metered facility owner is responsible for all equipment needed to carry out the interconnection, such as an inverter, and any upgrades needed to the power lines up to the point of interconnection.<sup>43</sup> Minnesota's standard net metering contract does not explicitly limit interconnection costs, but it does require the utility to estimate those costs and include them in the contract terms.<sup>44</sup>

*Metering charges* might include meter calibration fees or the cost of an additional meter, which some states allow the utility to install only if the utility pays the costs. Standard electric meters are capable of rotating in both directions and normally will not have to be replaced to start net metering. However, some meters register rotations but not direction, and it may be

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[Packet Other Utility Customers 031704115402 utilitypacket.pdf](#) (last visited June 15, 2007).

<sup>40</sup> 18 U.S.C. § 824a-3(b)(2) (2006).

<sup>41</sup> Cal. Pub. Util. Code § 2827(g) (2006).

<sup>42</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 18 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind\\_small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind_small_wind_guide.pdf) (last visited June 15, 2007).

<sup>43</sup> See, e.g., Minn. R. 7835.2700 (2006).

<sup>44</sup> Minn. R. 7835.9910 (2006) ("Uniform Statewide Contract; Form"), available at [http://www.state.mn.us/mn/externalDocs/Commerce/Solar\\_Electric\\_Interconnection\\_Packet\\_Other\\_Utility\\_Customers\\_031704115402\\_utilitypacket.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Solar_Electric_Interconnection_Packet_Other_Utility_Customers_031704115402_utilitypacket.pdf) (last visited June 15, 2007).

necessary to install a new meter capable of registering the difference between electricity being drawn from the grid and electricity entering the grid.<sup>45</sup>

*Standby charges* (sometimes called *backup charges*) are a fee to ensure that the utility can obtain backup power if a wind system does not provide the expected net excess generation. The utility must always have enough capacity to meet its normal demand, plus any added demand created when a generator is down and the farmer needs electricity. Because net-metered facilities are relatively so small, and it is understood that the farmer will be drawing additional power from the grid, the utility's reliance on the net excess generation is quite limited. Therefore, the utility's need to secure a backup power source should also be limited, and any standby charge the utility imposes should be small. If a standby charge seems out of proportion to the size of the wind project, the farmer should discuss this charge with the utility and state utility regulatory agency.<sup>46</sup>

A *demand charge* might refer to a monthly charge imposed on all customers in a rate class and used to pay for a utility's fixed assets. Wind turbine owners will generally be subject to the same minimum monthly service charge that all customers in that rate class pay. As long as all customers in the rate class are subject to the charge, the utility may also apply the charge to a net-metered facility.<sup>47</sup>

The fees that the utility may require for interconnection and service can be significant. It is important to collect as much information as possible about

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<sup>45</sup> NorthWestern Energy, *Montana Wind Power: A Consumer's Guide to Harvesting the Wind* 19 (Dec. 2004), available at <http://www.montanagreenpower.com/pdf/montanawindpowerpub.pdf> (last visited June 15, 2007).

<sup>46</sup> U.S. Department of Energy, *Small Wind Electric Systems: A U.S. Consumer's Guide* 18 (Mar. 2005), available at [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small\\_wind/small\\_wind\\_guide.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_guide.pdf) (last visited June 15, 2007).

<sup>47</sup> See Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 32-33 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).



the fees to be incurred, and factor that information into any decision about whether a wind project will be economical.

## **B. PURPA Rights to Interconnect and Sell Electricity**

As mentioned earlier, farmers who are not able to use net metering for their small on-farm wind facilities but wish to be linked to the electric grid may seek to install a separate meter for wind turbines. Electricity would continue to be purchased from the utility, when needed, through the original meter, while the new meter would measure the wind facility's sales of generated energy back to the utility. Although this method is less streamlined than net metering, and requires the farmer to negotiate complicated interconnection and power purchase agreements for a relatively small amount of energy output, it may still allow farmers to earn energy credit or cash revenue for the net excess generation from a small on-farm wind facility.

As discussed in several places throughout this guide, the Public Utility Regulatory Policies Act (PURPA) is a federal statute enacted to ensure a market for the electricity produced by small renewable energy facilities (so-called *Qualifying Facilities* (QF)).<sup>48</sup> Although subject to some exceptions, PURPA requires utilities to interconnect with QFs and purchase their electricity at the utility's *avoided cost rate*.<sup>49</sup> As discussed earlier in this chapter, this is the rate the utility would otherwise have had to pay to obtain the energy, whether through its own generation or purchase from a traditional source. A utility's avoided cost rate is typically significantly lower than its retail rate, which is the rate commonly used in net metering, at least for the portion of the turbine's output that offsets other electric use.<sup>50</sup> For example, a typical retail rate of 9 cents per kWh could correspond to an avoided cost rate of around 2 cents per kWh.<sup>51</sup> Each state may have specific rules about how the utility calculates its avoided cost.<sup>52</sup>

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<sup>48</sup> 16 U.S.C. § 824a-3(a) (2006). A "qualifying facility" generates electricity using renewable sources and has a capacity under 80 MW. 18 C.F.R. §§ 292.203(a), 292.203(c), 292.204 (2007).

<sup>49</sup> 16 U.S.C. § 824a-3(a) (2006).

<sup>50</sup> Or. Rev. Stat. § 757.300(3)(c) (2005); 4 Colo. Code Regs. § 723-3 at R. 3664(b) (2007); Minn. Stat. § 216B.164, subd. 3(b) (2006); N.D. Admin. Code § 69-09-07-09 (2006).

<sup>51</sup> Interstate Renewable Energy Council, *Connecting to the Grid: A Guide to Distributed Generation Interconnection Issues* 20 (2004), available at

Small on-farm wind facilities qualify as QFs under PURPA and therefore benefit from its guarantees of interconnection and utility purchase of electricity, where available. PURPA's guarantees are somewhat more complicated than they appear on the surface. Nonetheless, farmers who are considering a small on-farm wind project and have doubts about the availability of net metering should explore whether PURPA's interconnection and purchase requirements would present a feasible option for their proposed facility.

PURPA's interconnection and purchase guarantees are discussed in much more detail in the chapters later in this guide about selling power (Chapter 9) and interconnecting projects to the grid (Chapter 11). Farmers interested in setting up a separately metered on-farm wind system should consult those chapters for more information.



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[http://www.irecusa.org/fileadmin/user\\_upload/ConnectDocs/ModelICGuide.pdf](http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/ModelICGuide.pdf)  
(last visited June 15, 2007).

<sup>52</sup> 16 U.S.C. § 824a-3(a) (2006); 18 C.F.R. § 292.304 (2006). *See, e.g.,* Oregon Public Utilities Commission, *Staff's Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Order No. 05-584, at 20-27, (May 13, 2005), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC\\_PURPA\\_order\\_5-584.pdf](http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC_PURPA_order_5-584.pdf) (last visited June 21, 2007).

## Chapter 8

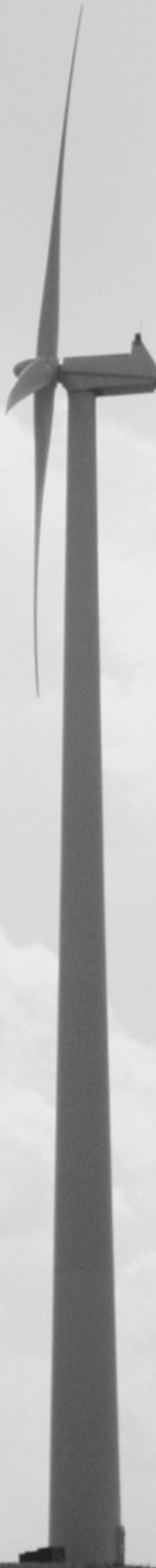
# Financing a Commercial-Scale Wind Project

## I. Developing a Commercial-Scale Wind Project

Farmers who choose to invest directly in developing a wind project to sell energy for profit will face a variety of legal and technical issues in the development and operation of the project. Indeed, a farmer who seeks to purchase his or her own turbine(s) or to invest in a large wind project with others will be required to navigate nearly all of the issues discussed in this guide—including securing wind rights and land access, siting the wind facility, interconnecting to the electric grid, transmitting energy across the grid, and planning for the potential liability of a wind project.

In addition to the issues mentioned above and other issues covered elsewhere in this guide, farmers who seek to develop their own large wind projects will need to understand how to finance the project, obtain a contract to sell the energy generated by the project, and organize the structure of their business arrangements for this endeavor. This chapter addresses project financing issues. The next two chapters examine how project revenues are obtained from the sale of energy (Chapter 9, Selling Power), and how to set up the business side of the wind project (Chapter 10, Business Structures).

The final chapters of this guide address several existing government incentive programs (Chapter 12) and potential tax benefits (Chapter 13) that can make wind projects more profitable and feasible for wind developers, including farmers. In many cases, accessing some combination of these state and federal incentive programs is essential to developing a profitable wind project. Accordingly, a farmer considering a larger wind investment should consider all of these chapters together.



## II. Financing a Large Wind Project

### A. What to Expect: Costs of Building a Large Wind Project

Very generally, most wind developers start with an assumption that the cost of installing a large wind project will range from \$1,000 to \$1,500 per kW of the project's nameplate capacity. This means that, even for a relatively simple project with a single 2 MW turbine, a farmer should expect a total investment cost in the range of \$2 to \$3 million.

Farmers should be aware, however, that some recent projects have been more expensive than the general \$1,000 to \$1,500, and have moved closer to \$1,800 or even \$2,000 per kW. This is due, in part, to some increasing costs of wind developments, including the rising price of steel, a primary component of wind turbines and the towers on which they sit, and the strength of the euro against the dollar (since many turbines and turbine components come from or are sold by European manufacturers).

As a general rule, the lowest costs for a wind energy project per kW of capacity are achieved with the most turbines (because each additional turbine reduces the average, per turbine development costs), the best wind resource (because increased wind speeds at the turbine sites increase the amount of power that can be generated by each turbine), and the lowest local construction costs.<sup>1</sup> However, the actual final cost per kW for any particular project will vary greatly depending on the specifics of the individual development and will be affected by a range of variables including the availability and price of wind turbines, the property

#### *Retaining Qualified Legal Counsel Is Essential*

As with any major financial commitment or business endeavor, farmers should consult experts who are not personally involved in the project before signing any documents or assuming any major risks or obligations associated with a wind project. Attorneys can assist with reviewing and putting together the legal aspects of the deal, and wind development consultants can do a comprehensive financial analysis of the project to estimate the cash flow and evaluate the anticipated economics of a project over its productive life. Developing a large wind project requires significant business sophistication, and experts should be consulted and used throughout the process.

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<sup>1</sup> See generally American Wind Energy Association, *Wind Energy Costs*, [http://www.awea.org/faq/wwt\\_costs.html](http://www.awea.org/faq/wwt_costs.html) (last visited June 7, 2007).

rights that must be acquired, feasibility studies and required permits, interconnection requirements and fees, transmission service costs, insurance coverage, and the fees for attorneys and other wind energy experts.

Nonetheless, initial cost estimates are helpful in the early planning stages of a project, and there are several sample wind project budgets available on the Internet to use as an initial point of comparison.<sup>2</sup> In addition, wind energy “calculators” are also available that may assist with predicting a project’s cash flow needs and comparing various planning scenarios.<sup>3</sup>

Although the amount of capital required to build a wind project may seem daunting, many farmers have successfully pulled together this level of financing and have regularly earned significant profits from the ultimate cash flow of these wind projects in operation. In addition, it is possible for many farmers to band together to build a joint project—which allows for better distribution of both the risks and the rewards of wind development. There are also many wind development experts who can assist with this process.

## **B. Sources of Initial Project Financing**

There are three main types of financing available to farmers seeking to build a new commercial-scale wind project. These three are equity, debt, and direct government support.

***Equity Financing.*** Equity financing refers to the sale of an ownership interest in the wind project. With equity financing, the project owners do not have to repay the equity investor’s original investment if the project is unsuccessful. In this sense, equity investors put their capital at risk and have no guaranteed return on their investment. Instead, the project

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<sup>2</sup> See, e.g., Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 44-52 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf); McNeil Technologies, Inc., *Handbook on Renewable Energy Financing for Rural Colorado* 11 (Colo. Gov.’s Office of Energy Mgmt. and Conservation Dec. 2005), available at [http://www.colorado.gov/oemc/publications/handbook\\_rural\\_co.pdf](http://www.colorado.gov/oemc/publications/handbook_rural_co.pdf) (both sites last visited June 7, 2007).

<sup>3</sup> E.g., National Renewable Energy Laboratory, *Wind Energy Finance*, <http://analysis.nrel.gov/windfinance/login.asp> (last visited June 7, 2007). For links to multiple financial calculators on-line, see generally Windustry, *Wind Project Calculator*, <http://www.windustry.com/calculator> (last visited June 7, 2007).

### ***Equity Investors' Ownership Interests***

An equity investor's ownership interest in the project may include both financial rights and governance rights. *Financial rights* give the equity investor the right to receive a portion of the project's profits. *Governance rights* give the equity investor the right to participate in the management of the project, either directly or through the right to select the project's decision-makers or managers.

owners give up some of their ownership rights to the equity investors. Equity investors generally receive rights to a certain portion of the profits of the project and often receive rights to a specified degree of decision-making power, for example, a certain number of votes.

A familiar form of equity financing occurs whenever a corporation sells shares of stock. In wind developments, most projects are organized as limited liability companies (LLCs), and the LLCs typically issue and sell membership interests or "units" of membership interest. Community members, including neighboring farmers, could be equity investors in a wind project if they

purchase some ownership interest or share of ownership in the project. Or an equity investor could be a venture capitalist or large corporation that becomes a co-owner with the farmer in the wind development.

### ***Two Types of Debt Financing***

There are two main types of debt financing generally applicable to wind projects:

- ***Full Recourse Financing*** (also called "*Balance Sheet Financing*") occurs when a wind project's debts are backed by all of the project owners' assets, including the owners' personal and business assets not related to the particular wind project.
- ***Limited or Non-Recourse Financing*** (also called "*Project Financing*") occurs when lenders finance specific projects with the expectation that repayment of the debt will come *only* from the cash flow, and possibly the assets, of that particular wind project. In this scenario, the lender has no direct claim against any other assets or income of the farmer or other project owner.

Most farmer-owned wind projects will be funded with non-recourse financing, meaning the wind project assets alone are used to secure the wind development loan. See generally Edward D. Einowski, "Project Finance for Wind Power Projects" 6-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_EEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_EEB_02_07.pdf).

**Debt Financing.** Debt financing refers to the use of borrowed money from a bank or other lender. With debt, the borrower is legally obligated to pay back both principal and interest to the lender over the life of the loan. However, the lender receives no direct ownership interest in the project. In most cases, the lender will require a security interest in particular project assets that could be foreclosed upon if the borrower defaults on the loan. In some cases, the lender will require the individual owners of a project to provide personal guarantees of the business debt. This means that if the project loan is in default, the lender could attempt to recover the outstanding debt from the project owners' personal assets.

**Government Financing Programs.** Although direct government assistance is not a traditional form of financing for most businesses, some wind and other alternative energy projects have access to direct government assistance for some of the installation and operation costs of a new energy project. For example, competitive grants from the U.S. Department of Agriculture have been available in recent years to finance some percentage of a farmer's initial investment in a wind facility. Such grants do not need to be repaid, nor does the government claim an ownership interest in the project as an investor. Other government assistance may be available in the form of reduced interest rates for certain government-subsidized loans or government-issued loan guarantees. These programs are discussed in much greater detail in Chapter 12 (Incentives) of this guide and should be included when considering project finance options.

In most cases, a large commercial-scale wind project can be structured with 40 to 70 percent of the project financed by debt.<sup>4</sup> In other words, 40 to 70 percent of the project's costs will be borrowed in the form of a loan or loans. Potential lenders for farmer-owned wind projects include small local banks

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<sup>4</sup> Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 69 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf); Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 10 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (both sites last visited June 8, 2007).



(especially for smaller projects), regional agricultural lenders, and commercial banks.<sup>5</sup>

Even with this level of debt financing, however, most farmer-owned projects will still require a significant amount of equity financing to make the project possible. Again, this means the farmer developer needs to find investors who are motivated to provide upfront capital for the project's development and who, in exchange, will receive an agreed-upon ownership interest in the project and a measure of the project's future profits (or losses).<sup>6</sup>

In addition to providing capital for development, there are other reasons for the popularity of equity investment—and the establishment of co-owner relationships with outside investors. First, lenders providing debt financing will typically not loan any funds to a project unless the project has equity investors sufficient to cover remaining project investment costs. In addition, many farmers find that lenders are more willing to finance wind projects that have the backing of larger equity investors. When sophisticated equity investors are involved, the lender can to some degree rely on those investors' scrutiny of the project plans and belief in its profitability.

In many instances, the largest motivation for equity investment in wind from both the farmer's and the investor's points of view is the need to take full advantage of available tax credits in order for the project to be profitable. Although wind is increasingly competitive with traditional non-renewable sources of electricity, such as coal, the reality is that most wind development still requires the use of the federal Production Tax Credit (PTC) to make a project financially feasible.

The federal PTC, discussed in much greater detail in Chapter 13 (Tax Benefits and Obligations) of this guide, currently provides a tax credit to the owner of a wind project based on the amount of electricity generated. Because of complicated tax rules, this tax credit can typically only be offset against *passive income*—the type of income earned from passive investment activities such as renting out property or investing in a wind facility that is operated by

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<sup>5</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 9-10 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 8, 2007).

<sup>6</sup> For more information and examples of how some business arrangements with equity investors have worked in the past, see the discussion of wind project business models in Chapter 10 of this guide.



another individual or entity. Most of a typical farmer's income will be considered *active income*, which the tax credit for wind development cannot be used against. In addition, the size of the tax credit that can be generated from a large wind project may itself be too much for individual farmer-owners to take advantage of fully.

Accordingly, as a practical matter, most farmer-owners of projects that must use the federal PTC to be profitable will need to partner with a tax-motivated equity investor who has sufficient passive income tax liability to take full advantage of the PTC generated from the project. As discussed in more detail in Chapter 10 (Business Structures), complicated business arrangements are often used to properly allocate the tax credits to these investors.

### **C. Typical Steps in Acquiring Project Financing**

In almost every case, obtaining equity investment is a farmer's first step in wind project financing. This typically occurs in multiple stages, with smaller investors first providing pre-construction development costs and then larger investors financing the ultimate construction and operation of the project. Lenders will typically loan funds only after the project has (or has commitments for) all of the necessary equity investment.

Although each wind project has its own unique financing requirements, this section highlights a typical project financing process.

#### **1. Project Founders Contribute Seed Money to Evaluate Feasibility**

First, the original founding farmer or farmers contribute their own "seed money" to accomplish many pre-development activities for the proposed project. These activities include:

- Evaluation of the wind resource at the proposed site.
- Preliminary analysis of interconnection and transmission issues and initial deposits that might be required.
- Evaluation of property requirements and identifying local landowners who might be interested in leasing land for the proposed project.
- Preliminary discussions with possible purchasers of the energy that would be generated by the project (typically electric utilities).
- Preliminary analysis of project design and evaluation of turbines for use in the proposed project.

- Initial analysis of environmental permitting and other government approvals that might be required to construct the proposed project.
- Preliminary financial feasibility analysis of the proposed project.

## 2. Small Equity Investment for Pre-Construction Development

If the proposed project appears to be feasible, the founders often next seek additional equity investment from other local farmers and other relatively small investors in order to complete further pre-construction development activities. These activities include negotiating agreements with engineering, procurement, and construction contractors, attorneys, and other development team members, and working with these parties to complete all of the tasks necessary to finalize project plans and secure construction financing.

Often lenders and large equity investors will not commit construction funds unless all or substantially all of the pre-construction development activities are completed. This typically includes:

- One year of wind monitoring and data recording at the specific project site.
- Project feasibility study by a credible wind energy consultant.
- Leases or easements from landowners for use of the project site.
- All required project siting permits.
- Interconnection studies and an interconnection agreement permitting the project to connect to the electric grid.
- Negotiated *power purchase agreement* (PPA) with a reputable utility (or a commitment that one will be negotiated).
- Evidence of operation expertise or a contract with a qualified operator.
- Turbine purchase agreement and turbine operation and maintenance warranties.
- Construction contracts.
- Complete business and financial plan.<sup>7</sup>

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<sup>7</sup> See Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 9-10 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 8, 2007).

As a result, it is important for farmer developers to have completed, or at least have a road map for completing, each of the pre-construction development activities when they approach potential large investors and lenders.

Although the actual funds from lenders and major equity investors typically will not be transferred until the pre-construction activities are complete, farmers need to be mindful that the negotiation process with lenders and investors can be lengthy. As a result, it is important to identify potential funding sources and make the initial approach to such investors and lenders as part of the pre-construction project work.

### **3. Debt and Equity Financing for Construction and Operation**

Upon completion of the pre-construction development activities, a farmer must obtain financing for the actual construction and operation costs. As discussed above, this typically requires a combination of debt and equity.

Depending on the size of the project, the equity component of the construction financing could come from other farmers or additional local investors. However, as noted above, for projects of significant size, the equity component of the construction financing is often more likely to come from businesses or individuals who can make full use of the federal tax credits that may be generated by the project. Potential equity investors at the construction financing level include subsidiaries of utility holding companies, banks and insurance companies, and other corporate investors with passive tax liabilities.<sup>8</sup>

Difficult timing issues often arise. Lenders prefer not to make construction loans until there are commitments from equity investors, and equity investors prefer not to invest until there is a guarantee of sufficient debt financing. Similarly, a utility may be wary of committing to purchase energy from a new wind project—and relying on that project's promised future energy output to meet the utility's future energy needs—when the project does not yet have the financing it will need to actually be built and go into operation. And most lenders and equity investors will not finance a wind development without some guarantee that there will be a buyer for the

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<sup>8</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 9 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 8, 2007).

produced energy, and therefore a source of revenue from which to repay the loan or make a profit.

An experienced attorney should be able to help navigate some of these timing issues, possibly through the use of careful contract contingency terms. In addition, an experienced wind consultant should have practical experience in handling these issues.<sup>9</sup>

## **D. Negotiating Agreements with Lenders and Equity Investors**

### **1. Addressing Lenders' and Equity Investors' Concerns**

The “cost” to a farmer of receiving any type of financing for a wind project, whether debt or equity, will depend on a multitude of factors, most importantly the degree of risk perceived by the lender or investor. The riskier the investment appears to be, the more expensive the money will be for the farmer to acquire. For debt financing, higher risk means that interest rates will be higher or the lender will require additional collateral, if the loan is made at all. Similarly, for equity financing, investors will likely demand a greater percentage of the ownership (which translates into a greater percentage of the profits) or more control over the actual development of the project if the future is more uncertain and the investment therefore riskier.

Lenders and investors will want to avoid assuming too much risk. In order to access sufficient financing at the lowest cost, a farmer developing a wind project will want to package the project to be as financially sound as possible. In addition, the farmer should be prepared to negotiate with potential lenders and investors about how the project's financial risks can be minimized and who will bear the financial risks that are unavoidable.<sup>10</sup> (Lenders, in particular, will want to include provisions in the loan documents to ensure that the loan will be repaid in full regardless of the actual profitability of the project.)

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<sup>9</sup> See William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-5 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>10</sup> Edward D. Einowski, “Project Finance for Wind Power Projects” 6-1 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_EEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_EEB_02_07.pdf) (last visited June 7, 2007).

To successfully obtain the needed financing at a reasonable cost, a farmer should know the things a lender or investor would typically consider when determining a project's financial soundness. Both lenders and investors will need to be convinced of the seriousness and capability of the farmer developer as well as the feasibility of a profitable operation.

Lenders and investors will want to prepare for the risk that the turbine will malfunction or that technical aspects of the electric grid will not perform correctly, so that electricity cannot be generated or transmitted as required to produce profits. To address this concern, farmers may need to acquire adequate warranties from turbine manufacturers to ensure a well-functioning system and coverage for business interruption, and may need to include provisions in contracts with utility purchasers to address payment when technical problems with the electric grid prevent the project from delivering all of the promised energy.

Although wind predictions over the long term are very reliable, there is always some risk that the wind will not blow sufficiently in the short term, and therefore the project will not meet its projected revenues in the short term. Lenders will typically want to build in some margin of safety to account for this short-term volatility and may require that projected revenues be sufficient to cover 1.2 to 1.5 times the scheduled loan payments.<sup>11</sup>

Finally, there is always a risk that the government could at any time eliminate some form of necessary government support, such as the federal tax credits. Indeed, the federal PTC has notoriously suffered from a "boom-and-bust cycle" of expiring and then only belatedly being renewed. This is of particular concern to large, tax-motivated equity investors, but it would be of concern to all investors and lenders as it affects the project's financial viability. There may be little a farmer can do to alleviate this concern, except to stay well-informed of existing incentives, their availability, and eligibility windows, and to plan and time the project accordingly.

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<sup>11</sup> Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 69 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf) (last visited June 15, 2007) (referring to this balance as the "debt coverage ratio").

## 2. Negotiating an Equity Finance Arrangement

Equity investors are motivated by the likelihood of profiting from investment in a successful venture. Each individual investor's determination whether to invest or not depends on his or her own assessment of the project's potential for success. As a general rule, most equity investors, including those willing to provide equity for the construction of a wind project, will invest in a project if they anticipate a 15 to 20 percent after-tax return on their investment. This profit comes both from direct project revenues and, for many equity investors, from taking full advantage of some tax-saving benefits of large wind developments, such as the federal PTC.

In most cases, the investors in initial pre-construction activities do not negotiate the terms of their investment. Rather they will invest (or choose not to invest) based on the terms of the offering as dictated by the project owners. Because of this, before commencing any offering for pre-construction investment, the project owners must understand what terms will be required to entice potential investors to make an investment. Detailed securities disclosures are typically required at this stage.

### *Securities Laws and Other Challenges*

Farmers must understand that partnering with equity investors, who essentially become co-owners of the project, raises complex legal issues including securities regulation, choice of business entities, and a variety of tax and energy regulatory issues. Some of these issues are touched on in Chapter 12 (Business Structures); however, arrangements with equity investors should always be carefully scrutinized and handled by appropriate experts. For example, the rules related to offering and selling ownership interests in any business are extremely complex, and it is important for farmers to hire attorneys who understand state and federal securities laws, and who can guide the initial project owners in the offering process and in the preparation of the appropriate offering document and subscription materials.

Deals with equity investors, who will provide the funds required to construct and operate a wind project, can be extremely complex and should be the subject of intense negotiation. Farmer developers will want their experts' advice throughout this negotiation process. Once a potential equity investor has been selected and has expressed serious interest in the proposed project, the parties will typically negotiate a term sheet that summarizes the key agreements of the parties, such as the amount and timing of the

investment to be made by the investor, the conditions under which the investment will be made, what turbines will be used, who will construct the project, and who will manage the project once it is completed. Tax-motivated equity investors will also want to negotiate contract terms that sufficiently guarantee them the benefit of the tax credits generated by the project over a certain period of time.

In many cases, large equity investors are highly sophisticated and intensely profit-motivated. Farmers should keep in mind that choosing *who* to partner with is one of the most important decisions in determining the project's success—and especially the return the original farmer investors will receive on their investments. Farmers and their representatives should zealously advocate for fair deals that maximize the benefits to them as project owners. Farmers should not agree to any arrangement without careful consideration and their own legal representation.

### **3. Negotiating a Debt Finance Arrangement**

To some degree, the difficulty of negotiating a debt finance arrangement with a lender will depend on how experienced the lender is with financing wind projects. In areas where wind projects are more rare, lenders may be more wary of financing a new project. However, as wind energy continues to grow, and more projects are successfully developed, lenders become more sophisticated about wind financing and more willing to work with new developers.

In almost every case, farmers should expect lenders to be fairly assertive about ensuring the project is responsibly developed and operated. Lenders may even seek to have the work and plans supervised by their own independent experts. Also, lenders will want to ensure that they have the ability to address any problems that arise. This could range from lender involvement in problem resolution (possibly allowing the lender to impose new loan terms in certain situations) to a lender's right to ultimately take over the project if it gets into trouble. The events or circumstances that would trigger when the lender may take the specified actions should be spelled out in the agreement—and can be a subject of significant negotiation.

Lenders will typically require a security interest in all of the project assets to secure the repayment of the loan. Most farmers have experience with security interests, which are created when a party owing a debt grants the creditor the right to take a specified asset or assets as payment for the debt if the debtor defaults on a payment agreement. There are legal formalities for

the creation of a security agreement. In the security agreement, the debtor typically promises not to sell, transfer, or otherwise encumber the assets without the permission of the creditor. The security agreement should also identify the events which will trigger the creditor's right to take the assets. The most common trigger events include failure to make scheduled payments, failure to maintain the property, and failure to secure required insurance or pay taxes on the assets.

To provide additional security for a wind project loan, lenders will often demand that key agreements of the project be "collaterally assigned" to the lender. Such key agreements would include the power purchase agreement, the turbine supply and maintenance agreement, the operations and maintenance agreements, and land leases. Under a collateral assignment, in event of default, the lender would be authorized to take action under those agreements (and demand payments or performance) without further involvement of the project owner.





## Chapter 9

# Selling Power

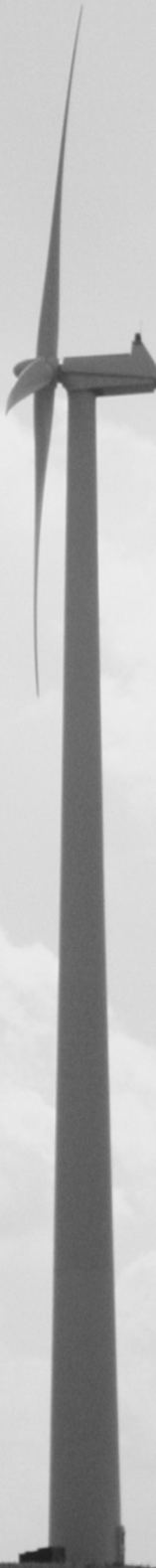
The major source of revenue for developers of commercial-scale wind projects is the sale of the *output* from the project, that is, the energy generated by the wind facility. In almost every case, the wind developer will sell the project's energy output to a utility that will then distribute that energy to its retail customers.<sup>1</sup> To accomplish this sale, the wind developer and utility must enter into what is called a *power purchase agreement* (PPA). The terms of the PPA will be the major factor determining project revenue over the life of the wind facility.

Wind energy projects may also generate revenue from two other sources: (1) the sale of the positive environmental attributes of their "green" energy through devices such as *renewable energy credits* (RECs) or *green tags*; and (2) various governmental incentives including tax breaks, tax credits, and direct cash payments for production of renewable energy. PPAs and the sale of wind energy's "green" attributes will be discussed here. The governmental incentives for wind energy development are discussed separately in Chapters 12 (Incentives) and 13 (Tax Benefits and Obligations) of this guide.

In theory, a commercial-scale wind project could also be developed with an intent to capture the benefit of using the generated energy on-site (and behind the electric meter) to offset what would otherwise be energy purchases from a

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<sup>1</sup> In the right situation, it could be possible for a large retail purchaser (such as a manufacturing facility) to negotiate an agreement to purchase a wind facility's output directly from the wind developer. In some states, this type of sale, however, could result in the seller becoming subject to state regulation as a public utility. These arrangements should therefore be scrutinized closely. In addition, in some instances, a "power marketer" may buy the output, with that power marketer then acting as a middleman who resells the energy to yet another entity for profit. See William H. Holmes, "Power Purchase Agreements and Environmental Attributes" 4-1 to 4-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).



utility. However, in reality, a large commercial-scale project that would exclusively depend on on-site consumption would be quite difficult to develop. The on-site, behind-the-meter energy user would have to consume a huge amount of energy to utilize the full output of a large commercial-scale wind project and would also have to match its energy use to the typical intermittency of wind.<sup>2</sup> Accordingly, this type of behind-the-meter revenue planning is not discussed in detail here. Instead, the reader should refer generally to Chapter 7 (On-Farm Small Wind) for more information about this potential wind development benefit in the context of smaller projects. Some of the challenges of these types of business models are also discussed in Chapter 10 (Business Structures).

## **I. Executing a Power Purchase Agreement with a Utility**

A power purchase agreement (PPA) is an agreement in which a utility agrees to purchase the electricity produced by an independent power producer, such as a wind project. The PPA will determine the revenue the project will receive over time for the energy it generates. In addition, lenders and investors will look closely at the terms of the PPA to evaluate the riskiness of the project, and therefore to determine the cost of debt and equity financing that will be offered for the project.

Although the terms of a PPA are essential to project feasibility, farmers should also be aware that, in some instances, the most difficult obstacle to overcome in developing a wind project is simply finding a willing purchaser to execute a PPA with that farmer. Accordingly, this discussion begins with farmers' considerations for obtaining a PPA and then turns to various terms that should be considered in negotiating a successful PPA.

### **A. Obtaining a PPA**

There are only a few circumstances where utilities are *required* to enter into a PPA with an independent power producer, such as a wind facility, and these mandatory contracts sometimes include terms that may not be sufficiently favorable to allow development of a profitable large-scale wind operation. Accordingly, farmers should be aware of those instances when a mandatory PPA

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<sup>2</sup> See Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 31-32 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).

is possible, but should also consider other factors that could affect whether a particular utility is more or less likely to be interested in *voluntarily* executing a PPA with an independent wind facility.

Farmers should also always keep in mind that interconnection and transmission issues, discussed in more detail in Chapter 11, directly affect the feasibility of any specific project plan. Without access to a good grid connection and affordable transmission capacity to transmit the electricity to an ultimate purchaser of the wind energy, the availability of a willing utility is essentially irrelevant, and the project cannot be built—at least at that intended location.

### 1. Required Utility Purchases Under PURPA

Subject to some exceptions, the federal Public Utility Regulatory Policies Act (PURPA) provides a guaranteed market for the electricity produced by some relatively small power producers, including many farmer-owned wind energy systems. PURPA's guaranteed market specifically applies to certified *Qualifying Facilities* (QFs),<sup>3</sup> which include renewable energy generators with a capacity of 80 MW or less.<sup>4</sup> For wind projects with multiple turbines, this 80 MW cap is measured by combining all of the turbines at the site.<sup>5</sup>

Under PURPA, utilities are *required* to purchase a QF's generated energy at the utility's *avoided cost rate*.<sup>6</sup> PURPA also requires utilities to connect QFs to their electric lines, a concept discussed in more detail in the chapter on

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<sup>3</sup> 16 U.S.C. § 824a-3(a) (2006).

<sup>4</sup> 16 U.S.C. § 824a-3(a) (2006); Federal Electric Regulatory Commission, *Electric – Qualifying Facilities: What is a Qualifying Facility?*, <http://www.ferc.gov/industries/electric/gen-info/qual-fac.asp> (last visited June 7, 2007).

<sup>5</sup> 18 C.F.R. § 292.204(a) (2007). The 2005 Energy Policy Act eliminated an ownership requirement that had prohibited utilities from owning a QF. Energy Policy Act of 2005, 109 Pub. L. 58, Title XII, Subtitle E, § 1253(b), 119 Stat. 970 (Aug. 8, 2005) (codified at 16 U.S.C. § 796(17)(C), (18)(B)).

<sup>6</sup> 16 U.S.C. § 824a-3(d) (2006); Oregon Public Utilities Commission, *Staff's Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Order No. 05-584, at 20 (May 13, 2005), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC\\_PURPA\\_order\\_5-584.pdf](http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC_PURPA_order_5-584.pdf) (last visited June 21, 2007).

interconnection (Chapter 11) later in this guide.<sup>7</sup> Farmers should be aware, however, that changes to PURPA in the 2005 Energy Policy Act opened the door to weakening of PURPA's "must buy" obligation by permitting some utilities to seek exemptions from this requirement, an issue discussed in more detail below.

**Obtaining QF Status.** The owner of a wind facility must apply to FERC to obtain QF status. FERC provides a choice of either self-certification or applying for FERC certification. In some situations, negotiations with a lender or utility may be easier if the project uses the FERC certification process, which is far more expensive.<sup>8</sup>

If self-certifying, the facility must submit FERC Form No. 556 and give notice to all utilities that will interconnect with the facility and the state utility regulatory agency.<sup>9</sup> FERC provides an electronic filing option and there is no fee for filing. Once an application is filed, FERC will provide self-certifiers with a docket number for future reference and as documentation of the filing.<sup>10</sup>

If using the FERC certification process, the facility must submit Form No. 556 and a fee of \$18,000, which is due at the time of the application.<sup>11</sup> FERC must act on the application within 90 days, or it will be deemed to have been approved.<sup>12</sup>

**What Utilities Are Covered.** PURPA defines who qualifies as a QF. However, exactly how QFs are treated, and which utilities must do business with them, depends on state law.<sup>13</sup> Therefore, state law can define a utility's

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<sup>7</sup> 18 C.F.R. § 292.303(c) (2007).

<sup>8</sup> FERC, *Electric—Qualifying Facilities: How to Obtain QF Status for Your Facility*, <http://www.ferc.gov/industries/electric/gen-info/qual-fac/obtain.asp> (last visited June 7, 2007).

<sup>9</sup> 18 C.F.R. § 292.207(a)(1)(ii) (2007).

<sup>10</sup> FERC, *Electric—Qualifying Facilities: Self-Certification*, <http://www.ferc.gov/industries/electric/gen-info/qual-fac/self-cert.asp> (last visited June 7, 2007).

<sup>11</sup> 18 C.F.R. §§ 292.207(b)(1) and (2), 381.505 (2007).

<sup>12</sup> 18 C.F.R. § 292.207(b)(3) (2007).

<sup>13</sup> 18 C.F.R. §§ 292.303 to 292.306 (2007) (establishing state regulatory authority over rates and interconnection costs and payments for QFs).

avoided cost rates more favorably or impose certain standard contract terms that help QFs avoid complicated negotiations.

These state rules, and therefore PURPA's power purchase requirement, only apply to utilities that are regulated by the state. For example, Iowa does not extend its PURPA regulatory authority to cover rural electric cooperatives, but Minnesota does.<sup>14</sup>

**Avoided Cost Rate.** PURPA's guaranteed avoided cost rate is also called the *incremental cost*, and it is defined as equal to "the cost to the electric utility of the electric energy which, but for the purchase from such [QF], such utility would generate or purchase from another source."<sup>15</sup> In other words, the *avoided cost* is what it would have cost the utility to obtain that same power either through the utility's own generation or by purchasing power from another source.

A utility's avoided cost is usually not a favorable rate for wind projects because most utilities can produce bulk energy more cheaply than farmers can produce wind energy. However, this PURPA avoided-cost purchase requirement has been valuable to some wind projects that have been able, generally with the help of various government incentive programs, to generate electricity below the utility's avoided cost—and therefore make a profit utilizing PURPA's guaranteed market.

Farmers should note that PURPA allows FERC and the states to create rules establishing standard contract terms for mandatory purchases from QFs.<sup>16</sup> States have authority under PURPA to define avoided cost and other standard contract terms in order to promote projects that rely on PURPA for interconnection and access to power markets.<sup>17</sup>

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<sup>14</sup> See, e.g., Iowa Admin. Code r. 199-15.2(1)(e) (2006); Minn. Stat. § 216B.164 subd. 2 (2006).

<sup>15</sup> 16 U.S.C. § 824a-3(d) (2006); see also 16 U.S.C. § 824a-3(b) (2006).

<sup>16</sup> 16 U.S.C. § 824a-3 (2006).

<sup>17</sup> U.S.C. § 824a-3(a) (2006). 18 C.F.R. §§ 292.303 to 292.304 (2007); see, e.g., Oregon Public Utilities Commission, *Staff's Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Order No. 05-584, at 1-15 (May 13, 2005), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC\\_PURPA\\_order\\_5-584.pdf](http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC_PURPA_order_5-584.pdf) (last visited June 21, 2007).

For example, Oregon recently issued a new rule that includes specific methodologies for determining the avoided cost rate mandated by PURPA.<sup>18</sup> The Oregon Public Utilities Commission further determined that standardized PPAs for avoided cost deals were necessary because the expense of negotiating all the terms of PPAs acted as a market barrier to QFs of 10 MW or less.<sup>19</sup> Although the Oregon rule does not establish one standard PPA for all utilities, it does require each utility to file a standard PPA consistent with the rule.

**2005 PURPA Changes Exempt Some Utilities.** The federal Energy Policy Act of 2005 substantially altered PURPA through an amendment providing that utilities operating in what FERC determines is a *competitive electricity market* may be exempted from PURPA's mandatory purchase requirements. Previously, PURPA rules had no such exemption.<sup>20</sup>

Under the new law, FERC can exempt utilities from PURPA's "must buy" obligation if FERC finds that a QF has nondiscriminatory access to a competitive wholesale market, as defined and described in the 2005 Act.<sup>21</sup> FERC issued a final rule implementing this provision in October 2006, announcing that several regional transmission markets meet the statutory test for being a type of competitive market that is eligible for relief from the PURPA mandatory purchase obligation.<sup>22</sup>

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<sup>18</sup> Oregon Public Utilities Commission, *Staff's Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Order No. 05-584, at 2 (May 13, 2005), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC\\_PURPA\\_order\\_5-584.pdf](http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC_PURPA_order_5-584.pdf) (last visited June 21, 2007).

<sup>19</sup> Oregon Public Utilities Commission, *Staff's Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Order No. 05-584, at 17 (May 13, 2005), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC\\_PURPA\\_order\\_5-584.pdf](http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC_PURPA_order_5-584.pdf) (last visited June 21, 2007).

<sup>20</sup> Energy Policy Act of 2005, 109 Pub. L. 58, Title XII, Subtitle E, § 1253, 119 Stat. 970 (Aug. 8, 2005) (codified at 16 U.S.C. § 834a-3).

<sup>21</sup> See Stoel Rives, *Energy Law Alert: New FERC Order Weakens PURPA's "Must Buy" Provisions* (Oct. 23, 2006), available at <http://www.stoel.com/showalert.aspx?Show=2308> (last visited June 8, 2007).

<sup>22</sup> Federal Energy Regulatory Commission, *New PURPA Section 210(m) Regulations Applicable to Small Power Production and Cogeneration Facilities*, Docket No. RM06-10-000, Order No. 688 (Oct. 20, 2006) (codified at 18 C.F.R. pt. 292), available at

In order to actually be exempted from the PURPA must-buy requirements, however, utilities in these markets must file an exemption request with FERC. At the time this guide was written, no utility was known to have sought and been granted an exemption.

FERC's final rule also creates several important presumptions.<sup>23</sup> First, FERC presumes that QFs of 20 MW and smaller do not have nondiscriminatory access to wholesale markets. Second, QFs larger than 20 MW are presumed to have nondiscriminatory access to wholesale markets if the utility has filed an Open Access Transmission Tariff and one of the markets described in the statute is present. Finally, FERC also presumes that QFs larger than 20 MW have nondiscriminatory market access if the utility is a member of a regional transmission entity that coordinates grid access with open, real-time markets.<sup>24</sup> As presumptions, these are general rules that may be overcome if a utility or QF can demonstrate that access to wholesale energy markets is or is not available in the specific situation.<sup>25</sup>

These presumptions seem likely to protect PURPA's "must buy" obligation for many QFs of 20 MW and smaller, and for QFs outside organized competitive markets. For now, the mandatory purchase requirement still generally applies, but farmers and their advisors should keep abreast of developments in this area.

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<http://www.ferc.gov/whats-new/comm-meet/101906/E-2.pdf> (last visited June 19, 2007).

<sup>23</sup> Federal Energy Regulatory Commission, *New PURPA Section 210(m) Regulations Applicable to Small Power Production and Cogeneration Facilities*, Docket No. RM06-10-000, Order No. 688, at 134-36 (Oct. 20, 2006) (codified at 18 C.F.R. § 292.309(c)-(e)), available at <http://www.ferc.gov/whats-new/comm-meet/101906/E-2.pdf> (last visited June 19, 2007).

<sup>24</sup> These regional grid managers, called Independent System Operators (ISOs) or Regional Transmission Organizations (RTOs) are discussed in more detail in Chapters 2 (Law of Electricity) and 11 (Interconnection and Transmission).

<sup>25</sup> Stoel Rives, *Energy Law Alert: New FERC Order Weakens PURPA's "Must Buy" Provisions* (Oct. 23, 2006), available at <http://www.stoel.com/showalert.aspx?Show=2308> (last visited June 8, 2007).



### *Is Canada Leading the Way?*

In Europe, laws that guarantee specific purchases of wind energy at specific rates have been tremendously helpful in establishing community wind projects. Such a standard offer process sets certain criteria for participation, and makes a commitment that any wind project which meets the criteria will receive the terms set out in the standard offer. By guaranteeing the right to interconnection, a standard offer process, and a particular price for wind power, these European tariffs (called *advanced renewable tariffs* or *feed-in laws*) have created a stable and profitable market for wind energy, fostered a wind manufacturing industry, and decreased the transaction costs associated with each new wind project.

Although no jurisdiction in the United States has yet implemented this type of advanced renewable tariff, the Canadian province of Ontario implemented such a program with its Standard Offer Program in November 2006. Under the Ontario program, advance renewable tariffs and associated standard offer contracts will be available to wind, biomass, solar, and low-impact hydro projects under 10 MW that can be connected to the grid. Projects are guaranteed a fixed price for 20 years. The price for wind generation is proposed to be 11 cents (Canadian) per kWh.

Some states have considered implementing their own versions of European and Canadian feed-in laws. For more information on state developments on this issue, see Paul Gipe, *Renewable Tariffs and Standard Offer Contracts in the USA*, <http://www.wind-works.org/FeedLaws/USA/USAList.html>.

## **2. Voluntary Utility Purchases**

Because the avoided cost rates available for mandatory purchases by utilities under PURPA are often not economically viable for wind projects, and standard offer contracts are currently not readily available, most new commercial-scale wind projects will need to compete with other power projects to get a utility to purchase their wind energy output. This means that farmers will need to market their project to an interested utility and, as a threshold matter, convince the utility that the development will result in a successful and reliable operation.

Utilities seeking new generation sources might have a formal Request for Proposals (RFP) process that could be general in nature or could specifically seek renewable or wind energy. In the alternative, a farmer developing a wind project may need to make unsolicited calls to potential utility purchasers and persuade the utility to be interested in purchasing from the future wind project.



Farmers should keep in mind that, because of the expense and complexity of negotiating for and purchasing transmission rights over long distances of the electric grid, the costs are always lowest if the energy is sold to the local, interconnecting utility.<sup>26</sup>

There are several issues that can affect whether a given utility will be likely to purchase from a given farmer-owned wind project. In fact, farmers who have been through the development process have indicated that finding a willing utility and negotiating a PPA with that utility are the most difficult parts of the process—and create the biggest barriers for farmer-owned projects.<sup>27</sup>

First, and perhaps most obviously, utilities will be influenced by their current and projected energy needs. If a utility has enough energy for its current and projected demand, that utility may simply have no need for additional energy at a given time. Sometimes a utility has an exclusive (or *all requirements*) contract under which it has agreed to purchase all of its energy needs over a long period from a single generating source. This is particularly common for rural electric cooperatives, which generally do not generate energy themselves but instead purchase power—perhaps exclusively—from a generation and transmission cooperative (G&T co-op) or a federal power agency.<sup>28</sup> This may be one reason many experts indicate that wind developers almost always report more success securing power purchases from investor-owned utilities, rather than municipal utilities or rural electric cooperatives.<sup>29</sup>

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<sup>26</sup> Mark Bolinger, *Community Wind Power Ownership Schemes in Europe and their Relevance to the United States* 33-34 (Lawrence Berkeley Nat'l Lab. May 2001), available at <http://eetd.lbl.gov/ea/emp/reports/48357.pdf> (last visited June 7, 2007).

<sup>27</sup> Windustry, "Minwind I & II: Innovative Farmer-Owned Wind Projects" 1 from *The Windustry Newsletter* (Fall 2002), available at <http://www.windustry.com/newsletter/2002FallNews.pdf> (last visited June 19, 2007).

<sup>28</sup> Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 38 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).

<sup>29</sup> Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 64 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf) (last visited June 15, 2007).

A second consideration for many utilities in deciding whether to purchase energy from a farmer-owned wind project is simply the utility's level of experience in purchasing from such projects. Experienced utilities, for example, might be able to use their technical expertise to facilitate interconnections onto an existing distribution-only grid. This can result in significant cost savings for a wind project. Utilities new to working with farmer-owned projects may be unwilling to make these extra efforts to make the project feasible.<sup>30</sup>

Finally, regulated utilities may also be affected by various state regulations creating demand for renewable energy projects. In some states, there are renewable energy mandates or objectives that compel, or strongly encourage, utilities to make purchases from certain alternative energy sources.<sup>31</sup> In addition, various green marketing programs—such as green tags—can help increase retail consumers' demand for wind or other clean energies, and in that way cause utilities to purchase (or produce) more generation from renewable energy sources, such as wind.<sup>32</sup> States can also impact how favorably utilities view purchases of renewable energy production by, for example, requiring utilities to account for the full environmental costs of non-renewable energy sources in their resource planning.<sup>33</sup> All of these state policies can impact how likely a given utility will be to consider purchasing energy from a farmer-owned wind project.

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<sup>30</sup> Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 35-36 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).

<sup>31</sup> Examples of demand-generating state laws are discussed in the chapter on government incentives (Chapter 12) later in this guide.

<sup>32</sup> For more information on these programs, which market "green" energy to retail electric customers, see Jessica A. Shoemaker and Christy Anderson Brekken, *Community Wind: A Review of Select State and Federal Policy Initiatives* 44-46 (FLAG Aug. 2006), available at <http://www.flaginc.org/topics/pubs/arts/CommWindAug06.pdf> (last visited June 19, 2007).

<sup>33</sup> This planning process is also discussed Chapter 2 (The Law of Electricity) of this guide, which includes a description of how Minnesota handles this process.

## B. Important Terms in a PPA

Once the farmer has found a willing utility purchaser, there are multiple issues to consider in negotiating a *power purchase agreement* (PPA). PPAs are very detailed, complex documents, and farmers should rely on expert advice in the negotiation process. In many instances, a state *public utilities commission* (PUC) must approve a PPA after the parties have agreed on its terms.<sup>34</sup>

### *Rate Regulation*

Depending on the exact size, location, and business structure of the wind development project, the owners may need to comply with a series of rate-related regulations before selling wholesale power. At the federal level, this is likely to be an issue for only the largest farmer-owned projects (over 80 MW); however, even smaller projects may need to take affirmative steps to ensure they qualify for any necessary exemptions. Farmers who reach this stage should work closely with an attorney who is up-to-date on the most recent energy law developments in order to ensure proper compliance. For more information, see generally the “Power Purchase Agreements and Environmental Attributes” chapter from *The Law of Wind* publication by the Stoel Rives law firm, available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf)

As mentioned earlier, in some instances, state agencies have required the use of standardized PPAs for certain utility purchases within their jurisdiction as a means of simplifying and streamlining the process for first-time, small energy generators. Farmers pursuing voluntary energy purchases by utilities should determine whether a given utility has a standard PPA from which the negotiations can start.

The remainder of this section describes some specific issues to consider with respect to typical terms in PPAs.

**Price.** Certainly, price is one of the most important terms in a PPA. Very generally, an average rate paid for wind

energy under a PPA will range from 3 to 7 cents per kWh produced.

How this price is paid over the life of the PPA is often a subject of negotiation as well. The price could be flat over time, increase over time, or contain other features. For example, in Minnesota, there is an innovative new Community-

<sup>34</sup> See, e.g., Minn. Stat. §§ 216B.1612, subd. 7(e), 216B.1645, subd. 1 (2006) (requiring PUC approval of Community-Based Energy Development power purchase contracts and power purchase contracts entered into to satisfy the state’s renewable energy objectives).

Based Energy Development law intended to encourage locally owned wind development by requiring utilities to consider offering a contract that provides for the front-loading of payments in the first 10 years of the PPA. Because a wind project's debt will likely be scheduled for repayment primarily during these first 10 years, it is easier for many projects to successfully cash flow if they can have increased revenue in these early years, and therefore pay back debt more quickly.

**Development Timeline.** Most PPAs include some commitment on the part of the wind project owner to actually develop the project and to give the energy buyer regular status reports on progress. Some PPAs even include a schedule of certain milestones (such as when financing will be secured or when turbines will be ordered) and may give the utility a right to terminate or even collect damages if these milestones are not achieved on time.<sup>35</sup>

**Effective Date.** A PPA will typically take effect when signed, ensuring that when the project is built, the buyer will buy the output, and the project owner will sell to the buyer from the moment operation begins.<sup>36</sup> Alternatively, a PPA may take effect on a different date defined by the terms of the contract or upon approval by the state PUC.<sup>37</sup>

**Duration of PPA.** Experts estimate that the typical useful life of a new wind facility is 25 to 30 years.<sup>38</sup> PPAs are regularly long-term contracts lasting 15 to

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<sup>35</sup> William H. Holmes, "Power Purchase Agreements and Environmental Attributes" 4-5 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>36</sup> William H. Holmes, "Power Purchase Agreements and Environmental Attributes" 4-3 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>37</sup> William H. Holmes, "Power Purchase Agreements and Environmental Attributes" 4-3 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>38</sup> William H. Holmes, "Power Purchase Agreements and Environmental Attributes" 4-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

25 years, and may include one or two renewal options of 5 years each, perhaps at a reduced price per kWh.<sup>39</sup> The duration of the PPA is particularly important for projects financed with a significant amount of debt, as the repayment of these loan obligations will be scheduled over a period of time, and a secure source of revenue over that period is critical to reliable repayment ability.

**Output Estimate.** A PPA usually requires the seller to predict how much energy the project will produce over the life of the agreement. In some instances, the PPA may provide that the wind energy developer will receive less than full price for energy produced in excess of this output estimate.<sup>40</sup>

**Delivery Point.** A PPA will typically require the wind developer to deliver the generated energy to a specific point at which the sale will occur. If this delivery point is some distance from the wind facility, the wind developer will likely be required to secure the required transmission to that point, with the purchasing utility ensuring transmission and distribution from that point forward. Because transmission costs can be very high, it is important that the PPA is very clear about these arrangements, and that the parties fully understand who is responsible for moving the energy output to what point. Farmers need to understand that the risk of anything happening to the generated electricity will transfer from the wind project owner to the energy buyer at the delivery point; the project owner will bear that risk up to the delivery point.<sup>41</sup>

**Security for Performance.** A PPA may require the wind project owner or the energy purchaser, or both, to provide some security to ensure timely

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<sup>39</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>40</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-4 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>41</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-4 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

performance of the agreements and payment of amounts due.<sup>42</sup> If the project owner or energy buyer fails to fulfill some obligation under the PPA, including making payments, the other party would be able to recover its losses out of the security.

**Environmental Attributes (“Green Tags”).** A PPA should clearly state whether the energy is being sold with or without its environmental attributes.<sup>43</sup> For a discussion of these environmental attributes, see the next section of this chapter.

**Tax Obligations.** All anticipated taxes from the transaction should be allocated as part of the PPA. Currently, most states do not typically tax wholesale energy sales, but there may be other sales tax or property tax assessments arising from the wind project development.<sup>44</sup>

**Output Commitments.** The energy buyer generally wants the seller to guarantee that a certain amount of energy will be produced. Sellers typically want to be obligated to deliver only what energy is actually produced. This must be negotiated and settled upon as part of a PPA. One alternative is a *mechanical availability guarantee*, under which the wind project owner guarantees that the wind turbines will be in production a certain percentage of the time (typically 90 to 95 percent). If a mechanical availability guarantee will be offered, the wind project owner will want to secure warranties from the turbine manufacturers to ensure that the project will be able to meet its obligations, and that lost generation will be covered, at least initially, if there is a mechanical failure. A PPA will typically specify what the damages will be in case of failure to meet the output commitment, how the damages will

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<sup>42</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-1 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>43</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-4 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>44</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-5 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

be measured, and what degree of output failure would justify termination of the PPA by the energy buyer.<sup>45</sup>

***Curtailment and Force Majeure.*** *Curtailment* refers to a stopping of output that results from a choice or action by the project owner or energy purchaser. PPAs should be negotiated to address what compensation will be available if one party curtails energy generation or delivery at the expense of the other party. *Force majeure* refers to an unforeseen event beyond the control of a party which prevents that party from performing its obligations under the contract. Contracts generally excuse parties from liability if their inability to fulfill their obligations is due to force majeure. Careful attention should be paid when negotiating a PPA to define what would constitute an excusable “force majeure” event.<sup>46</sup>

***Operation.*** The energy buyer will typically want the PPA to spell out the wind project owner’s duty to operate and maintain the facility to a specific standard.<sup>47</sup>

***Metering.*** A PPA should specify how the quantity of energy generated will be measured. The PPA should also provide for a mechanism to check the accuracy of the chosen method and provide contingency plans if the measurement method malfunctions.<sup>48</sup>

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<sup>45</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-6 to 4-7 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>46</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-7 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>47</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-7 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>48</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-7 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).



**Billing and Payment.** A PPA should detail the procedures for how payment will be made, and how any billing disputes or late payments will be handled.<sup>49</sup>

**Defaults and Remedies.** A PPA will usually list events that constitute “default” of the agreement. These could include failure to make payments as scheduled, failure to meet development timelines, or the bankruptcy of any party. With respect to each category of default, the PPA should indicate whether the defaulting party will have an opportunity to “cure” the default, and under what terms, and what remedies will be available to the non-defaulting party if the default is not cured.<sup>50</sup>

**Termination.** A PPA should set out the rights of the wind project owner and the energy buyer to terminate the agreement in specified circumstances. Even once a PPA is agreed upon and signed, its effectiveness could be contingent on a party’s completion of subsequent tasks, such as obtaining wind leases, construction permits, and interconnection or transmission agreements.<sup>51</sup>

**Other Miscellaneous Issues.** A PPA will typically also address other issues that are common to all commercial contracts. These include confidentiality, a party’s ability to assign or pledge its rights under the PPA to someone else, which state’s laws will govern any interpretation of the PPA, and the mechanism(s) for resolving disputes, including consent to jurisdiction of a particular state or federal court.<sup>52</sup>

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<sup>49</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-8 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>50</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-8 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>51</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-3 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>52</sup> William H. Holmes, “Power Purchase Agreements and Environmental Attributes” 4-8 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at



## II. Selling the Environmental Attributes of Wind Energy

*Renewable energy credits* (RECs)—also known as green tags, green certificates, or tradable renewable certificates—represent the environmental, social, and other positive attributes of renewable energy taken separately from the actual electricity produced.<sup>53</sup> RECs can sometimes be used as a financing tool for new wind energy facilities.

Producers of wind energy typically sell their RECs together with the generated energy to a single utility under a single PPA.<sup>54</sup> These producers might negotiate to receive a price premium for the generated wind energy as compared to the utility's price for non-renewable energy.

Alternatively, some wind project owners are able under their PPAs to sell a utility just the “bare” generated energy for a price competitive with non-renewable energy. These project owners then separately sell the RECs, perhaps to another utility or green power marketing company, in a long-term contract. Frequently, these RECs are sold in advance of actual production.<sup>55</sup>

The market for RECs varies depending on whether the particular state allows utilities to meet state-mandated renewable energy obligations by purchasing RECs on a verifiable tracking system. Many states do permit this use of RECs,<sup>56</sup> and in these so-called *compliance markets*, the value of RECs goes up markedly.<sup>57</sup>

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[http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>53</sup> U.S. Department of Energy, *Guide to Purchasing Green Power* 10 (Sept. 2004), available at [http://www.eere.energy.gov/femp/pdfs/purchase\\_green\\_power.pdf](http://www.eere.energy.gov/femp/pdfs/purchase_green_power.pdf) (last visited June 19, 2007).

<sup>54</sup> U.S. Department of Energy, *Guide to Purchasing Green Power* 10 (Sept. 2004), available at [http://www.eere.energy.gov/femp/pdfs/purchase\\_green\\_power.pdf](http://www.eere.energy.gov/femp/pdfs/purchase_green_power.pdf) (last visited June 19, 2007).

<sup>55</sup> Ed Holt and Lori Bird, *Emerging Markets for RECs: Opportunities and Challenges* 1 (Nat'l Renewable Energy Lab. Jan. 2005), available at <http://www.eere.energy.gov/greenpower/resources/pdfs/37388.pdf> (last visited June 11, 2007).

<sup>56</sup> E.g., Colo. Rev. Stat. § 40-2-124(1)(d) (2006); Minn. Stat. § 216B.1691, subd.4(a) (allowing PUC to establish rules for verifying tradable credits).

<sup>57</sup> Ed Holt and Lori Bird, *Emerging Markets for RECs: Opportunities and Challenges* 19-36 (Nat'l Renewable Energy Lab. Jan. 2005), available at

However, there are also voluntary markets for RECs, where REC buyers include individual or business energy consumers who want to offset their fossil fuel use or otherwise be a “green” energy user. Wind developers typically find that only compliance markets are reliable enough to allow the separate sale of RECs to be used to finance a new wind project.<sup>58</sup>

There are several challenges to using the current REC markets. Most prominently, the United States does not currently have a national registry of green tags issued and sold. Instead, several different certification and accounting organizations are attempting to ensure that RECs are correctly tracked and verified and are not double-counted. (This is often done by assigning unique identification numbers for each 1,000 kWh of green energy produced.) Private green tag certifiers include Green-e and The Climate Neutral Network. There are also several emerging regional tracking systems for REC markets. These include Center for Resource Solutions (CRS), Electric Reliability Council of Texas (ERCOT), Generation Attribute Tracking System (GATS), Midwest Renewable Energy Tracking System (M-RETS),<sup>59</sup> New England Power Pool (NEPOOL), and Western Renewable Energy Generation Information System (WREGIS).<sup>60</sup>

States can also regulate REC markets by developing standards and procedures for verification of RECs within their own jurisdiction, and by cooperating with REC accounting systems on regional and national levels. State regulations can also ensure that, if a utility counts the electricity it purchases from a wind project

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<http://www.eere.energy.gov/greenpower/resources/pdfs/37388.pdf> (last visited June 11, 2007).

<sup>58</sup> Ed Holt and Lori Bird, *Emerging Markets for RECs: Opportunities and Challenges* 3-4 (Nat'l Renewable Energy Lab. Jan. 2005), available at <http://www.eere.energy.gov/greenpower/resources/pdfs/37388.pdf> (last visited June 11, 2007).

<sup>59</sup> M-RETS is in development for Iowa, Illinois, Minnesota, North Dakota, South Dakota, Wisconsin, and Manitoba (Canada). This is a voluntary regional system that participants intend to have operating by July 1, 2007. See *Midwest Renewable Energy Tracking System*, <http://www.mrets.net> (last visited June 8, 2007).

<sup>60</sup> Currently, several western states are covered by the Western Renewable Energy Generation Information System (WREGIS), a regional, voluntary, independent renewable energy tracking system. More information is available on the WREGIS Web site at <http://www.wregis.org/> (last visited June 20, 2007).

toward its renewable energy standard, the wind project may not sell RECs to other entities for the same energy produced.<sup>61</sup>



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<sup>61</sup> Ed Holt and Lori Bird, *Emerging Markets for RECs: Opportunities and Challenges* 41 (Nat'l Renewable Energy Lab. Jan. 2005), available at <http://www.eere.energy.gov/greenpower/resources/pdfs/37388.pdf> (last visited June 11, 2007).



## Chapter 10

# Choosing a Business Structure for a Wind Project

As with any new business, getting a wind project up and running is a huge undertaking. The development of a wind project requires making careful decisions about how best to set up the legal structure of the business itself. These decisions will determine, among other things, who will hold title to project assets, what tax consequences will result, the degree of personal liability investors will have for the debts and obligations of the business, and the project's eligibility for various government wind energy incentive programs.

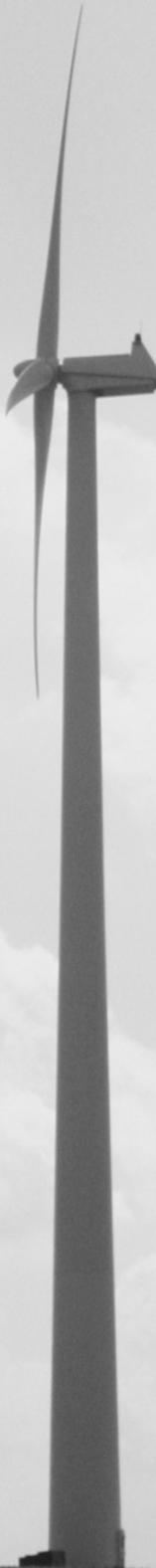
This chapter is written as a general overview of some of the business issues that will arise when creating and maintaining a wind development project. It is not a "how-to" guide to setting up a wind business. Indeed, this chapter does not discuss every legal issue that may arise in starting up a wind energy project. Instead, this chapter describes some common types of business entities, summarizes the business models of actual farmer-owned wind projects that have already succeeded, and touches on some practical and legal factors that should be weighed when deciding on a business structure. It is intended only as a starting place for a farmer to begin to explore these issues.

Structuring a business to build and operate a wind project is exceedingly complex and should not be completed without advice from a legal professional. Only an experienced attorney can assist with finding the best fit for an individual wind project's circumstances, now and into the future.

## I. Choice of Business Entity

### A. General Overview of Issues Affecting Entity Choice

The term "business entity" refers to the form of the organization used to invest in and operate a for-profit endeavor. There are several types of business entities that can be used for a wind development project, and each has its own legal and financial characteristics and requirements.



The legal requirements imposed on the different types of business entities may vary from state to state. In many situations, the standard legal characteristics and requirements of the various business entity types can be altered by an explicit agreement among the business's owners. Nonetheless, there are several overarching factors to consider and compare in choosing a business entity for a particular project.

For most investors and entrepreneurs, the major issues to consider when considering entity types are: (1) whether the entity will shield investors and owners from personal liability for business obligations and debts, and (2) how income and losses of the entity will be taxed.<sup>1</sup> In addition, project developers may consider the complexity of the legal requirements for establishing and maintaining various entity types, and whether the choice of entity also impacts a project's eligibility for various government wind development incentives or the applicability of various energy-related regulatory schemes. These factors will be discussed in more detail below.

### **1. Personal Liability of Owners**

Entities that have a *liability shield* protect investors from personal responsibility for most business debts. In other words, creditors of the business can only collect from assets and income of the business entity itself. If a farmer creates a business entity that has a liability shield, and that entity holds title to the wind project and is responsible for operating it, creditors of the wind project cannot collect project debts from any personal income or assets of the farmer. Instead, the farmer is only at risk for the amount invested in the entity itself.

In general, a liability shield will cover not only the entity's traditional loans and credit obligations, but also any legally enforceable claim for money related to the entity's operation, including any money judgments that might result from a lawsuit against the project. In some circumstances and for some types of debts, however, owners may not be able to have an absolute

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<sup>1</sup> For more information about these and other factors to consider when choosing a form of business entity, FLAG has produced a *Choice of Business Entity* booklet as part of its *Farm to Market: Legal Issues for Minnesota Farmers Starting a Processing or Marketing Business* series. Although these materials are not written with a wind project in mind, they contain general information that could be useful. To obtain a copy, contact FLAG or visit FLAG's Web site at [www.flaginc.org](http://www.flaginc.org).

shield from liability. It is therefore important to fully understand the extent of the liability shield created by a given business entity.

In addition, there may be circumstances where individual farmers or investors may find it advantageous to waive the liability shield and be personally liable for some business debts—for example, a wind project's lender may ask the farmer developer to sign a personal guarantee for the debt as a condition of making a loan.

If a farmer does not create a business entity for a wind project, or creates an entity that does not have the benefit of a liability shield, the farmer would be personally liable for all debts related to the project. In other words, any money owed by the wind project could be collected from the personal accounts, income, and property of the farmer and other project owners.

## **2. How Taxes Are Assessed**

Different forms of business entities can be treated very differently for income tax purposes. Some entities are considered separate taxpayers from the individual owners and must file their own tax returns and pay taxes at the entity level before making any distributions to the owners. Thus, the profits of these separate tax-paying entities are subject to two levels of tax: The entity is taxed on its business income, and the investors are taxed on any subsequent income distributions from the entity.

Alternatively, some entities are *pass-through entities* that are not generally themselves subject to separate taxation. Such an entity's income is said to "pass through" the business directly to its owners. The entity does not itself pay taxes; instead, each owner pays tax on his or her share of the entity's income.

Still other types of business entities are able to choose whether they will be separately taxed or their income will pass directly through to the entity's owners.

Even with a general understanding of these tax rules, it is *essential to consult a tax professional* before forming a business. Small, newly formed businesses may face different income tax requirements than these general descriptions indicate, and only a tax professional can offer the specialized assistance required to ensure compliance with all tax laws and filing requirements.

### **3. Complexity of Formation and Operation Requirements**

Some entities have much more formal requirements for formation and ongoing governance and control. Some entities may be formed simply by engaging in business activities with a particular intent, while other entity types require a detailed registration process. These more formally created entities also frequently have regular, and potentially cumbersome, reporting requirements.

In addition, different entity types vary in how they are governed or controlled by the owners. Some entities are entirely controlled by direct owner vote. Others may require a more complex scheme involving a board of directors, officers, and shareholders. Even within each type of governance scheme, there can be a range of permissible rules. Corporations, for example, may require annual shareholder meetings, board of director meetings, and some formal record of certain actions. Management of a partnership, on the other hand, has much more flexibility.

There can also be significant differences in the ways different entity types can be financed, how new owners can enter the business, and how investors can withdraw from the entity. An experienced attorney can help explore all of these issues in more detail.

### **4. Impact on Wind Incentives and Other Regulatory Restrictions**

Farmers should be aware that eligibility for some government wind incentives may depend on how the business is organized, including who the co-owners are and what overall tax liability is available to take advantage of the various tax credits. This chapter should therefore be reviewed in conjunction with Chapters 12 (Incentives) and 13 (Tax Benefits and Obligations), and a tax expert should be consulted to assist with these difficult business structure issues.

Finally, the choice of entity type may be affected by whether a given choice creates an additional burden of compliance with various regulatory regimes. For example, state and federal securities regulations could be triggered if investors are solicited to purchase equity interests in the project, and state corporate farm laws may make some types of entities unavailable in certain circumstances to entity owners who do not have a family connection to the land. These issues are discussed in more detail in at the end of this chapter.



## B. Types of Business Entities

### 1. Sole Proprietorship

A *sole proprietorship* is a business owned and operated by an *individual*. There is no entity involved in a sole proprietorship; the individual simply begins operation. Therefore, no specific documents are involved, and the business is not considered legally separate from the owner. All profits (and all losses) flow to the owner as an individual, and the owner pays income tax on these earnings. The owner is personally liable for all obligations arising out of the operation of the business.

For commercial-scale wind energy projects in particular, sole proprietorships are not recommended (nor likely feasible) as a business structure.

### 2. General Partnership

Generally, whenever two or more persons operate as co-owners of a business for profit, they have formed a *general partnership*. There are no formal requirements to form a partnership; however, partners may choose to establish clear guidelines in a written agreement to avoid the application of *default rules* from the state's partnership law. Default rules are provisions of law that fill in the gaps in an agreement between private parties in case of a dispute. If a dispute arises and the parties' agreement does not address the disputed issue, the default rule will apply; if the agreement does address the issue, the agreement will control. If the parties have entered into a joint activity without making any formal agreement, the applicable default rules will govern all disputes that arise.

The default rules for partnerships vary somewhat by state but typically provide that partners have equal control over the business and equally share in the earnings or losses of the business. There are also usually default rules about how partnership interests can be sold or transferred, how new partners can join and existing partners exit, and how partnerships are dissolved when necessary.

Partnerships are generally not separate tax-paying entities. Earnings and losses pass directly through to individual partners, and partners include those earnings and losses on their individual tax returns.

Finally, like a sole proprietor, partners are not shielded from personal liability for the obligations of the partnership business. Many partnerships

will purchase insurance to provide the partners with some protection from liability. However, farmers should know that a partner's liability for a partnership debt is most often "joint and several," which means that any single partner could be personally liable for the entire business debt if not reimbursed by the other partners.

### 3. Limited Liability Partnership

A *limited liability partnership* (LLP) is similar to a general partnership, except the partners are shielded from personal liability for the obligations of the business. An LLP must be formally created by filing a registration form with the state, and the liability shield will not apply until the formation requirements are satisfied. Minnesota, for example, requires that a statement of qualification be filed with the Secretary of State and imposes ongoing reporting requirements.

The LLP business form is not available in every state.

### 4. Limited Partnership

A *limited partnership* is a type of entity that allows for different classes of owners. In a limited partnership, at least one partner must be a *general partner* and at least one partner must be a *limited partner*. General partners are personally responsible for the business's debts and obligations and typically have more decision-making authority, including authority over the day-to-day operations of the business.<sup>2</sup> Limited partners are typically investors who give up most of their authority over the business operations in exchange for a liability shield. However, limited partners usually do have some right to participate in extraordinary decisions affecting the business.

A limited partnership is typically not a separate entity for tax purposes. Instead, the business income and losses are distributed to the partners to be reflected in their individual tax returns.

A limited partnership must be formally created according to state requirements. Default limited partnership laws will apply unless altered by a written agreement among the partners.

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<sup>2</sup> Some states have yet another type of partnership, a *limited liability limited partnership* (LLLP). These businesses are generally set up like a limited partnership, except the general partner then itself becomes an LLP. An LLLP therefore provides a personal liability shield to the general partners. See, e.g., Minn. Stat. § 321.0404 (2006).

## 5. Limited Liability Company

A *limited liability company* (LLC) is a separate legal entity owned by *members* who obtain membership interests in the entity, sometimes called shares, in exchange for their investments or services.<sup>3</sup> LLC members are generally shielded from personal liability for the business's debts.

To form an LLC, articles of organization, which set out the form of the entity, must be filed with the state. The LLC's status must be renewed annually. Although they are not required to do so, LLCs typically use bylaws, also known as operating agreements, to manage and govern the entity and its members. In this way, LLCs can be flexibly organized to fit individual operating needs and goals.<sup>4</sup>

When bylaws are not adopted or are otherwise silent, state law will provide default rules for the LLC and its members. For example, most states provide that profits and losses for an LLC are divided proportionately among the members according to each member's investment; however, the members of any LLC may agree on an alternative division of profits and losses, and this will be controlling if the agreement is properly executed.

Under federal income tax rules, an LLC may choose whether to be treated like a corporation or a partnership for tax purposes. In most cases, the default rule is that an LLC is treated as a partnership, meaning that it is not taxed as a separate tax-paying entity, and business income and losses are passed on directly to the LLC's owners who claim that income or loss on their individual tax returns.

While the pass-through taxing scheme may seem superior to being taxed as a corporation, discussed below, there may be reasons why a particular LLC would choose to be taxed as a corporation. Thus, as with other business

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<sup>3</sup> Some states define what is called a *closely held LLC*. In Minnesota, for example, this includes any LLC that has 35 or fewer members. Minn. Stat. § 322B.03, subd. 11 (2006). A closely held LLC is generally identical to an LLC with more members, but states can, and do, experiment with a range of variations. See Larry E. Ribstein, *Statutory Forms for Closely Held Firms: Theories and Evidence from LLCs* 73 Wash. U. L.Q. 369, 431 (1995).

<sup>4</sup> Carter G. Bishop and Daniel S. Kleinberger, *Limited Liability Companies: Tax and Business Law* § 1.02 (2006).

structure issues, an entity facing this decision should consult with a tax advisor before making any decisions regarding tax plans.

## **6. Corporation**

A *corporation* is a separate legal entity from its owners, called *shareholders*. The amount of shares, or stock, a shareholder has in the corporation represents the shareholder's ownership interest and reflects the amount he or she has invested in the business.

Corporations are one of the most complex business structures. A corporation is created by filing articles of incorporation with the state. The articles of incorporation provide the initial rules that govern the corporation. Incorporators have some discretion in drafting the articles of incorporation, and statutory language may provide default rules. Shareholders may also vote to adopt bylaws that govern the management and affairs of the corporation. A board of directors, whose members are elected by the shareholders, establishes the policies of the corporation. Officers selected by the board of directors are responsible for the day-to-day operations of the business.

Shareholders generally are not personally liable for the obligations of the corporation.

A corporation typically distributes its income, beyond that needed for expenses and any reserves, to the shareholders according to their stake in the corporation, as measured by the number of shares owned. A corporation's income is typically taxed at the business level, and shareholders are taxed on any distributions made to them. Corporations using this traditional tax model are called *C Corporations*.<sup>5</sup> A different type of entity permitted in some cases, called an *S Corporation*, instead has pass-through tax status, with no income tax paid by the business itself and all income and losses passed to the shareholders.<sup>6</sup> To receive S Corporation status, a corporation must meet certain statutory requirements.

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<sup>5</sup> 18 Am. Jur. 2d *Federal Taxation* § 4701 (2007).

<sup>6</sup> Carter G. Bishop and Daniel S. Kleinberger, *Limited Liability Companies: Tax and Business Law* § 1.01[2][b] (2006).

A *closely held corporation*, one having 35 or fewer shareholders, may have more restrictions, especially regarding the buying or selling of shares.<sup>7</sup> A closely held corporation is more likely to have overlap among shareholders, directors, and officers. Therefore, liability and business governance issues may function differently.<sup>8</sup>

## 7. Cooperative

A *cooperative* is a business entity that is owned by *members* who use its services or buy its products. Typically, a cooperative distributes income in excess of expenses and reserves to its members in proportion to each member's patronage, and not in proportion to a member's equity investment.

A cooperative is formed by filing articles of incorporation with the state. Members may also vote to adopt bylaws that govern the management and affairs of the cooperative. As with a corporation, a board of directors—elected by the members—establishes the policies of the cooperative, and officers selected by the board of directors are responsible for the day-to-day operations of the business.

To be recognized as a cooperative, the entity must meet the state requirements for cooperative status. For example, in Minnesota, a traditional patron-owned cooperative must be conducted “on a cooperative plan.”<sup>9</sup> In practice, this means the cooperative must be governed based on a one-member, one-vote system; revenue distributions must be based on the members' patronage of the cooperative's goods or services; and dividends on capital stock or other units of equity must be limited to 8 percent annually.<sup>10</sup>

The governance of cooperatives incorporates a particular cooperative-minded value system. This means generally that the cooperative should manifest principles of “self-help, self-responsibility, democracy, equality,

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<sup>7</sup> 18 Am. Jur. 2d *Corporations* § 38 (2007).

<sup>8</sup> 18 Am. Jur. 2d *Corporations* § 38 (2007).

<sup>9</sup> Minn. Stat. § 308A.005, subd. 5 (2006).

<sup>10</sup> Minn. Stat. § 308A.131, subd. 1 (2006).

equity and solidarity.”<sup>11</sup> However, state and federal laws can vary on what exactly it means to operate on a cooperative basis and how it is measured. The most common distinguishing characteristic generally is a one-member, one-vote system of control.

Cooperative members are generally not personally liable for the debts of the cooperative.

Most cooperatives are a separate entity for tax purposes, similar to a C corporation, although some are tax-exempt. In practice, a cooperative may pay less tax than a C Corporation, because it may be able to deduct many of the distributions to its members from its tax obligations.<sup>12</sup>

Historically, cooperative structures have not been good vehicles for wind developments because they are not naturally designed for outside investment. Capital can be hard to raise when only patrons are eligible for membership, and the requirement that distributions be based on patronage makes it difficult for cooperatives to provide a significant return on investments.<sup>13</sup> However, some states, including Minnesota, have enacted laws authorizing alternative *investor cooperative* arrangements that permit both patron members and separate investor-only members.<sup>14</sup> These investor cooperatives allow individuals to invest in the cooperative without necessarily becoming members.<sup>15</sup>

In these arrangements, patron-members are generally still allocated distributions based on their patronage, while investor members are paid

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<sup>11</sup> See International Co-operative Alliance, *Statement on the Co-operative Identity*, <http://www.ica.coop/coop/principles.html> (last visited June 8, 2007).

<sup>12</sup> For more detailed information, see FLAG's *Cooperatives* booklet, which is part of the series *Farm to Market: Legal Issues for Minnesota Farmers Starting a Processing or Marketing Business*, available from FLAG.

<sup>13</sup> See Mark Bolinger, *Community Wind Project Business Models*, Presentation at Community Wind Energy 2006, (Mar. 8, 2006).

<sup>14</sup> See, e.g., Letter from Bill Oemichen and Maura Schwartz, Minnesota Association of Cooperatives, to Minnesota Cooperative Leaders, *New Minnesota Statutes Chapter 308B—Minnesota Cooperative Associations Act* (June 5, 2003), available at <http://www.uwcc.wisc.edu/info/legal/mnsummary.pdf> (last visited June 8, 2007).

<sup>15</sup> Minn. Stat. § 308B.005, subd.19 (2006) (defining non-patron membership interest).

based on their contributions to capital.<sup>16</sup> Although called cooperatives, there is some question whether investor cooperatives in fact qualify for the special legal treatment traditional cooperatives have received under antitrust, securities, tax, and federal farm credit laws.<sup>17</sup> In the context of wind energy development in particular, there may be limits on whether investor cooperatives are able to take advantage of the federal tax credits and other special federal provisions that give particular advantage to traditional cooperatives. This type of cooperative's ability to make a workable cash flow specifically for a wind project has not been proven.

## II. Existing Business Models

This section provides examples of existing business structures that have worked for other farmers who have built wind projects. As has been emphasized throughout this guide, every project must be tailored to the individual circumstances of particular persons in particular places. Therefore, these models are merely examples of what some other farmers have chosen to try. They are not sure-fire mechanisms for developing a wind project in any case, and each one requires the assistance of an experienced attorney to be properly implemented.

### A. "Flip" Models

Given the significant amount of investment capital required to build a wind project and the average individual's difficulty in accessing the federal tax incentives for wind development, many individual farmers struggle to put up a project entirely on their own. Therefore, farmers frequently partner with outside, tax-motivated equity investors. By setting up such a co-ownership arrangement, farmers can more quickly raise the needed capital. In addition, the fact that these outside equity investors are able to access the federal tax credits can significantly improve the project's financial prospects.

Generally, this *flip model* works by bringing in a tax-motivated equity investor who will own virtually the entire project in its first ten years. This equity partner

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<sup>16</sup> Minn. Stat. §§ 308B.721, subd. 1, 308B.725, subd.3 (2006).

<sup>17</sup> See generally Doug O'Brien, *Legal and Policy Considerations of Investor-Friendly Cooperatives*, (Nat'l Ctr. for Agric. Law Research and Info., U. of Ark. Sch. of Law 2005), available at [http://www.nationalaglawcenter.org/assets/articles/obrien\\_cooperatives.pdf](http://www.nationalaglawcenter.org/assets/articles/obrien_cooperatives.pdf) (last visited June 8, 2007).

then “flips” project ownership back to the local investors for the second half of the project.

This timing is largely tax-motivated. Although *power purchase agreements* typically last for twenty or more years, the major federal production tax credit (PTC) for wind generation is available for only the first ten years of the project. Therefore, the legal structure of these tax-motivated co-ownership arrangements is carefully designed so that equity investors can get in and get out, with sufficient return on their investment in the first ten years of the project when the PTC is available.

In what has come to be called the “Minnesota-flip model,” a local landowner or a group of local investors organize and invest just enough to complete the initial phases of the wind project. Basically, the locals need to invest enough to ensure the feasibility of the project so that it is attractive to outside investors. This local group then finds a tax-motivated equity partner. This equity partner typically contributes a large amount of capital to fund the final phases of development, including construction and initial operation; however, there is usually also some debt financing, as discussed in the chapter on commercial-scale project financing (Chapter 8).

In exchange for this initial outlay of capital, the project entity—typically an LLC—is designed so that the equity investor has the right to virtually all of the project profits for the first 10 years of operation. During this time, the project’s debts are paid down, and the equity investor pays all or the bulk of the project expenses. In return, the equity investor is able to realize a sizeable return on his or her investment, both by collecting almost all of the profits from selling the generated electricity and by fully utilizing the tax incentives associated with the project.

During these initial 10 years, the farmers and other local investors receive only a very small percentage of the project income. Some farmers participating in a flip-style wind project have sought to earn more earlier in the life of the project, by serving as manager of the project after construction or by providing some of the operations and maintenance services to the project. The fees associated with such services are typically built into the project budget and can provide some revenues to the farmer and local investors during the years when the equity investor is receiving the bulk of the project revenues and tax credits. However, these services, and the fees associated with them, must be negotiated with the equity investor, as the investor may want to hire other persons to provide such services to the project.



After 10 years, or once the equity investors have received the targeted return on their investments, ownership of the project flips to the farmers and other local owners, who collect the income for the remaining years of the power generation and purchase agreement. At the time of the flip, the farmers and local investors will generally have to buy out the equity investor's ownership interest, but at significantly depreciated rates.

In this model, the project's financial feasibility is improved by allowing the equity investor to take full advantage of the tax credits, thereby creating another revenue stream for the project. It also reduces the up-front investment required for the initial local investors.

There are some downsides to the Minnesota flip, however. For example, the local investors must wait 10 years before seeing any significant return on their investment. In addition, not all of the benefits of the project are kept local, as a large percentage of the profits flow to the outside equity investor. Furthermore, setting up this kind of flip structure is legally complex. Farmers should carefully consider the relative risk and return of any particular flip deal.

Most of these flip arrangements use the LLC entity structure, because LLCs can be so flexibly organized and have desirable tax and liability benefits.<sup>18</sup> For example, the ownership interests in the first 10 years are typically carefully structured so that the equity investors get 99 percent of the financial rights, but the locals get 51 percent of the ownership and control rights. This is often motivated by eligibility requirements for various other local incentives that the project also desires. Then, at the time of the flip, the equity investors need to be able to drop out entirely.<sup>19</sup>

Not surprisingly, properly creating this type of LLC—and drafting all of the arrangements for ownership, control, and ultimate transfer of ownership interests—requires sophisticated legal assistance. There are also complicated and very technical tax issues. For example, the Internal Revenue Service might not

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<sup>18</sup> Mark Bolinger, *A Survey of State Support for Community Wind Development* 8 (Lawrence Berkeley Nat'l Lab. 2004), available at [http://eetd.lbl.gov/EA/EMP/cases/Community\\_wind.pdf](http://eetd.lbl.gov/EA/EMP/cases/Community_wind.pdf) (last visited June 8, 2007).

<sup>19</sup> Mark Bolinger, *A Survey of State Support for Community Wind Development* 9 (Lawrence Berkeley Nat'l Lab. 2004), available at [http://eetd.lbl.gov/EA/EMP/cases/Community\\_wind.pdf](http://eetd.lbl.gov/EA/EMP/cases/Community_wind.pdf) (last visited June 8, 2007).

permit the parties to negotiate a pre-arranged price for the local investors' "purchase" at the time of the flip.<sup>20</sup>

A variation of this Minnesota-flip model has been proposed by a Wisconsin group.<sup>21</sup> It has been characterized by some commentators as the *loan-to-own model*.<sup>22</sup> Basically, in this model, farmers and other locals form an LLC and provide credit, rather than equity, to the tax-motivated corporate investor, who owns 100 percent of the project. The corporate investor pays the local investors interest on the loan during the first 10 years of the project. After the tax incentives are fully tapped, the local investors forgive the loan in exchange for full transfer of the ownership interests in the project to them. However, this model is legally untested. No known examples exist, and some tax concerns have been raised.<sup>23</sup> Like other flip models, the loan-to-own model should be considered only in consultation with an experienced tax lawyer.

## B. Pseudo-Cooperative Models

There are also farmer wind projects that are entirely driven and funded by local investors. This model requires the coordination of many more local investors who can collectively accumulate sufficient capital for the project—and possibly sufficient tax liability to take advantage of tax credits. The most noted, and perhaps only, successful example of this model is a farmer group in southwestern Minnesota called "Minwind Energy." Minwind Energy today is

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<sup>20</sup> See Mark Daugherty and Damon Bresenham, *Implementation of Community Based Wind Power Businesses in Wisconsin* 3, App. B (Mar. 2005), available at [http://www.focusonenergy.com/data/common/dmsFiles/W\\_RI\\_RPTE\\_CDS\\_B\\_M\\_Fin\\_al\\_Rpt.doc](http://www.focusonenergy.com/data/common/dmsFiles/W_RI_RPTE_CDS_B_M_Fin_al_Rpt.doc); Mark Bolinger & Ryan Wiser, *A Comparative Analysis for Business Structures Suitable for Farmer-Owned Wind Power Projects in the United States* 10-11 (Lawrence Berkeley Nat'l Lab. Nov. 2004), available at <http://eetd.lbl.gov/ea/ems/reports/56703.pdf> (both sites last visited June 19, 2007).

<sup>21</sup> Cooperative Development Services, *Wisconsin Community Based Windpower Business Plan* (2003) (copies available from Michael Vickerman at RENEW Wisconsin (608) 255-4044 or [mickerman@renewwisconsin.org](mailto:mickerman@renewwisconsin.org))).

<sup>22</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 7 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 8, 2007).

<sup>23</sup> See Mark Bolinger, *Community Wind Project Business Models*, Presentation at Community Wind Energy 2006, (March 8, 2006).

made up of nine separate wind projects, each owned and operated by its own 33-member LLC.<sup>24</sup>

The Minwind projects are all entirely local and have been built without any outside tax-motivated investor. Each project has been funded by selling “shares” in \$5,000 increments to local investors. Additional funding came from local bank loans, and the later projects benefited from a U.S. Department of Agriculture grant. Some individual investors (many with passive income from ethanol investment) were able to personally take advantage of some of the federal tax credits. However, the Minwind projects are unique in that they have not relied as heavily on the federal tax credits to be profitable. The projects did, however, take advantage of a state 1.5 cents per kWh production incentive payment that is no longer available in Minnesota.

Minwind chose to operate in multiple LLCs for many legal, tax, and financial reasons. However, in the ownership structure and governing documents of those LLCs, the Minwind investors and developers intentionally decided to incorporate many cooperative-like principles. For example, in forming their LLC, the farmers decided that the projects had to be 85 percent owned by farmers, that no single shareholder could own more than 15 percent of the project, and that voting rights would be allocated on a one-shareholder, one-vote basis.<sup>25</sup> In addition, Minwind intentionally purchases as many local goods and services as possible, including construction and construction-related supplies.

Minwind’s success shows that some farmers can collectively raise the capital needed for a commercial-scale wind investment. The capital for the first two Minwind projects was raised in just 12 days, and Minwind now has a long waiting list of potential investors. In addition, this project provides a more immediate return on investment for local farmers than the flip model, largely

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<sup>24</sup> For a more detailed description of these particular projects, see Windustry, “Minwind I & II: Innovative Farmer-owned Wind Projects” from *The Windustry Newsletter* (Fall 2002), available at <http://www.windustry.org/newsletter/2002FallNews.htm>; Windustry, *Case Study: Minwind III-IX* (Oct. 2006), available at <http://www.windustry.org/community/casestudyMinwind.htm> (both sites last visited June 18, 2007).

<sup>25</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 4 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 12, 2007).

because the local investors do not need to wait 10 years to take over project ownership.

However, as noted above, to make the project's finances work, Minwind took advantage of a cash incentive for wind production that is no longer available in Minnesota. Without that per kWh production incentive, it may be hard for other projects without a tax-motivated investor to make a similar arrangement work now.<sup>26</sup> In addition, some of Minwind's local investors were in a financial position to be able to take some individual advantage of the federal tax credits. This will not be the case for most farmer-owned wind projects.

Moreover, farmers should be aware that creating the Minwind structure was legally complex and took a significant community organizing effort. For example, Minwind hired a team of lawyers to make sure they complied with securities regulations and structured themselves in a tax-sensible way.<sup>27</sup> In addition, the farmers and rural community members who started the first Minwind projects also benefited from good relationships with local lenders due to prior experience with a farmer-owned ethanol facility.

### C. On-Site Energy Use Models

In most community wind models, the local wind developers make their money by selling wind-generated electricity to utilities or some other power supplier or marketer. However, another source of revenue from a wind project can come from direct use of the generated energy itself, offsetting retail purchases of electricity from the utility while avoiding the need to sell generated electricity at wholesale rates.

In locations where there is an electricity consumer of a significant size combined with a good wind resource, it may be feasible to consider installing a commercial-scale turbine to supply power directly to that consumer. Several schools in Illinois, Iowa, and Minnesota have used this model and installed turbines on the customer side of their utility meters to offset their retail

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<sup>26</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 5-6 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 12, 2007).

<sup>27</sup> Mark Bolinger, *Community Wind Project Business Models*, Presentation at Community Wind Energy 2006, (March 8, 2006).

purchases.<sup>28</sup> Capturing retail value for the electricity generated by a wind turbine rather than wholesale value can give a project's economics a significant boost.

In many cases, though, these projects' likelihood of success depends on the scope and flexibility of the state's *net metering* rules. Because wind is an intermittent energy resource, the electricity consumer will likely need a back-up power supply. Net metering laws are discussed in much more detail in Chapter 7 (On-Farm Small Wind). However, generally, net metering laws permit customers with their own power generation sources to sell the excess power they generate back to the utility, and the existing interconnection allows electricity to flow to and from that customer through a single meter. Net metering measures the difference between the customer's use of electricity from the utility and the customer's generation of electricity for the utility—in effect, when the customer is producing more energy than it is using, the electric meter runs backward. This is equivalent to a credit on the customer's electric bill at the regular retail rate for every kWh produced that exceeds the amount of energy used from the grid.<sup>29</sup>

The Iowa school projects were built under Iowa's unique rule permitting net metering for projects of any size.<sup>30</sup> Therefore, large turbines in Iowa could be built and interconnected through an existing customer's meter. However, other states have limits on the size of turbines that can be net metered this way. For example, Minnesota only permits net metering for projects less than 40 kW in size.<sup>31</sup> A few state size limits are high enough to accommodate commercial-scale wind turbines—including Colorado, for example, which recently changed its net metering rules to allow projects up to 2 MW.<sup>32</sup> Iowa's unlimited net metering rule was challenged by customers of Iowa's largest investor-owned utility, and these legal challenges resulted in a settlement whereby the state's two major

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<sup>28</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 3 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 12, 2007).

<sup>29</sup> Government Accountability Office, *Renewable Energy: Wind Power's Contribution to Electrical Power Generation and Impact on Farms and Rural Communities*, GAO-04-756, at 26 (Sept. 2004), available at <http://www.gao.gov/new.items/d04756.pdf> (abstract available at <http://www.gao.gov/docsearch/abstract.php?rptno=GAO-04-756>) (both sites last visited June 12, 2007).

<sup>30</sup> See Iowa Admin. Code r. 199-15.11(5) (2006).

<sup>31</sup> Minn. Stat. § 216B.164, subd. 3 (2006).

<sup>32</sup> 4 Colo. Code Regs. § 723-3-3664(a) (2005).

utilities, MidAmerican and Interstate Power and Light Company, have been granted “waivers” that now limit the size of net-metered generators to 500 kW or less.<sup>33</sup>

Many of the Iowa school projects also benefited from a state revolving loan program permitting the schools to borrow up to \$800,000 to finance the project with interest rates of just 3 to 4 percent.<sup>34</sup>

If a wind project is built that is larger than the net metering limits in a given state, it may be possible to divide the project’s electricity output for net metering purposes.<sup>35</sup> For example, if an Iowa MidAmerican customer has a 1,500 kW project, one-third of the output (that is, 500 kW) could be net metered, and two-thirds of the output could be sold to the utility under some other option—possibly under the utility’s Public Utility Regulatory Policies Act (PURPA) avoided cost rate, as described in the previous chapter (Chapter 9, Selling Power).

Another limitation of the on-site energy use model is that larger energy consumers with large electricity demands typically face demand and standby charges that make the economic feasibility of net metering on a large scale more difficult.<sup>36</sup> *Standby charges*, for example, are meant to compensate utilities for the costs of maintaining generation capacity and transmission lines so that they are ready to serve the net metering customer when its wind turbine is not producing enough power to meet its needs. Some states limit or prohibit utilities from

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<sup>33</sup> Iowa Utilities Board, *In re: MidAmerican Energy Company*, Docket Nos. TF-01-293, WRU-02-8-156, Order Granting Waiver and Approving, with Clarifications, Tariff (Mar. 8, 2002).

<sup>34</sup> Mark Bolinger, *A Survey of State Support for Community Wind Development* 12 (Lawrence Berkeley Nat’l Lab., 2004), available at [http://eetd.lbl.gov/EA/EMP/cases/Community\\_wind.pdf](http://eetd.lbl.gov/EA/EMP/cases/Community_wind.pdf) (last visited June 8, 2007).

<sup>35</sup> E.g., Iowa Utilities Board, *In re: MidAmerican Energy Company*, Docket Nos. TF-01-293, WRU-02-8-156, Order Granting Waiver and Approving, with Clarifications, Tariff, at 5 (Mar. 8, 2002).

<sup>36</sup> See Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 32-33 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007) (discussing rate structure issues).

imposing these kinds of charges on net metering systems, as discussed in the chapter about on-farm small wind projects (Chapter 7).<sup>37</sup>

In addition, self-generation projects are probably not eligible for the existing federal tax credits. If the on-site electricity consumer is a tax-paying business, its energy savings as a result of this scheme may in effect be taxable because they would reduce the business's deductible business expenses.<sup>38</sup>

There has been some effort, especially in Ontario, Canada, and on the East Coast of the United States, to envision a farmer-owned, commercial-scale project in which multiple investors come together and create some kind of *aggregate net metering* or *group net metering* project. In this model, investors would jointly own off-site, utility-scale turbines, and the local utility would offset each investor's share of the off-site turbine's output against each investor's individual power consumption. This would enable consumer investors to reduce their retail-rate consumption costs, rather than having to cash flow a project with wholesale revenues, and it would give investors more flexibility in locating their turbines. To work, however, a group net metering project would require utility cooperation and possibly also some statutory and regulatory changes.<sup>39</sup>

The group net metering concept is similar to ideas being discussed about a traditional patronage cooperative for wind energy—where cooperative members finance and own the project and benefit by purchasing its electricity output at a reduced member rate.<sup>40</sup>

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<sup>37</sup> See, e.g., Cal Pub Util Code § 2827(b)(2), (g) (2006) (authorizing net metering for systems 1 MW or less and prohibiting utilities from charging any additional fees that would increase the net metering customer's costs beyond those of other customers in the same rate class).

<sup>38</sup> Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 65-66 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).

<sup>39</sup> Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 62-63 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).

<sup>40</sup> Mark Bolinger, *Community Wind Project Business Models*, Presentation at Community Wind Energy 2006 (Mar. 8, 2006).



## D. Early Sale Model

A final example of successful farmer-developed wind projects has emerged where local landowners and investors complete most of the early development of the wind project and then sell a complete, ready-to-be-built wind package to an outside developer. In the *early sale model*, the locals do not retain any ownership in the project after the sale; however, they may receive a greater financial return than if they had simply leased their land and wind rights to that developer.

This model worked for a group of landowners in central Minnesota who responded to a request for proposals for wind power generation from Great River Energy, an electric generation and transmission cooperative. The landowners were awarded the contract by Great River Energy and then sold the development rights to their 100.5 MW Trimont Area Wind Farm to an outside wind developer. Instead of an outright sale price, these landowners negotiated to receive both a lease payment and a percentage of the developer's revenues from the project.<sup>41</sup>

## III. Other Legal Issues Affecting Choice of Business Structure

There are several factors unique to wind project developments that require careful consideration before settling on a business structure. Eligibility for various government incentives and the tax consequences of the project development are major factors. Other issues that will need to be investigated are utility rate structures and whether there are any special tariffs in which the type of business entity used for the project may affect eligibility. These issues are touched on in other chapters of this guide and, in particular, in the discussion of government incentives for wind development in Chapter 12.

This section touches briefly on three other major legal issues that affect the choice of business structure for wind projects—securities regulations, energy regulations, and state corporate farming laws. As with other topics in this chapter, this information is only intended as an introduction to the issues. *Experienced legal counsel is essential before any actual decisions are made.* These are extremely complicated, and constantly changing, areas of the law.

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<sup>41</sup> See Charles Kubert, *Community Wind Financing: A Handbook* by the Environmental Law & Policy Center 7-8 (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 12, 2007).



## A. General Securities Regulations

Although exact definitions vary by jurisdiction, a *security* is essentially a note or certificate, usually a stock or share, which represents a transferable financial interest in a for-profit business or activity.<sup>42</sup> If a wind project's business structure involves selling ownership interests in the business entity to outside investors—whether as shares in a corporation or cooperative, membership interests in an LLC, or some other form—certain securities laws will apply, and registration with the federal Securities and Exchange Commission (SEC) or a state equivalent, such as the Department of Commerce, may be required.<sup>43</sup>

Securities laws are designed to ensure that investment products meet minimum standards of fairness. They are intended to protect the public from fraud and misinformation. Generally, this objective is achieved by requiring securities or transactions involving the transfer of securities to be *registered* with the governing regulatory agency. There are also often detailed *disclosure* requirements, most commonly met in the form of a prospectus for potential investors that includes detailed information about the investment and the risks associated with the business.

The penalties for violating securities laws can be very severe. If the offer and sale of securities do not comply with the applicable securities laws, the entire investment may need to be returned to the investor, and the officers and directors of the issuing entity can be personally liable for any losses.

### *Evolving Securities Laws*

Many states and the federal government are increasingly concerned about corporate responsibility and some securities laws have changed, and may continue to change, in response. Minnesota's securities laws will change effective August 1, 2007. Although the new law is not radically different from the old law, farmers and their attorneys should be careful they are using the correct version of the law for their own situation and stay up to date on any changes. Uniform Securities Act, 2006 Minn. Laws (Ch. 196, art. 1, § 52).

Complying with both state and federal securities laws can be financially and administratively burdensome for small businesses. In particular, if registration of the securities (or transaction) is required before offering the securities for sale,

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<sup>42</sup> See, e.g., 15 U.S.C. §§ 77b(a)(1), 78c(a)(10) (2006) (federal definitions of "security").

<sup>43</sup> See generally Thomas Lee Hazen, *The Law of Securities Regulation* (Thomson West, 5th ed. 2005).

legal fees can be quite high. In recognition of this, both federal and state governments have adopted several *exemptions*, which, if carefully complied with, can exclude certain types of securities and transactions from some or all of the registration requirements.<sup>44</sup> However, even if an exemption is permitted, a detailed disclosure may still be required, especially before offering securities to certain less sophisticated (also called *unaccredited*) investors. Moreover, seeking the exemption can itself be legally complicated and can require filing specific information and paying required filing fees to the regulatory agency.

In any sale of securities, a wind project will need to either register or qualify for an exemption under state law and an exemption under federal law. Even if an exemption is likely, an attorney will be required (1) to ensure the project's eligibility to claim the exemption, and (2) to properly file the required forms and/or fees to qualify for the exemption. In addition, an attorney will be needed to ensure that any remaining disclosure requirements are met.<sup>45</sup>

## B. Energy Regulations

Historically, many energy-generating companies were subject to additional legal restrictions on their business transactions pursuant to the Public Utility Holding Company Act of 1935 (PUHCA). Under PUHCA, the Securities and Exchange Commission (SEC) had significant oversight authority over *who* could invest in electric-generating facilities, such as wind farms.<sup>46</sup>

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<sup>44</sup> See, e.g., 15 U.S.C. § 77d (2006).

<sup>45</sup> See Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 28-29 (Energy Trust of Oregon July 2004), available at [http://www.energytrust.org/RR/wind/OR\\_Community\\_Wind\\_Report.pdf](http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf) (last visited June 7, 2007).

<sup>46</sup> William D. DeGrandis, *Energy Bill Creates New Opportunities, New Challenges*, 83 *Electric Light & Power* 52 (Sept. 2005).

Congress repealed PUHCA effective February 8, 2006.<sup>47</sup> This repeal significantly reduces the amount of regulation imposed on investment in energy-generating facilities, among other things. The most significant consequence of this repeal, from a farmer's perspective, is that utilities can much more easily invest in their own wind energy projects now, whereas many of these investments may have been prohibited under the original PUHCA. This may affect utilities' willingness to enter into power purchase agreements with farmer-owned wind projects in the future, as utilities now may prefer to develop these resources on their own.

Farmers should be aware that, even after the repeal of PUHCA, there are still energy-specific regulations that could apply to their choice of business entity for a wind project. In what has been dubbed "PUHCA 2005," Congress granted both the Federal Energy Regulatory Commission (FERC) and, in some cases, state regulators access to the books and records of energy *holding companies*.<sup>48</sup> In addition, holding companies may be subject to certain requirements for records retention and special accounting systems.<sup>49</sup>

The term "holding company" is defined very broadly in PUHCA 2005, and could include many companies or other "organization[s] of persons" that hold an interest in a business that generates wind energy for sale.<sup>50</sup> Farmers should seek the advice of an experienced attorney to evaluate whether a given business structure will raise PUHCA 2005 issues.

If a wind project does trigger PUHCA 2005's requirements, it may qualify for some exemptions in the law. Farmers must work closely with an attorney to

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<sup>47</sup> Energy Policy Act of 2005, 109 Pub. L. 58, Tit. XII, Subtitle F, 119 Stat. 594, 972 (Aug. 8, 2005); see also Markian M.W. Melnyk and William S. Lamb, *PUHCA's Gone: What Is Next for Holding Companies?*, 27 Energy L. J. 1 (2006); see also Federal Energy Regulatory Commission, *Repeal of the Public Utility Holding Company Act of 1935 and Enactment of the Public Utility Holding Company Act of 2005*, 113 FERC ¶ 61, 248, Order No. 667 (Apr. 24, 2006), available at <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10901242> (last visited June 21, 2007).

<sup>48</sup> Energy Policy Act of 2005, 109 Pub. L. 58, Tit. XII, Subtitle F, § 1264, 119 Stat. 594, 972 (Aug. 8, 2005) (codified at 42 U.S.C. § 16452).

<sup>49</sup> See 18 C.F.R. § 366.22-366.23 (2007); 18 C.F.R. pt. 367 (2007).

<sup>50</sup> See 18 C.F.R. § 366.1 (2007) (defining terms "holding company," "company," "public utility," "public utility company," and "electric utility").

decide the best course of action for them, including whether an exemption should be sought and, if so, which one.

One example of the exemptions available under PUHCA 2005 is that for holding companies that meet that definition only because they have ownership interests in a *Qualifying Facility* (QF) or an *Exempt Wholesale Generator* (EWG).<sup>51</sup> Wind project owners have to comply with particular FERC procedures to certify that their projects are properly designated as either a QF or EWG, if applicable.

However, although status as a QF or EWG can relieve project owners of some of the burdens of PUHCA 2005, this does not necessarily exempt the projects from other, related FERC regulations. FERC has made clear, for example, that owners of some EWGs may still be subject to federal regulations requiring access to records and books, along with other rate-related regulations.<sup>52</sup> Under the Energy Policy Act of 2005, owners of QFs may also be subject to additional regulatory burdens from FERC, especially if the QF is over a certain size.<sup>53</sup>

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<sup>51</sup> 18 C.F.R. § 366.3 (2007). QFs are given the same definition they have under PURPA, as discussed in Chapter 9 (Selling Power). *See* 18 C.F.R. § 366.3(a)(1) (2007). EWGs must be engaged exclusively in the business of owning or operating facilities for selling electric energy at wholesale. 18 C.F.R. § 366.1 (2007). In some cases, certain authorizations by state PUCs may be required to receive EWG status. *See* 18 C.F.R. § 366.1 (2007) (citing 15 U.S.C. §§ 79z-5a(a)(2)-(4), 79z-5a(b)-(d) (2006)).

<sup>52</sup> 16 U.S.C. §§ 824(e), 824d, 824e (2006); *see also*, Federal Energy Regulatory Commission, *Repeal of the Public Utility Holding Company Act of 1935 and Enactment of the Public Utility Holding Company Act of 2005*, 115 FERC ¶ 61,096, Order No. 667-A, at 7 (Apr. 24, 2006), available at <http://www.ferc.gov/legal/maj-ord-reg/fed-sta/ene-pol-act/final-orders.asp#skipnavsub>; Stephen C. Hall and Marcus Wood, "Regulatory and Transmission-Related Issues," 10-1 to 10-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (both sites last visited June 18, 2007).

<sup>53</sup> 18 C.F.R. § 292.601 (2007) (under 30MW exempt from power plant licensing requirements and 20MW or less exempt from rate regulations); *see also* Stephen C. Hall and Marcus Wood, "Regulatory and Transmission-Related Issues," 10-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 18, 2007).

In addition to its inherent complexity, this is a constantly changing area of the law—especially as the Energy Policy Act of 2005 continues to be implemented and reinterpreted. Thus, while these and other energy-specific regulations should inform a farmer’s decision about how best to structure the wind business, only an experienced, qualified attorney can help navigate a farmer-owned project through this highly specialized area of the law.

Finally, farmers should be aware that some states are also considering adopting their own regulations to oversee energy-specific investments. Any developments in this area should be closely monitored.

### C. Corporate Farm Laws

Several states have laws restricting the ability of some liability-shielded business entities to farm or own agricultural lands.<sup>54</sup> Typically, these laws provide that corporations, LLCs, and limited partnerships may only engage in farming or own farmland if they qualify for a specific exemption and comply with reporting and other requirements.

These laws are generally designed to promote family-owned and -operated farming. Therefore, qualifying family-centered entities are typically permitted. However, non-family-owned, liability-shielded businesses seeking to own farmland on which to develop a wind project will likely need to qualify for a different exemption.

Minnesota’s law, for example, prohibits corporations, LLCs, certain trusts, and limited partnerships from farming or owning, acquiring, or otherwise obtaining a direct or indirect interest in agricultural land, unless the interest comes through a *bona fide* encumbrance. The statute, however, has 20 exemptions, some of which may be available for entities seeking to own agricultural land for a wind project.<sup>55</sup> For example, utility corporations, electric cooperatives, and non-profit corporations are exempted.<sup>56</sup>

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<sup>54</sup> See, e.g., Iowa Code §§ 9H.1 to 9H.15 (2006); Kan. Stat. §§ 17.5902 to 17.5904 (2006); Minn. Stat. § 500.24 (2006); Mo. Stat. § 350.015 (2006); N.D. Cent. Code §§ 10-06.1-01 to 10-06.1-27 (2005); Okla. Const. art. XXII, § 2; S.D. Codified Laws §§ 47-9A-1 to 47-9A-23 (2006) and S.D. Const. art. XVII, §§ 21-24; and Wis. Stat. § 182.001 (2006).

<sup>55</sup> Minn. Stat. § 500.24, subd. 3(a) (2006).

<sup>56</sup> Minn. Stat. § 500.24, subd. 2(t) (2006).

In addition, the Minnesota corporate farm law permits an otherwise restricted business entity to own an interest in agricultural land if the land is zoned nonagricultural, is located within an incorporated area, or within six years of purchasing the land, the entity will use the land for a “specific non-farming purpose.”<sup>57</sup> During the development of the land for nonfarm purposes, it may only be used for farming by a qualifying farmer or family farm business entity.

Minnesota also provides a *de minimis* lands exemption, whereby an otherwise restricted business entity may own and use agricultural land if the land is 40 acres or less and receives less than \$150 per acre annually in gross revenue in rental or agricultural production.<sup>58</sup>

Finally, for those entities that fall under the prohibition and do not qualify for an exemption, Minnesota’s corporate farm law allows the state Commissioner of Agriculture to grant a special exemption.<sup>59</sup> An exemption may be issued if “the exemption would not contradict the purpose” of the statute, and if “the petitioning entity would not have a significant impact upon the agriculture industry and the economy.” This exemption is a discretionary one, and the commissioner is not required to grant the exemption even when the two conditions are met. Moreover, every year the commissioner re-evaluates any specially exempted entity to ensure that it still complies with the two requirements. If the entity no longer complies, the commissioner will withdraw the exemption and enforcement proceedings may follow.

Regardless of how a restricted business entity receives an exemption, it is likely subject to reporting requirements. These requirements ensure that the business is not circumventing or directly violating the law. In Minnesota, the report must include the names and addresses of officers, directors, and owners of the entity, a description of the land owned, and a list of the products produced on the land.<sup>60</sup>

Other states may have similar restrictions, and these state laws should be carefully consulted.

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<sup>57</sup> Minn. Stat. § 500.24, subd. 2(u) (2006).

<sup>58</sup> Minn. Stat. § 500.24, subd. 2(bb) (2006).

<sup>59</sup> Minn. Stat. § 500.24, subd. 3(b) (2006).

<sup>60</sup> Minn. Stat. § 500.24, subd. 4 (2006).

## Chapter 11

# Interconnection and Transmission

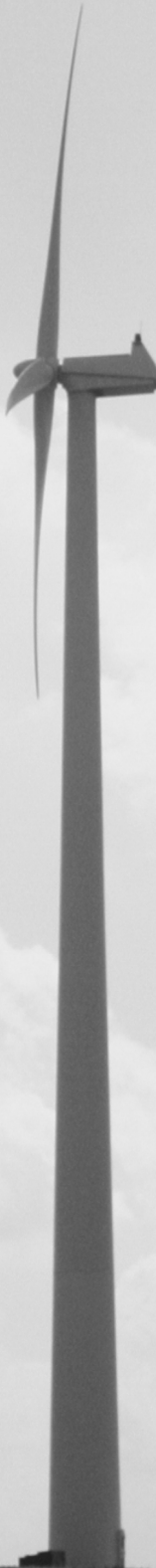
### I. Using the Electric Grid for Wind-Generated Power

A farmer who wishes to sell wind-generated electricity must *interconnect* his or her wind energy project with the electric grid. To accomplish this interconnection, the wind energy project must satisfy a series of technical requirements designed to ensure engineering compatibility with the grid. This in turn requires detailed studies of the grid's capacity to move additional electricity from the location of the project.

In addition to satisfying the technical aspects of interconnection, the farmer must negotiate an *interconnection agreement* with the utility that owns the grid at the point of interconnection or, if applicable, another entity that manages the transfer of energy across the grid in the region. This interconnection agreement should cover issues such as who pays for necessary grid upgrades and who is responsible for installing the interconnecting equipment.

In practice, negotiating to interconnect a wind project with the electric grid is closely related in time and purpose to the process of seeking a willing purchaser for the electricity generated by the project. If the interconnecting utility is the same as the purchasing utility, the *power purchase agreement* (PPA) and the interconnection agreement may be negotiated at the same time; however, the two agreements are legally and conceptually distinct.

If the interconnecting utility is not the ultimate purchaser of the electricity, the farmer will also need to negotiate rights of *transmission* across the grid in order to move the wind-generated electricity from the point of interconnection to the ultimate purchaser. This process of transmitting electricity across long distances of the electric grid owned and managed by multiple utilities is called *wheeling power*. Like interconnection, transmission requires both compliance with various technical engineering requirements and a negotiated agreement to secure the necessary transmission rights across the grid.



The topics of interconnection and transmission are exceedingly complex, and the implications for a particular wind project vary greatly depending on the project size and location. Costs associated with both interconnection and transmission can greatly impact the project's financial feasibility. The negotiation process can be time-consuming, and in some instances the waiting list (also called the *queue*) for getting a study of the new project's impact on the grid can be months or even years long. And, in some cases, it may turn out that interconnection is simply not technically and financially feasible for the project location. Therefore, it is crucial to gather information and begin working on this process as early as possible in the planning stages of a wind project.

This chapter will first discuss the various federal and state regulations that govern utilities' interconnection processes and decisions. Next it will outline some standardized interconnection procedures and agreements as examples of what issues a farmer might encounter and what terms may need to be negotiated in an interconnection agreement. This chapter will close with a look at transmission of generated power from the wind project to a purchaser.

## **II. Interconnection**

Interconnection has two components: (1) determining, from a technical and engineering standpoint, whether a generator can be safely and reliably interconnected with the electric grid, and (2) negotiating agreements that detail the terms and conditions of the interconnection.

Farmers seeking to sell wind-generated electricity through the electric grid will typically need to negotiate both of these aspects of interconnection directly with the utility that owns the power lines that will take the interconnection. However, in some cases, utilities have given the control over access to these power lines to a regional entity that manages and coordinates the entire electric grid on a regional basis. Although these regional entities were formed largely to coordinate the transmission of bulk power across multiple utilities' power lines, they have a major role in some farmers' interconnection requests, depending on the particularities of the power line at issue. If this is true for a given project, that farmer will need to negotiate some or all of his or her interconnection with these regional entities. Such an entity may be formally classified as an *Independent System Operator (ISO)* or a *Regional Transmission Organization (RTO)*, as discussed in more detail later in this chapter. However, they are referred to collectively here as *regional transmission providers*.

Historically, many utilities have resisted allowing small, independent energy generators, like wind projects, to interconnect with the grid. Many experts cite



the red tape and costs imposed on the interconnection process by these utilities as some of the biggest impediments to development of smaller independent energy generation projects.<sup>1</sup> For example, utilities can indirectly discourage interconnection projects by failing to respond to a request for interconnection in a timely manner, or by requiring excessive fees for the interconnection.

With increasing frequency, regulatory agencies at both the state and federal levels are beginning to respond to concerns about these utility-imposed obstacles to interconnection by requiring that utilities and regional transmission providers within their jurisdiction comply with certain interconnection standards. These standards are designed to reduce uncertainty and the transaction costs incurred by wind developers when attempting to independently negotiate interconnection with a utility. Thus, these standards typically require clear and reliable timelines for the interconnection process, the appointment of a utility representative who is responsible for interconnection issues, clearly defined technical engineering standards, and model terms and conditions for interconnection agreements, among other things.

These emerging state and federal interconnection rules typically lay out guidelines for the regulated utilities. Those utilities, in turn, are required to implement these regulatory guidelines in more detailed interconnection procedures and standard agreements that are incorporated into the utilities' filed tariffs, which must in turn be approved by the regulating agency.<sup>2</sup>

To be clear, then, it is the utilities and regional transmission providers, and not wind energy producers, who are directly subject to interconnection regulations. However, although wind energy producers are not likely to interact directly with the state and federal regulating agencies on these issues, they should become familiar with the governing rules in order to be best prepared for the interconnection process.

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<sup>1</sup> R. Brent Alderfer, M. Monika Eldridge, and Thomas J. Starrs, *Making Connections: Case Studies of Interconnection Requirements and Their Impacts on Distributed Power Projects* at i, 17 (Nat'l Renewable Energy Lab., Apr. 2000), available at <http://www.nrel.gov/docs/fy00osti/28053.pdf> (last visited June 6, 2007).

<sup>2</sup> See, e.g., Minnesota Public Utilities Commission, *In the Matter of Establishing Generic Standards for Utility Tariffs for Interconnection and Operation of Distributed Generation Facilities under Minnesota Laws 2001, Chapter 212*, Docket No. E-999/CI-01-1023, at 29 (Sept. 28, 2004), available at <http://www.puc.state.mn.us/docs/orders/04-0131.pdf> (last visited June 5, 2007) [hereinafter "MN DG Standard"].

## A. Government Regulation of Interconnection

As noted, both federal and state laws currently regulate utility interconnections. Whether state or federal rules apply to a given interconnection depends largely on: (1) what type of electric line the project is being connected to, and (2) which utility controls that line. These jurisdictional issues, however, are extraordinarily complex. There are few bright lines distinguishing between state and federal interconnection jurisdictions, and in many cases the issue of who is in charge is open to some debate.

Generally, federal interconnection rules, which are issued by the Federal Energy Regulatory Commission (FERC), apply to direct interconnections with high-voltage transmission lines that cross state lines and to interconnections with utilities that own, control, or operate these interstate transmission lines or sell wholesale energy across state lines.<sup>3</sup> FERC jurisdiction typically does not extend to rural electric cooperatives or municipal electric utilities.<sup>4</sup> However, federal jurisdiction does extend to these otherwise non-regulated utilities in some instances—for example, when a rural electric cooperative or municipal utility owns transmission facilities, access to those facilities will be subject to some federal requirements.<sup>5</sup>

State interconnection rules, on the other hand, generally cover the local distribution of energy not covered by FERC. This includes interconnections with in-state distribution lines that connect to the ultimate electric consumer.<sup>6</sup> It is also

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<sup>3</sup> 16 U.S.C. § 824 (2006); Federal Energy Regulatory Commission, *Preventing Undue Discrimination and Preference in Transmission Service*, 72 FERC ¶ 12,266, Order No. 890 (Feb. 16, 2007), available at <http://www.ferc.gov/whats-new/comm-meet/2007/021507/E-1.pdf> [hereinafter “FERC Order No. 890”]; FERC, *Standardization of Small Generator Interconnection Agreements and Procedures*, 70 FERC ¶ 34,190, Order No. 2006, at 4 (May 12, 2005), available at <http://www.ferc.gov/EventCalendar/Files/20050512110357-order2006.pdf> [hereinafter “FERC Order No. 2006”] (both sites last visited June 18, 2007). Note that FERC frequently grants rehearings of its orders. For this guide, citations refer to the original order unless a subsequent rehearing resulted in a substantive change necessary to the specific information being referenced at the time of this publication.

<sup>4</sup> 16 U.S.C. § 824(f) (2006).

<sup>5</sup> See, e.g., 16 U.S.C. § 824j-1 (2006).

<sup>6</sup> See generally, Federal Energy Regulatory Commission, *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public*

important to note that states choose whether their interconnection regulations will extend only to investor-owned utilities, or whether they will also regulate interconnections by rural electric cooperatives and municipal electric utilities.<sup>7</sup>

Even if a particular interconnection is not regulated by either state or federal rules, some utilities voluntarily set their own interconnection standards and make these self-imposed standards apply to all of, or some defined subset of, their interconnections.<sup>8</sup>

Finally, farmers should keep in mind that this is a constantly changing area of the law. Although not all states currently have interconnection standards in place, and some states have interconnection standards that do not apply to municipal utilities or rural electric cooperatives, this can change at any time. In fact, the Energy Policy Act of 2005 specifically requires states and unregulated utilities that do not yet have standardized interconnection procedures and agreements to consider adopting such standards, and to make a determination about implementation of such standards on or before August 8, 2007.<sup>9</sup>

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*Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, 82 FERC ¶ 61, 046, Order No. 888, at 402 (Apr. 24, 1996), available at <http://www.ferc.gov/legal/maj-ord-reg/land-docs/order888.asp> (last visited June 20, 2007) [hereinafter “FERC Order No. 888”] (listing 7 indicators of local distribution).

<sup>7</sup> Minnesota, for example, extends its interconnection rules to rural electric cooperatives and municipal utilities, but Iowa does not. Minn. Stat. § 216B.164, subd. 2 (2006); Iowa Ann. Code § 199-15.2(1)(e) (2007).

<sup>8</sup> See, e.g., National Rural Electric Cooperative Association, *Business and Contract Guide for Distributed Generations (DG) Interconnection* (March 18, 2002), available at <http://www.nreca.org/Documents/PublicPolicy/nf3569draft06a.doc> (last visited June 21, 2007).

<sup>9</sup> Energy Policy Act of 2005, 109 Pub. L. 58, Title XII, Subtitle E, § 1254(b), 119 Stat. 971 (Aug. 8, 2005) (amending 16 U.S.C. § 2622(b)). For a survey of what standards states have considered, adopted, and rejected, see the Interstate Renewable Energy Council’s “States’ Consideration of EPAct 2005 Standards” Table, available at [http://www.irecusa.org/fileadmin/user\\_upload/ConnectDocs/EPAct.pdf](http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/EPAct.pdf) (last visited June 15, 2007).

## **B. Mandatory Interconnection Under the Public Utility Regulatory Policies Act (PURPA)**

There are some special interconnection rules that apply when a wind project is a *Qualifying Facility* (QF) under the Public Utility Regulatory Policies Act (PURPA). As discussed in detail in the chapter about selling power (Chapter 9), PURPA provides a guaranteed market for most electricity generated by QFs at the utility's *avoided cost rate*. FERC's regulations interpreting PURPA also require electric utilities to interconnect with QFs.<sup>10</sup>

In general, the state has regulatory authority over interconnection with QFs.<sup>11</sup> In some cases, however, the interconnecting utility might not purchase all of the QF's output, and may instead agree to transport some portion of the QF's electric output on interstate lines to another purchasing utility.<sup>12</sup> In such cases, FERC has authority to regulate the interconnection, including rates, terms, and conditions.<sup>13</sup> In other words, FERC has authority over a QF's interconnection if the QF sells any of its electricity to an entity other than the utility directly interconnected with it.

## **C. Important Interconnection Issues**

This section will highlight issues in interconnection procedures and agreements that should be considered while navigating this process.

### **1. Interconnection Procedures**

Standardized interconnection procedures are designed to ensure that the proposed interconnection will not endanger the safety and reliability of the electric grid. Generally, standardized procedures establish: (1) timelines that utilities must follow when acting on a generator's interconnection request,

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<sup>10</sup> 18 C.F.R. § 292.303(c) (2006); *see also* 16 U.S.C. § 2602(4) (2006) (defining "electric utility" for PURPA purposes); 18 C.F.R. § 292.306 (2006) (requiring QFs to pay interconnection costs). The Energy Policy Act of 2005 opened the door to new exceptions to this requirement, as described in the chapter of this guide discussing selling power (Chapter 9). 109 Pub. L. 58, Title XII, Subtitle E, § 1253, 119 Stat. 967 (Aug. 8, 2005).

<sup>11</sup> *See* 18 C.F.R. § 292.306 (2006).

<sup>12</sup> 18 C.F.R. § 292.303(d) (2006).

<sup>13</sup> *See W. Mass. Elec. Co. v. FERC*, 165 F.3d.992, 926 (D.C. Cir. 1999).

(2) technical procedures for studying and evaluating the proposed project's impact on the electric grid, (3) methods for estimating the cost of designing and constructing the interconnection, and (4) methods for resolving disputes between the electricity producer and the utility.

One important standardized interconnection procedure is FERC's Small Generator Interconnection Procedure (SGIP), which applies to FERC-regulated utilities and regional transmission providers.<sup>14</sup> The SGIP requires regulated utilities and transmission providers to offer interconnection on terms that are approved by FERC for interconnections within FERC's jurisdiction.<sup>15</sup>

The SGIP actually provides three separate procedures for processing an interconnection request, depending on the exact size and qualifications of the project. Separate streamlined processes are possible for projects with capacity under 10 kW and projects with capacity between 10 kW and 2 MW. For projects with capacity between 2 MW and 20 MW, and for smaller projects that do not meet certain technical requirements, a more in-depth "Study Process" will be used.

#### ***FERC Interconnection Standards for Larger Projects***

The SGIP described in this section is used for projects with capacity up to 20 MW. FERC has adopted alternative standardized interconnection procedures for larger energy facilities, but these are beyond the scope of this discussion.

In addition to developing standard interconnection procedures and agreements for all large generators, FERC has established technical standards specifically for interconnection of large (over 20 MW) wind generation facilities to address those facilities' variable output, among other issues. These standards can be found in FERC Order No. 661, *Interconnection for Wind Energy*, 111 FERC ¶ 61, 353, which was issued on June 2, 2005, and is available on-line at <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10594521>.

<sup>14</sup> FERC Order No. 2006, at 1. FERC's Small Generation Interconnection rule creates a Small Generator Interconnection Procedure (SGIP) and a Small Generator Interconnection Agreement (SGIA) for projects up to 20 MW.

<sup>15</sup> 18 C.F.R. § 35.28(f) (2007) (requiring federally regulated public utilities and non-public utilities seeking certain reciprocity benefits to implement this standardized interconnection procedure and agreement or a similar federally approved standard).

One example of a state's standardized interconnection procedure is Minnesota's Distributed Generation Interconnection Rule (DG Standard). The DG Standard applies to generation facilities with capacity up to 10 MW and requires utilities in the state to file a tariff detailing interconnection standards consistent with the DG Standard.<sup>16</sup> The procedure in Minnesota's DG Standard is aimed toward projects that are not anticipated to affect the interstate transmission system.<sup>17</sup>

The following paragraphs highlight issues important to all interconnection procedures and use the FERC SGIP and Minnesota DG Standard procedures to show how some issues might be addressed. To be clear, in the absence of an applicable standardized procedure and agreement, wind project owners will need to independently negotiate with the interconnecting utility or regional transmission provider. However, even in that scenario, the standardized procedures and agreements can provide guidance.

**Interconnection Request.** Utilities and regional transmission providers require a range of information from wind project owners who request interconnection. The application form is likely to ask for details about facility location, how the electricity generated will be used (that is, used on-site or sold), the energy source (for example, wind), the generator type and model, the nameplate capacity rating of the system (for example, 100 kW or 5 MW), a diagram of the facility, and other technical and equipment specifications.<sup>18</sup>

**Engineering Studies.** An engineering study or series of studies will be required to determine the feasibility of interconnecting a wind project at the proposed location, and to identify the kind of equipment that will be necessary to ensure grid safety and reliability in the event of an actual interconnection. The precise types of studies required will vary by utility and by project, but could include a feasibility study, a system impact study, and a facilities study.<sup>19</sup> A feasibility study identifies potentially adverse grid impacts that could result from interconnecting the wind project, as well as equipment and upgrades that might be needed. A system impact study examines electric system impacts in more detail and the potential effect of

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<sup>16</sup> Minn. Stat. § 216B.1611 (2006); MN DG Standard, at 29.

<sup>17</sup> MN DG Standard, Attachment 1, *Interconnection Process for Distributed Generation* 1.

<sup>18</sup> See, e.g., FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure*, Attachment 2, *Small Generator Interconnection Request*.

<sup>19</sup> FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure* 8.

the project on the overall reliability of the electric system. A facilities study specifically identifies the equipment, engineering, procurement, and construction work needed and estimates the costs of these.

Usually a *scoping meeting*, with technical experts representing both the wind project and the utility, will be held early in the process in order to determine the studies needed and define their scope. Farmers should be aware that the utility and wind project owner may need to enter into an agreement, separate from the final interconnection agreement, for each engineering study that must be completed in order to define the scope of the study, assumptions to be used, and costs.<sup>20</sup>

**Equipment and Upgrades.** Various equipment purchases, modifications, and upgrades to the existing grid might be necessary to physically and electrically interconnect a wind project to the electric grid. There is a distinction between things needed for the actual interconnection of the wind generator to the distribution or transmission system, and things that need to be done to the distribution or transmission grid itself to allow it to accommodate the wind project.<sup>21</sup> Both types of improvements may be needed. Who ultimately owns the newly installed equipment and the wind project owner's cost obligations depend on whether the improvement is needed only to accomplish the physical interconnection or whether it is a system-wide upgrade. Engineering studies and subsequent negotiations with the utility or regional transmission provider will determine precisely what work needs to be done.

**Timeline.** The interconnection process formally begins with the submission of an interconnection request by a wind project owner to a utility or transmission provider. From that point, a farmer can generally expect the process to take at least several months for a multi-MW wind project.<sup>22</sup> Standardized interconnection procedures provide specific timelines for the

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<sup>20</sup> See, e.g., FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure*, Attachments 6, 7, and 8.

<sup>21</sup> FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure*, Attachment 1, *Glossary*.

<sup>22</sup> See, e.g., Midwest Independent Transmission System Operator, SGIP Timeline, available at <http://www.midwestiso.org/page/Small%20Generator> (click on "SGIP Timeline Chart" under "Interconnection Procedure Overview") (last visited June 11, 2007).

utility or regional transmission provider to review an application for completeness and meet with the project owner to define the study process. Interconnection requests submitted to transmission providers using FERC's procedures go into a *queue* system and are evaluated in the order in which they are received. To expedite the interconnection process for smaller generators, FERC's SGIP provides a "Fast Track Process" for projects between 10 kW and 2 MW. Projects in that size range that pass a screening for potential safety and reliability issues may avoid the longest delays.<sup>23</sup>

**Costs.** The costs of engineering studies and interconnection equipment are generally the responsibility of the wind project owner, unless the interconnecting utility agrees otherwise. The wind project owner might also have to pay for necessary electric grid upgrades beyond the point of interconnection.

A processing fee or a deposit will likely be required with the submission of an interconnection request. For example, under the FERC SGIP, a nonrefundable \$500 processing fee is required for projects smaller than 2 MW, and a deposit up to \$1,000 is required for projects between 2 MW and 20 MW.<sup>24</sup> Minnesota's DG Standard sets application fees on a sliding scale based on project size, with a maximum fee of \$1,500 for projects of 10 MW and more.<sup>25</sup>

Additional deposits might be required for engineering studies. The total fees for those studies will be several thousands of dollars for a one- or two-turbine wind project.<sup>26</sup> The actual installation and construction of

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<sup>23</sup> FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure*, at 3-6. Some generators might be able to request to be connected "out of queue" order, but might face significant additional costs. See Bryan D. Morlock, *Clean Energy Resource Team* (Mar. 5, 2004), available at <http://www.cleanenergyresourceteams.org/westcentral/Clean%20Energy%20Resource%20Team%20-Bryan%20Morlock.pdf> (last visited June 20, 2007).

<sup>24</sup> FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure*; Attachment 2, *Small Generator Interconnection Request* 1.

<sup>25</sup> MN DG Standard, Attachment 1 (Process) at 5.

<sup>26</sup> Lisa M. Daniels, Sarah E. Johnson, and Wes Slaymaker, *Harvest the Wind: A Wind Energy Handbook for Illinois* 104 (IL Inst. for Rural Affairs 2004), available at [http://www.iira.org/pubsnew/publications/IVARDC\\_Reports\\_614.pdf](http://www.iira.org/pubsnew/publications/IVARDC_Reports_614.pdf) (last visited June 11, 2007).



interconnection equipment might cost from tens of thousands to more than two hundred thousand dollars for a one- or two-turbine wind project.<sup>27</sup> If a new substation or build-out of transmission lines is required, the costs could be significantly greater.

**Dispute Resolution.** Standardized interconnection procedures usually provide a method for resolving disputes that cannot be worked out between the parties.<sup>28</sup>

### *Combining Forces to Improve Project Economics*

Many experts recommend that several small projects should seek to develop in a cluster near each other and then coordinate to save money on interconnection and other projects costs. For example, building a new substation or installing a new transmission line would be more economically feasible if several wind projects could share the benefits and the costs. In such a case, the projects could maintain separate ownership and financial structures, but collaborate in those situations, like interconnection grid upgrades, where economies of scale really matter. There might be substantial organizational and transactional barriers to such an arrangement, but the potential cost-savings might make this strategy, called *aggregation*, worth investigating.

## **2. Interconnection Agreements**

Before the actual interconnection can take place, indeed before any interconnection construction begins, the utility or transmission provider and project owner must enter into an interconnection agreement. The interconnection agreement describes the legal relationship between the two

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<sup>27</sup> See, e.g., Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 77, Table 7.1 (2005), available at [http://www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf) (last visited June 15, 2007) (land zoned as exclusive Farm Use or Grazing/Farming is considered agricultural land); DanMar & Associates, Presentation at Community Wind Energy Conference (June 24, 2004), available at [http://www.windustry.org/conferences/june2004/june2004\\_proceedings/juhl.pdf](http://www.windustry.org/conferences/june2004/june2004_proceedings/juhl.pdf) (last visited June 11, 2007).

<sup>28</sup> See, e.g., FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure* 11-12; MN DG Standard, Attachment 1 (Process) at 3.

parties and their rights and responsibilities, including provisions for who must pay for necessary grid modifications and how the interconnection will be accomplished.

It is important to note that the interconnection agreement is not itself a contract for the purchase of electricity nor for transmission of electricity to portions of the electric grid owned by other utilities. A power purchase agreement, and possibly a transmission agreement, must be contracted for separately.

The remainder of this section will identify the major issues covered in interconnection agreements.<sup>29</sup> As noted, several utilities subject to state or federal regulation now have standardized interconnection agreements, and this section highlights how some of the issues are addressed in those standardized examples.

As has been emphasized throughout this guide, a farmer should have an experienced attorney review any contract related to a wind project before signing.

***Point of Interconnection.*** Interconnection agreements should include detailed, technical descriptions of the generation facilities, the exact design and specifications for the agreed upon interconnection with the grid, and a detailed description of the chosen metering equipment. The description of the wind facility should specify the maximum installed capacity permitted to interconnect with the grid. The exact point at which the wind facility will be connected to the electric grid should be described precisely. This is also sometimes called the *point of common coupling*.<sup>30</sup>

***Ownership.*** The interconnection agreement should make clear the ownership of every piece of the interconnection equipment. Typically, some of the interconnection facilities are owned by the wind project, and some are owned by the utility. Grid upgrades are typically owned by the utility that controls those particular lines.

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<sup>29</sup> See, e.g., FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement*; MN DG Standard, Attachment 5 (Agreement).

<sup>30</sup> The point of interconnection is often the same as the *point of delivery* in a power purchase agreement—where ownership of the power changes hands—but it does not have to be.

**Construction.** The interconnection agreement should specify who is responsible for building the wind project and who is responsible for building, installing, and operating the interconnection facilities. Typically, the wind project owner is solely responsible for the construction, operation, and maintenance of the wind facility, while each party is responsible for its own interconnection facilities as identified in the agreement. The utility or regional transmission provider that administers the distribution and transmission lines carrying the generated energy is usually responsible for the design, construction, and installation of any distribution or network upgrades.

***Categories of Equipment and Upgrades that May Be  
Required for Interconnection***

***Interconnection facilities*** include all equipment between the wind turbine and the point of interconnection, including any modifications, additions, or upgrades that must be made to interconnect the wind project to the grid. They are solely used by the wind project for its own interconnection.

***Distribution upgrades*** include additions, modifications, and upgrades to the utility's electrical distribution lines beyond the point of interconnection that are necessary to allow the electricity generated by the interconnecting wind project to be transmitted on those lines.

***Network upgrades*** include additions, modifications, and upgrades to the utility's transmission system that are necessary to move the wind project's electricity to market. These are different than distribution upgrades, which occur on the smaller distribution lines that move power to the end user.

For a more thorough explanation of terms related to interconnection, the glossary accompanying FERC's SGIA may be useful. It is available on-line at [www.ferc.gov/industries/electric/indus-act/gi/small-gen/agreement.doc](http://www.ferc.gov/industries/electric/indus-act/gi/small-gen/agreement.doc).

***Allocating Costs.*** Who pays the costs of interconnection and how much those costs may be are major issues for wind project feasibility.<sup>31</sup>

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<sup>31</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 4.2.

Typically, the wind project owner is responsible for the costs of all interconnection facilities, including metering equipment, and all distribution upgrades that are necessary as a result of the project.<sup>32</sup> In addition to outright equipment expenses, these costs can include overhead, construction, operation, maintenance, repairs, and replacement of any newly installed facilities.

If any upgrades are required to the transmission grid, the SGIA requires the wind project owner to be initially responsible for the costs of those network upgrades; however, those costs will usually be repaid to the project owner over time.<sup>33</sup> Because all customers along the transmission line will benefit from the upgrades paid for by the newly interconnecting wind facility, the utility will be able to recover the cost of the upgrades in the long term through its transmission rates. Therefore, a utility following the SGIA should reimburse the interconnecting wind facility for the cost of network upgrades.<sup>34</sup>

***Payment Schedule and Financial Security.*** Interconnection agreements should set out a payment schedule for the facilities and upgrades which are the wind project owner's responsibility. The utility might require reassurance in the form of some security or other guarantee of the owner's ability to pay the estimated costs of the work to be done.

***Termination.*** The interconnection agreement should provide a process for termination of the agreement. Under the FERC SGIA, the wind project owner may terminate the interconnection agreement at any time by giving

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<sup>32</sup> See FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement*, Attachment 1, *Glossary of Terms: Interconnection Facilities*.

<sup>33</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶¶ 5.2, 5.2.1.

<sup>34</sup> However, some regional transmission providers, including the Midwest ISO, have determined that some interconnecting projects are not entitled to full reimbursement. This issue continues to develop. See, e.g., Federal Energy Regulatory Commission, *Midwest Independent Transmission System Operator, Inc., Order on Technical Conference, Rehearing, Clarification, and Compliance*, 117 FERC ¶ 61,241 (Nov. 29, 2006), available at <http://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=11193091> (last visited June 30, 2007).

the utility 20 business days' written notice.<sup>35</sup> The utility does not typically have the same right to terminate the agreement at any time after giving notice, but either the utility or the wind project owner may terminate the interconnection agreement in case of default by the other party.<sup>36</sup>

**Operational Issues.** The interconnection agreement will cover a range of issues relating to the ongoing operation of the wind project, including technical standards that must be met and maintenance practices that must be followed.

**Inspection, Testing, and Right of Access.** Interconnection agreements will usually provide for testing and inspection of the wind facility before interconnection. Under FERC's SGIA, the wind project owner is responsible for testing and inspection, but the utility has the right to observe and inspect the site at its own expense.<sup>37</sup> Most interconnection agreements also give the utility an ongoing right of access to the wind facility under certain conditions. FERC's SGIA provides the utility with a right of access to the wind project premises for a reasonable purpose and at a reasonable time, if the wind project owner receives reasonable notice from the utility.<sup>38</sup> The utility will likely also seek a right to access the premises at any time in the event of an emergency or hazardous condition.

**Disconnection.** For a variety of reasons, a utility might need to disconnect a wind generator from its system. Such situations should be provided for in the interconnection agreement. Under FERC's SGIA, the utility has the right to temporarily disconnect the wind project if it is reasonably necessary due to emergency conditions, routine maintenance, construction and repair, forced outages to do immediate repairs, or adverse operating effects on the grid created by the operation of the wind facility.<sup>39</sup>

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<sup>35</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 3.3.1.

<sup>36</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶¶ 3.3.2, 7.6.2.

<sup>37</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 2.1.

<sup>38</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 2.3.2.

<sup>39</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 3.4.4.

**Modification of the Wind Project.** The interconnection agreement should set out the process required when the wind project owner wishes to make changes to the wind facility that will have a material impact on the safety or reliability of the grid. Under FERC's SGIA, written authorization for the changes must be obtained from the utility.<sup>40</sup>

**Insurance.** The interconnection agreement will likely include a requirement that the wind project owner obtain sufficient liability insurance to cover the wind project and the interconnection. Standardized agreements may or may not include specific requirements for the type and amount of coverage.<sup>41</sup>

**Confidentiality.** The interconnection agreement will likely include a provision describing each party's obligation to protect the confidential information of the other party.<sup>42</sup> Information about the design, operating specifications, and metering data of the wind facility might be considered confidential information.

**Duration of the Agreement.** The interconnection agreement should state how long it will be in effect and might describe how it can be renewed. The initial term of an interconnection agreement might be long—possibly 10 to 20 years—with shorter renewal periods. An interconnection agreement might also remain effective until some specific event happens (for example, until the parties mutually agree to cancel the agreement) rather than for a specific time period.

**Dispute Resolution.** The interconnection agreement should provide a process for dispute resolution. This might include mediation, arbitration, or referral to a particular authority such as the state public utilities commission. For example, under Minnesota's DG Standard, the parties agree to participate in good faith in mediation of disputes; if mediation is unsuccessful, the parties may bring the dispute before the Minnesota Public

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<sup>40</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 3.4.5.

<sup>41</sup> See, e.g., FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶ 8.1; MN DG Standard, Attachment 5 (Agreement), at 8-9.

<sup>42</sup> See, e.g., FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* 15; MN DG Standard, Attachment 5 (Agreement), at 11-12.

Utilities Commission for resolution.<sup>43</sup> FERC provides a Dispute Resolution Service to assist parties to an SGIA.<sup>44</sup>

**Other Contract Issues.** The interconnection agreement will likely cover other general contract issues such as assignment of rights under the agreement, liability, allocation of tax liabilities, and definitions of what constitutes default.<sup>45</sup>

### III. Transmission

As mentioned earlier, an interconnection agreement alone does not give the wind project the right to transmit its generated electricity over portions of the electrical grid that are not owned by the interconnecting utility. Therefore, if the wind project has a power purchase agreement with an entity other than the interconnecting utility, the wind project owner must contract for access to transmission services across the grid in order to *wheel* the project's energy across the grid to the ultimate buyer. These transmission agreements may be made separately with each utility whose transmission lines will be used, or (more likely) the wind project will contract with a regional transmission provider for these services.

Acquiring transmission services is a complicated process that, like interconnection, requires sophisticated technical and legal assistance to navigate. This section will discuss only the basics of transmission service, who provides it, and some key transmission issues that regularly affect wind projects. As with interconnection, acquiring the necessary transmission rights also requires technical compliance with engineering standards that ensure safe and reliable functioning of the transmission grid.

#### A. Regulatory Control of Transmission System

Significant coordination of the electric grid is required to ensure the system does not become congested. If too much electricity is put on a particular line at a particular time, the system can become overloaded and shut down. If too little

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<sup>43</sup> MN DG Standard, Attachment 5 (Agreement), at 8.

<sup>44</sup> FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* 16.

<sup>45</sup> See generally FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement*; MN DG Standard, Attachment 5 (Agreement).

electricity is added to the grid at a given time, brownouts or even blackouts can result.

To best facilitate this coordination regionally, many of the utilities that own the actual transmission lines give operational control of their lines to an Independent System Operator (ISO) or Regional Transmission Organization (RTO). RTOs and ISOs are voluntarily organized within the electric industry and are operated independently from their industry members. These regional transmission providers then control who puts electricity on the transmission lines at any given time in order to ensure the safety and reliability of the system.

FERC now encourages the formation RTOs, and establishes the minimum characteristics and minimum functions<sup>46</sup> that an entity must satisfy in order to become an RTO.<sup>47</sup> In most parts of the country, a wind project that needs transmission services is likely to deal with one of these organizations. Alternatively, the utility that does the interconnection may deal directly with a regional transmission provider on the project's behalf.

For example, the Midwest Independent Transmission System Operator (Midwest ISO) covers most of the transmission territory in several Midwestern states. This organization was established as an ISO and then became the first FERC-approved RTO in 2001.<sup>48</sup>

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<sup>46</sup> See generally Federal Energy Regulatory Commission, *Regional Transmission Organizations*, 89 FERC ¶ 61,285, Order No. 2000, at 99-100 (Dec. 20, 1999), available at <http://www.ferc.gov/legal/maj-ord-reg/land-docs/RM99-2A.pdf> (last visited June 21, 2007).

<sup>47</sup> ISOs emerged as some of the first regional entities designed to fulfill federal requirements that access to transmission be open and administered on a non-discriminatory basis. Today, FERC encourages the formation of RTOs and has established 12 necessary RTO characteristics and functions—including that an RTO must be of “sufficient regional scope.” The primary difference between RTOs and ISOs is that ISOs never had this required geographical component. FERC, *Frequently Asked Questions, What Is the Difference between an RTO and an ISO?*, <http://www.ferc.gov/o12faqpro/default.asp?Action=Q&ID=261> (last visited June 8, 2007).

<sup>48</sup> See Midwest Independent Transmission System Operator, *About Us*, available at <http://www.midwestiso.org/page/About%20Us> (last visited June 19, 2007).



FERC regulations require utility and regional transmission providers to offer transmission service on an open, nondiscriminatory basis.<sup>49</sup> To create an open market in wholesale electricity, FERC requires each transmission provider, whether a regional organization or individual utility, to file an Open Access Transmission Tariff (OATT).<sup>50</sup> This OATT, once approved by FERC, sets the rates, terms, and conditions under which transmission and related services are provided.

FERC can also order a utility to make its transmission lines available to an electric generator for sale of electricity directly to a retail consumer.<sup>51</sup> Upon approving an application for such a transmission order, FERC sets a transmission rate to be paid by the electric generator that allows the utility “the recovery . . . of all the costs incurred in connection with the transmission services.”<sup>52</sup> A wind project might benefit from this option if, for example, there was an opportunity to sell power directly to a large energy user, such as a manufacturing plant; however, this scenario is likely to be very rare.

## **B. Special Transmission Rules Under PURPA**

In some instances, states may also assert authority over transmission issues. For example, Minnesota has a PURPA-related law that requires regulated utilities in the state to provide transmission service to QFs with capacity over 30 kW. This law requires utilities to either provide wheeling for the QF’s output or agree with the QF to sell the QF’s output to any other Minnesota utility anticipating or planning for generation expansion in the next 10 years.<sup>53</sup> QFs receive full payments for the electricity sold to these other utilities, less reasonable wheeling charges and line losses.

Similarly, under the federal rules, if a utility is required to buy a QF’s output, the utility and QF can agree to instead sell the electricity to a different utility, with

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<sup>49</sup> FERC Order No. 890, at 1.

<sup>50</sup> FERC Order No. 890, Appendix C, *Pro Forma Open Access Transmission Tariff*. FERC now extends its open access requirements to otherwise non-regulated utilities, such as rural electric cooperatives. 109 Pub. L. 58, Title XII, Subtitle C, § 1231, 119 Stat. 955 (Aug. 8, 2005) (codified at 16 U.S.C. § 824j-1).

<sup>51</sup> 16 U.S.C. § 824j (2006).

<sup>52</sup> 16 U.S.C. § 824k (2006).

<sup>53</sup> Minn. Stat. § 216B.164, subd. 4(c) (2006).

the interconnecting utility being obligated to transmit the electricity.<sup>54</sup> The rate paid to the QF for the electricity will be adjusted to reflect line losses, but the QF cannot be charged for the transmission services.

### C. Network Upgrades and Transmission Rates

As discussed above, when a wind project requesting interconnection will clearly impact the transmission grid, those impacts are studied as part of the initial interconnection process.<sup>55</sup> Any network upgrades determined to be needed for interconnection will prepare the project, to some degree, for ultimate transmission service; however, more upgrades might be required when the wind facility requests actual transmission service for a particular capacity to specific delivery points. In such a case, the transmission provider may do additional studies and require additional upgrades under the terms provided in the OATT.<sup>56</sup>

As discussed in the interconnection section of this chapter, any necessary network upgrades required as part of the interconnection process will be paid for by the wind facility, but those costs will usually be recovered through credits against transmission service charges.<sup>57</sup> The general rule for transmission upgrades is different. If the transmission provider determines—as part of the transmission request evaluation process—that more network upgrades are necessary, the OATT requires the transmission provider to make any necessary upgrades, with the wind facility bearing the full cost.<sup>58</sup> Rather than requiring a wind facility to simply pay for network upgrades upfront, FERC has traditionally allowed the transmission provider to recover the cost of network upgrades through the transmission rates charged to the wind facility.<sup>59</sup>

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<sup>54</sup> 18 C.F.R. § 292.303(d) (2007).

<sup>55</sup> Under FERC's SGIP, these impacts are considered as part of the System Impact Study. FERC Order No. 2006, Appendix E, *Small Generator Interconnection Procedure* 9-10.

<sup>56</sup> FERC Order No. 890, Appendix C, *Pro Forma Open Access Transmission Tariff* ¶¶ 19, 32.

<sup>57</sup> See FERC Order No. 2006, Appendix F, *Small Generator Interconnection Agreement* ¶¶ 5.2, 5.2.1.

<sup>58</sup> FERC Order No. 890, Appendix C, *Pro Forma Open Access Transmission Tariff* ¶ 13.5.

<sup>59</sup> See FERC Order No. 2006, at 118 n.127.

Given this rate scheme, it may be advantageous to maximize the amount of network upgrades that are contracted for as part of the initial interconnection process, as the costs of network upgrades in that process are credited back to the electricity generator while the cost of network upgrades in the transmission process must be borne directly by the new generator.

#### **D. Unique Issues and Solutions for Transmitting Wind-Generated Electricity**

The transmission rules were originally designed for conventional, “dispatchable” power generation that can be precisely scheduled, and these rules have not always transferred well to renewable energy sources, like wind, that are variable and inherently hard to predict. Wind generators also raise unique transmission issues due to their relatively low capacity and distance from population centers.<sup>60</sup> However, amendments to the OATT adopted early in 2007 make some significant headway toward addressing these issues.<sup>61</sup>

##### **1. Duration of Transmission Service**

Wind facilities are eligible for point-to-point service from the transmission provider. This means that they can contract for transmission service from the point of interconnection to the point of delivery to the buyer.<sup>62</sup> Until now, most wind generators have had to obtain contracts for *long-term firm point-to-point service*, which forces the wind project to reserve its maximum transmission capacity with the transmission provider ahead of time.<sup>63</sup> In this scenario, wind projects have had to pay transmission charges for all of their maximum reserved capacity, which is necessary for the windiest times. However, in reality, the intermittency and short-term unpredictability of the wind means that these projects actually use only a portion of that reserved,

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<sup>60</sup> Steven Stoft, Carrie Webber, and Ryan Wiser, *Transmission Pricing and Renewables: Issues, Options, and Recommendations* 13-18 (Lawrence Berkeley Nat'l Lab. May 1997), available at <http://eetd.lbl.gov/EA/EMP/reports/39845.pdf> (last visited June 20, 2007).

<sup>61</sup> See FERC Order No. 890, at 4-5.

<sup>62</sup> FERC Order No. 890, Appendix C, *Pro Forma Open Access Transmission Tariff* Pt. II.

<sup>63</sup> Steven Stoft, Carrie Webber, and Ryan Wiser, *Transmission Pricing and Renewables: Issues, Options, and Recommendations* 1-2 (Lawrence Berkeley Nat'l Lab. May 1997), available at <http://eetd.lbl.gov/EA/EMP/reports/39845.pdf> (last visited June 20, 2007).

purchased capacity.<sup>64</sup> Generators also might be denied long-term transmission service if line capacity is not available for their maximum output, even if the available line capacity would be exceeded for only a few hours per year.<sup>65</sup>

Nonetheless, a long-term contract for transmission services is important for project financing. Until 2007, wind energy generators' only other option was to select *non-firm transmission service*. Non-firm service means interruptible service that is scheduled by the transmission provider only on an "as available" basis. A wind project using non-firm transmission service would not have guaranteed access to the grid for its electricity output, which could jeopardize the project's ability to meet its obligations under a power purchase agreement and, therefore, would create problems for project financing.

FERC's 2007 OATT amendments create an alternative type of transmission service called *conditional firm*, which allows generators to take advantage of transmission capacity that is used only occasionally.<sup>66</sup> Under the newly authorized conditional firm transmission service, wind project owners can enter into long-term contracts for firm service and yet keep their costs down by releasing claims on transmission capacity during limited times of non-firm service designated in the contract.<sup>67</sup> For example, this might allow a wind project to release its claim on (and obligation to pay for) a certain amount of transmission capacity during months of seasonally lower wind speeds. Conditional firm service also allows more efficient use of the existing

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<sup>64</sup> Steven Stoft, Carrie Webber, and Ryan Wiser, *Transmission Pricing and Renewables: Issues, Options, and Recommendations* 1-2 (Lawrence Berkeley Nat'l Lab. May 1997), available at <http://eetd.lbl.gov/EA/EMP/reports/39845.pdf> (last visited June 20, 2007).

<sup>65</sup> Steven C. Hall and Marcus A. Wood, "Regulatory and Transmission-Related Issues" 10-6 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>66</sup> FERC Order No. 890, Appendix C, *Pro Forma Open Access Transmission Tariff* ¶ 15.4(c); see also FERC Order No. 890, at 527 n.556 ("Conditional firm point-to-point service . . . and planning redispatch point-to-point service . . . are options available under long-term firm point-to-point service.").

<sup>67</sup> Stoel Rives, LLP, *EnergyLaw Alert: Order No. 890: FERC Creates New Transmission Service Rules for Wind Energy: Prying Open the Black Box* (Feb. 22, 2007), available at <http://www.stoel.com/showalert.aspx?Show=2302> (last visited June 20, 2007).

power grid by making available line capacity that is only used occasionally but would be considered unavailable year-round under a long-term firm contract.<sup>68</sup>

## 2. Generation Imbalance

Wind projects are also subject to charges for additional, “ancillary” transmission services designed to help ensure the safety and reliability of the electric grid. One such service that has been particularly problematic for wind facilities is *generation imbalance service*, which a wind facility is required to pay for if it delivers an amount of energy that is different from the amount it had reserved on the system.<sup>69</sup> Because wind projects cannot control or predict the exact amount of electricity that will be generated by the project in a given time period, they have been historically disadvantaged by these charges.

FERC’s new OATT order addresses this issue with new rules specifying that imbalance charges for wind should be based on actual costs to the transmission provider for dealing with the imbalance.<sup>70</sup> This ensures that wind facilities are not unduly penalized for the intermittent nature of their energy resource.

Some larger wind projects have also responded to challenges created by the intermittency of the wind by contracting with other electricity generators to provide “firming and shaping” products to the wind facility. This means that the other energy generator agrees to take or supply energy as needed to keep the wind facility’s output in line with its scheduled reserved capacity in the transmission system. These arrangements may not be available in all

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<sup>68</sup> Steven C. Hall and Marcus A. Wood, “Regulatory and Transmission-Related Issues” 10-6 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>69</sup> Steven C. Hall and Marcus A. Wood, “Regulatory and Transmission-Related Issues” 10-5 to 10-6 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf) (last visited June 19, 2007).

<sup>70</sup> FERC Order No. 890, Appendix C, *Pro Forma Open Access Transmission Tariff*, Schedule 9.

areas, and may also be expensive.<sup>71</sup> Moreover, their continued need, given the 2007 OATT changes, is uncertain.



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<sup>71</sup> Steven C. Hall and Marcus A. Wood, "Regulatory and Transmission-Related Issues" 10-5 to 10-6 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), available at [http://www.stoel.com/webfiles/LawOfWind\\_WEB\\_02\\_07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf); Steven Stoft, Carrie Webber, and Ryan Wiser, *Transmission Pricing and Renewables: Issues, Options, and Recommendations* 24 (Lawrence Berkeley Nat'l Lab. May 1997), available at <http://eetd.lbl.gov/EA/EMP/reports/39845.pdf> (both sites last visited June 19, 2007).

## Chapter 12

# Federal and State Incentives for Wind Development

The federal government and many state governments now offer various incentives for wind energy development. Many of these incentives are specifically targeted to facilitating farmer-owned wind energy projects of a range of sizes.

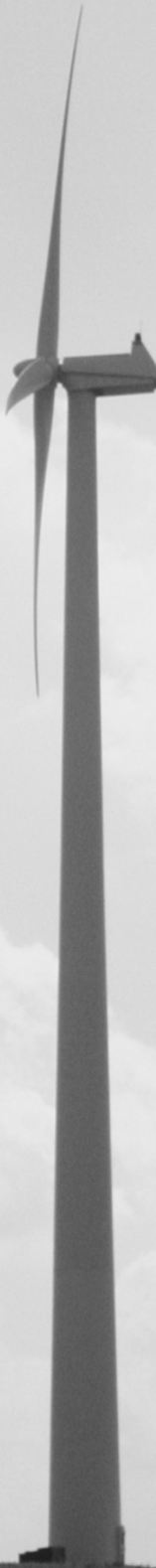
Incentives can take many different forms. This chapter summarizes direct production-based payments, which can add to the revenue from generating new renewable energy, and forms of government-subsidized financing programs, including direct government grants and loans. Finally, this chapter also touches on some ways in which states have sought to encourage wind energy development through regulations placed on utilities—either mandating or facilitating utility purchases of farmer-owned wind energy.

While some of these incentives are available on a first-come, first-served basis to eligible applicants, others have a competitive application process. In addition, many incentives are of limited availability, and this is particularly true if they depend on annual government appropriations. Therefore, it is in a farmer's best interest to pursue a place in these government programs as early as possible.

Many of these incentive programs are state-created, and therefore vary depending on where the project is located. Farmers will need to do some research to find out about the state and federal incentives for wind development that are available in their area at the time of the proposed project.<sup>1</sup> Farmers should work with a local attorney or other wind expert who is up-to-date on the latest developments.

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<sup>1</sup> Some additional information on state incentive programs can be found in the Database of State Incentives for Renewables and Efficiency, which is updated regularly and made available on-line at <http://www.dsireusa.org>. In addition, state agencies such as the Department of Commerce, Department of Energy, or Department of Agriculture may be able to provide additional information about any state wind incentives that are available.



## I. Direct Payment Production Incentives

Production-based incentives for wind energy development provide a direct payment (or tax credit) to qualifying wind projects, based on the amount of energy produced. This chapter will only cover incentives that are not tax-related; however, farmers should be aware that many federal and state production incentives take the form of tax credits, including both the federal production tax credit (PTC) for renewably generated energy, and state PTCs. These and other tax issues related to wind development are discussed in the next chapter of this guide.

Although the federal PTC and any state PTCs are notable examples of production-based incentives, the production incentives discussed here result in a direct cash payment to the project owner (rather than a tax credit), and therefore do not require the project owner to have a separate source of tax liability sufficient to take advantage of a PTC. Therefore, these forms of direct payment production incentives can be particularly advantageous to many farmers.

A handful of states, including California and Massachusetts, currently provide some wind project owners with direct incentive payments.<sup>2</sup> Minnesota has also had a very successful production incentive program. Minnesota's production incentive provides eligible wind project owners with cash payments of 1 to 1.5 cents per kWh of generated renewable energy over 10 years of the project's operation.<sup>3</sup> The program is limited to projects using renewable resources, such as wind power, that have a nameplate capacity of 2 MW or less.<sup>45</sup> The project also

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<sup>2</sup> California, Massachusetts, Nevada, New Jersey, and Washington currently provide some direct production incentives that may be useful to wind project owners. Database of State Incentives for Renewable Energy (DSIRE), *Financial Incentives for Renewable Energy* (table), <http://www.dsireusa.org/summarytables/financial.cfm?&CurrentPageID=7&EE=0&RE=1> (last visited June 4, 2007).

<sup>3</sup> Minn. Stat. § 216C.41 (2006).

<sup>4</sup> Minn. Stat. § 216C.41 (2006). Certain cooperative associations can have up to 7 MW of nameplate capacity. Minn. Stat. § 216C.41, subd. 1(c)(3) (2006).

<sup>5</sup> Minn. Stat. § 216C.41, subd. 1(c)(3) (2006).



has to be majority-owned by a Minnesota resident, business, government unit, municipal utility, or cooperative electric association.<sup>6</sup>

Minnesota's production incentive has gone through funding changes over the years and is now supporting 225 MW of wind production in the state. However, all of the current funding is committed to existing projects, and the program stopped taking applications on January 1, 2005. No new appropriations are currently expected.<sup>7</sup>

The federal government also currently makes a direct production payment available to certain tax-exempt entities.<sup>8</sup> This federal Renewable Energy Production Incentive (REPI) is available only to Native American tribes, state and local governments, municipal utilities, rural electric cooperatives, and other non-profit entities, and it is intended to provide a benefit to tax-exempt entities similar in value to what the federal PTC provides to taxable entities.<sup>9</sup>

## II. Government-Supported Project Financing

Some farmer-owned projects have difficulty accessing traditional commercial loans and equity investments. Even when available, these sources of financing can be quite expensive. Therefore, several states and the federal government have tried to encourage farmer-owned wind development by creating grant and loan programs to assist with the financing of these projects.

### A. State Grant Programs

State grant programs offer direct financial assistance to wind project developers and typically have no requirement that any of the grant amount be paid back. State programs vary in the type of benefits offered, the eligibility requirements for those benefits, and how the grants are funded.

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<sup>6</sup> Minn. Stat. § 216C.41, subd. 1(c)(2)(3), subd. 6(a) (2006). This requirement has been in effect since July 1, 1999.

<sup>7</sup> Minn. Dept. of Commerce, *Energy Info Center: Renewable Energy Incentives*, <http://www.state.mn.us/portal/mn/jsp/content.do?contentid=536885915&contenttype=EDITORIAL&agency=Commerce> (last visited June 4, 2007).

<sup>8</sup> 42 U.S.C. § 13317 (2006).

<sup>9</sup> 42 U.S.C. § 13317(b) (2006).

To illustrate some of the benefits that have been offered, this section highlights two sample grant programs from Minnesota and one from Oregon.

**Minnesota: Legislative Appropriations.** In 2005, the Minnesota legislature appropriated \$400,000 “to assist two Minnesota communities in developing locally owned wind energy projects by offering financial assistance rebates.”<sup>10</sup> The Minnesota Department of Commerce’s State Energy Office is distributing these funds and intends to use them for new grid-connected community wind energy projects of 900 kW or larger that will be installed, interconnected, and operating by June 30, 2007.<sup>11</sup>

**Minnesota: Utility Mandated.** Farmer-owned wind projects in Minnesota might also benefit from an ongoing grant program funded by Xcel Energy, an investor-owned utility in the state. In exchange for permitting Xcel Energy to continue to store nuclear waste in the state, Minnesota required the utility to create a Renewable Development Fund to be used for renewable energy projects in the state.<sup>12</sup> To date, Xcel Energy has committed, through this fund, nearly \$53 million for renewable energy projects, with a third round of funding to begin this year.<sup>13</sup>

**Oregon: Utility Service Charges.** Oregon has created a fund for conservation and renewable resource programs with funding derived from a System Benefits Charge—a 3 percent fee on the electric bills of customers of Portland General Electric (PGE) and Pacific Power, assessed from 2002 to 2012.<sup>14</sup> The Energy Trust of Oregon, a private organization, administers the fund

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<sup>10</sup> 2005 Minn. Laws, 1st Spec. Sess. (Ch. 1, art. 2, § 11, subd. 10(a)).

<sup>11</sup> See Minn. Dept. of Commerce, *Community Energy Wind Projects to Receive \$400,000*, <http://www.state.mn.us/portal/mn/jsp/content.do?id=-536882793&contentid=536907426&contenttype=EDITORIAL&programid=536912013&agency=Commerce> (last visited June 4, 2007).

<sup>12</sup> Minn. Stat. § 116C.779 (2006); Xcel Energy, *Renewable Development Fund*, available at [http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1\\_27620\\_11838-801-0\\_0\\_0-0,00.html](http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_27620_11838-801-0_0_0-0,00.html) (last visited June 4, 2007).

<sup>13</sup> Database of State Incentives for Renewable Energy (DSIRE), *Xcel Energy - Renewable Development Fund Grants* (last updated May 23, 2007), [http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive\\_Code=MN11F&state=MN&CurrentPageID=1&RE=1&EE=0](http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MN11F&state=MN&CurrentPageID=1&RE=1&EE=0) (last visited June 4, 2007).

<sup>14</sup> Or. Rev. Stat. § 757.612(2)(a) (2005).

through various grant programs and spends an estimated \$10 million to \$13 million per year on renewable energy projects.<sup>15</sup> These programs include the Energy Trust Small Wind Program targeting farmers and others who want to install a small wind project,<sup>16</sup> the Community Wind Program specifically for commercial-scale community wind projects,<sup>17</sup> and the Anemometer Loan Program for landowners who wish to assess the wind resource on their land.<sup>18</sup>

## B. State Loan Programs

Some states also operate loan programs to support wind power development. From the state's perspective, loan programs require a significantly smaller financial commitment than outright grants. The benefits to farmers come in the form of reduced or no-interest loans from the government itself or government guarantees, which are intended to make it easier for farmers to obtain commercial loans at reasonable interest rates.

Sample programs from Iowa and Minnesota will be described to highlight the types of loan assistance that may be available.

**Iowa.** The Iowa Energy Center administers the Alternate Energy Revolving Loan Program to encourage the development of alternative energy within the state.<sup>19</sup> The fund was initially created by a special assessment on electric and gas utilities, and is maintained by repayment of loans and interest accrued by the fund.<sup>20</sup> The loans are interest-free over 20 years but cannot

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<sup>15</sup> Or. Dept. of Energy, *Oregon's Renewable Resource Programs*, <http://www.oregon.gov/ENERGY/RENEW/programs.shtml> (last visited June 4, 2007).

<sup>16</sup> Energy Trust of Oregon, Inc., *Small Wind*, <http://www.energytrust.org/RR/wind/small.html> (last visited June 4, 2007).

<sup>17</sup> Energy Trust of Oregon, Inc., *Community Wind*, <http://www.energytrust.org/RR/wind/community/index.html> (last visited June 4, 2007).

<sup>18</sup> Energy Trust of Oregon, Inc., *Anemometer Loan Program*, <http://www.energytrust.org/RR/wind/anemometer.html> (last visited June 4, 2007).

<sup>19</sup> Iowa Code § 476.46(1), (2)(c) (2006).

<sup>20</sup> Iowa Code § 476.46(3) (2006).

exceed half of the project costs, or \$250,000, at any single facility.<sup>21</sup> Wind projects of 20 kWh or less are eligible for 10 percent of the available funds, and wind projects of more than 20 kWh are eligible for an additional 20 percent of the funds, while other types of alternative energy facilities are allocated the remainder.<sup>22</sup>

**Minnesota.** The Minnesota Rural Finance Authority (RFA) has two loan programs that can provide farmers with investment capital for wind power installations—the Agricultural Improvement Loan Program and the Value-Added Stock Loan Participation Program:

- The Agricultural Improvement Loan Program is a low-interest loan program that provides loans specifically to farmers for improvements or additions to agricultural facilities, including wind systems of 1 MW or less.<sup>23</sup>
- The Value-Added Stock Loan Participation Program provides loans to help farmers buy into value-added cooperatives, including certain cooperatives that own wind energy systems of up to 2 MW of capacity on any one shareholder's agricultural property.<sup>24</sup>

Both of these RFA loan programs are participation loan programs, in which the RFA makes loans in conjunction with local banks. The borrower must be a Minnesota resident, or a domestic family farm corporation or family farm

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<sup>21</sup> Iowa Code § 476.46(2)(d)(2), (2)(e)(1) (2006).

<sup>22</sup> Iowa Energy Center, [AERLP] *Program Guidelines* (May 1, 2003), [http://www.energy.iastate.edu/funding/download/Program\\_Guidelines.pdf](http://www.energy.iastate.edu/funding/download/Program_Guidelines.pdf) (last visited June 4, 2007).

<sup>23</sup> Minn. Stat. § 41B.043 (2006); Minn. Dept. of Agriculture, *Agricultural Improvement Loan Program*, <http://www.mda.state.mn.us/grants/farm/improvement.htm> (last visited June 4, 2007).

<sup>24</sup> Minn. Stat. § 41B.046, subd. 4b (2006); Minn. Dept. of Agriculture, *Value-Added Stock Loan Program*, <http://www.mda.state.mn.us/grants/loans/stockloan.htm> (last visited June 4, 2007).

partnership, and must be the principal operator of a farm.<sup>25</sup> In addition, the borrower's net worth must be under \$361,000 (as of 2005, indexed for inflation).<sup>26</sup>

### C. Federal Grant and Loan Programs

The federal government has several financing programs specifically for farmers and rural communities that could be used to fund a wind project. For the first time in a federal farm policy package, the 2002 Farm Bill included an energy title, whose provisions were intended to provide a variety of opportunities for farmers seeking financial support for the installation of renewable energy projects.<sup>27</sup>

#### 1. USDA Section 9006 Program

Of particular note in the 2002 Farm Bill is the Renewable Energy Systems and Energy Efficiency Improvements Program, known as Section 9006.<sup>28</sup> In Section 9006, Congress authorized the use of federal loans and grants to help agricultural producers and rural small businesses “purchase renewable energy systems and make energy efficiency improvements.”<sup>29</sup>

Under the existing Section 9006 program, grants are available for up to 25 percent of project costs, with grant amounts ranging from \$2,500 to \$500,000.<sup>30</sup> Loan guarantees of up to \$10 million are available for up to 50 percent of project costs.<sup>31</sup> A single project can qualify for both grant and

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<sup>25</sup> Minn. Stat. § 41B.043, subd. 1 (2006); Minn. Stat. § 41B.03, subds. 1 & 2 (2006) (Agricultural Improvement Loan Program); Minn. Stat. § 41B.046, subd. 4b (2006) (Value-Added Stock Loan Program).

<sup>26</sup> Minn. Stat. § 41B.043, subd. 5 (2006); Minn. R. 1656.0031 (2006).

<sup>27</sup> General Accounting Office (GAO), *Renewable Energy: Wind Power's Contribution to Electrical Power Generation and Impact on Farms and Rural Communities*, GAO-04-756, 45 & n.49 (Sept. 2004), available at <http://www.gao.gov/new.items/d04756.pdf> (last visited June 4, 2007).

<sup>28</sup> 7 U.S.C. § 8106(a) (2006); 7 C.F.R. § 4280 (2007).

<sup>29</sup> 7 U.S.C. § 8106(a), (f) (2006).

<sup>30</sup> 7 U.S.C. § 8106(c)(1)(A) (2006); 7 C.F.R. § 4280.110(e) (2007).

<sup>31</sup> 7 U.S.C. § 8106(c)(1)(B) (2006); 7 C.F.R. § 4280.123(a), (b) (2007). Direct loans are authorized but have not yet been implemented by USDA. Mark Bolinger, *Avoiding the Haircut: Potential Ways to Enhance the Value of the USDA's Section 9006 Program* 3

loan assistance, but the total award cannot be more than 50 percent of total eligible costs.<sup>32</sup>

Section 9006 grants are available to farmers and small rural businesses that demonstrate financial need, meaning that the applicant is unable to finance the project without assistance.<sup>33</sup> Projects must be in rural areas,<sup>34</sup> and wind energy systems are expressly eligible.<sup>35</sup> Additional requirements are: (1) the wind energy equipment must be commercially available or sufficiently tested through a research and development process for commercial viability, (2) the project must be technically feasible, and (3) the project must demonstrate that it will provide sufficient revenue to provide for operation and maintenance.<sup>36</sup>

For a loan guarantee under the Section 9006 program, the applicant must find a lender willing to make the loan, which the federal government then guarantees up to a certain percent depending on the size of the loan.<sup>37</sup> Loan guarantee applicants must meet the same criteria as grant applicants except that they do not need to demonstrate financial need.<sup>38</sup> The project requirements are the same, including rural siting and technical feasibility.<sup>39</sup>

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(July 2006), available at <http://eetd.lbl.gov/ea/EMS/reports/61076.pdf> (last visited June 4, 2007).

<sup>32</sup> 7 U.S.C. § 8106(c)(1)(B) (2006).

<sup>33</sup> 7 U.S.C. § 8106(b) (2006); 7 C.F.R. § 4280.107(a)(5) (2007). An "agricultural producer" is defined as "an individual or entity directly engaged in the production of agricultural products . . . whereby 50 percent or greater of their gross income is derived from the operations." 7 C.F.R. § 4280.103 (2007).

<sup>34</sup> 7 C.F.R. § 4280.108(d) (2007).

<sup>35</sup> 7 C.F.R. § 4280.103 (2007) (defining "rural" as any area other than a city or town with a population over 50,000 and not adjacent to such a city or town, and defining "renewable energy" to include energy derived from wind).

<sup>36</sup> 7 C.F.R. § 4280.108 (2007).

<sup>37</sup> Alan Watt, Arizona Rural Energy Coordinator, *Section 9006 Program: Rural Energy Efficiency Renewable Energy Projects*, Presentation 19-20, Aug. 2, 2006, [http://swrec.org/presentations\\_2/Watt\\_part\\_2\\_9006\\_Program\\_Overview\\_FY\\_2007\\_Final.pdf#search=%22usda%20section%209006%22](http://swrec.org/presentations_2/Watt_part_2_9006_Program_Overview_FY_2007_Final.pdf#search=%22usda%20section%209006%22) (last visited June 4, 2007).

<sup>38</sup> 7 C.F.R. § 4280.121 (2007).

<sup>39</sup> 7 C.F.R. § 4280.122 (2007).

### *Funding for the Section 9006 Programs*

Funding for the Section 9006 programs is dependent on the annual Congressional appropriations process. Between 2003 and 2005, roughly \$65 million was awarded in Section 9006 grants. In 2006, USDA awarded \$17.5 million in grants and allocated \$200 million to the loan guarantee program. On March 22, 2007, USDA announced the availability of \$11.4 million for grants and \$176.5 million in authority for guaranteed loans. Future funding cycles will likely require a new authorization of the program from Congress, but it is generally expected that this funding will be provided as part of the Farm Bill that is being drafted at the time this book is being written.

Of the 2006 grant awards, 45 were for wind projects, and 31 of those were on-farm projects. The other wind awards were all for commercial-scale projects of 2 MW each.

Loan guarantee requests of \$600,000 or less have a simplified loan application.<sup>40</sup>

The Section 9006 program has proven extremely popular, which means that it is also very competitive. It is therefore important to submit a strong, complete application. In 2006, there were over \$60 million in grant requests for only \$23 million of available funding.<sup>41</sup> Currently, the loan portion of the program has not been receiving as many applications as dollars available, so there is somewhat less competition for those awards.<sup>42</sup>

Farmers should keep in mind that applying for a Section 9006 benefit is not a trivial process, and ample time should be

allotted for filling out the required forms in their entirety. In addition to the eligibility requirements listed above, applicants are required to itemize all of the expenses for the project, certify that the applicant and project conform with all applicable federal laws, and provide detailed environmental information to comply with the National Environmental Policy Act

<sup>40</sup> 7 C.F.R. § 4280.128(c) (2007).

<sup>41</sup> Environmental Law and Policy Center, *An American Success Story: The Farm Bill's Clean Energy Programs 3*, available at <http://www.elpc.org/documents/FarmBillSuccessStories.pdf> (last visited June 4, 2007).

<sup>42</sup> Alan Watt, Arizona Rural Energy Coordinator, *Section 9006 Program: Rural Energy Efficiency Renewable Energy Projects*, Presentation 13, Aug. 2, 2006, [http://swrec.org/presentations\\_2/Watt\\_part\\_2\\_9006\\_Program\\_Overview\\_FY\\_2007\\_Final.pdf#search=%22usda%20section%209006%22](http://swrec.org/presentations_2/Watt_part_2_9006_Program_Overview_FY_2007_Final.pdf#search=%22usda%20section%209006%22) (last visited June 4, 2007).



(NEPA).<sup>43</sup> Applications must be submitted to the USDA Rural Energy Coordinator in the state where the project is located. The USDA Rural Energy Coordinator in the state should also be available to assist with the application.<sup>44</sup>

## 2. USDA Value-Added Producer Grant Program

A second example of a federal program designed to make investing in wind energy projects more financially feasible for farmers is USDA's Value-Added Producer Grant Program. Among other purposes, this program provides grants to install farm- and ranch-based renewable energy systems.<sup>45</sup> For fiscal year 2007, the program has approximately \$19.3 million available in competitive grant funds for qualifying projects.<sup>46</sup>

To receive a grant, applicants must be agricultural producers, which is defined to include individuals or businesses that produce or harvest agricultural products, such as grain, livestock, seafood, or forestry by-products.<sup>47</sup> This program typically funds a range of value-added projects. For most eligible projects, the applicant must show how the project increases the value of the produced commodity.<sup>48</sup> But applications from renewable energy development projects—including wind facilities—are exempt from showing this connection.<sup>49</sup> These applications need only “explain how the

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<sup>43</sup> See USDA Rural Development, *Section 9006 Forms*, <http://www.rurdev.usda.gov/rbs/farmbill/9006form.html> (last visited June 4, 2007).

<sup>44</sup> See USDA Rural Development, *State Office Rural Energy Coordinators*, <http://www.rurdev.usda.gov/rbs/farmbill/contacts.html> (last visited June 4, 2007).

<sup>45</sup> See USDA Rural Development, *Value-Added Producer Grants*, available at <http://www.rurdev.usda.gov/rbs/coops/vadg.htm>; USDA Rural Development, *State VAPG Office Contacts*, <http://www.rurdev.usda.gov/rbs/coops/vapgstate.htm> (both sites last visited June 4, 2007).

<sup>46</sup> Announcement of Value-Added Producer Grant Application Deadlines, 72 Fed. Reg. 18949 (Apr. 16, 2007).

<sup>47</sup> 7 C.F.R. § 4284.3 (2007).

<sup>48</sup> Announcement of Value-Added Producer Grant Application Deadlines, 72 Fed. Reg. 18949, 18950 (Apr. 16, 2007).

<sup>49</sup> Announcement of Value-Added Producer Grant Application Deadlines, 72 Fed. Reg. 18949, 18950 (Apr. 16, 2007).



Renewable Energy will be generated on a Farm or a Ranch owned or leased by [the applicants].”<sup>50</sup>

***Beware of “Double-Dipping” Rules***

Wind project owners who wish to take advantage of the federal PTC, as discussed in the next chapter, should pay particular attention to the PTC’s *double-dipping* provision when considering these other non-tax incentives. If a project receives certain kinds of other government incentives, the federal PTC may be reduced in proportion to the relationship between the amount of state and federal incentive funding and the capital cost of the project. State or federal grants that buy down the up-front capital costs of the project, state or federal loan programs that offer below-market interest rates, and other forms of government-subsidized financing are among the incentives most likely to trigger these double-dipping restrictions. More information about these rules can be found in the next chapter of this guide, in the discussion of the federal PTC.

So-called “Planning Grants” are available for developing a business plan or performing a feasibility study to assess the viability of the proposed project, and “Working Capital Grants” are available to assist agricultural producers to establish these business ventures—including, for example, to hire legal counsel or an accountant.<sup>51</sup> Grants can only be used for up to 50 percent of these costs, and applicants must show they have a matching amount of non-federal funding from other sources to contribute to the effort.<sup>52</sup>

Wind energy projects have successfully applied for and received these grants in the past.<sup>53</sup>

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<sup>50</sup> Announcement of Value-Added Producer Grant Application Deadlines, 72 Fed. Reg. 18949, 18950 (Apr. 16, 2007).

<sup>51</sup> 7 C.F.R. §§ 4284.904, 4284.908 (2007).

<sup>52</sup> 7 C.F.R. § 4284.908 (2007).

<sup>53</sup> See generally Windustry, *Value-Added Producer Grant Program*, <http://www.windustry.org/farmbill/vapg.htm> (last visited June 18, 2007).

### III. Government Promotion of Renewable Energy Purchases

Governments can also use their regulatory authority over utilities within their jurisdiction to promote purchases of renewable energy. Although this does not directly affect the cash flow of a farmer's wind project, it can immediately affect the feasibility of installing new wind energy systems, because it can increase utilities' willingness to purchase the generated energy. Regulations can also simplify the negotiation process for farmers by requiring utilities to implement things like standardized interconnection and power purchase agreements, eliminating the need for intensive negotiations and freeing the farmer's time and energy to be focused on other aspects of the development.

#### A. Creating Demand for Farmer-Owned Wind Energy

States are increasingly making efforts to increase demand for wind energy and, in some cases, specifically for farmer-owned wind energy. The most direct way of doing this is to mandate that utilities purchase a specific percentage of their energy from renewable sources. But states can also affect utilities' willingness to purchase wind energy in other ways. For example, states can establish *green energy* programs that allow a utility's customers to express their demand for wind energy, or change utility planning regulations to facilitate purchases of renewable energy.

##### 1. Renewable Energy Standards and Objectives

Direct initiatives to create utility demand for wind energy can take the form of either a *mandate*, in which the state requires a particular result, or an *objective*, in which the state simply encourages utilities to reach a desirable target.

In its 2007 session, the Minnesota legislature passed an ambitious renewable energy standard that includes both objectives and mandates for the use of renewable energy by electric utilities, providing a helpful example of what a state's options are.<sup>54</sup> Under the new Minnesota law, each utility must make a "good faith effort" to generate or procure 7 percent of its electric output from renewable sources by 2010. After 2010, each utility "shall" meet standards of reliance on renewable sources. The statute creates a schedule of increasing standards, beginning with 12 percent by 2012 and ending with

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<sup>54</sup> Renewable Energy Act, 2007 Minn. Laws (Ch. 3, § 1) (to be codified at Minn. Stat. § 216B.1619).

25 percent reliance on renewable sources by 2020. Utilities, however, can request a modification or delay of a standard from the Minnesota Public Utilities Commission.

## 2. Green Energy Programs

States can also indirectly encourage the development of renewable energy by facilitating consumer demand for *green energy*.

One option is requiring utilities to offer a green-pricing program, which gives utility customers the choice of purchasing renewable energy sources for their electricity. Typically, customers can choose to make an additional payment for each block of renewable energy purchased, and then the utility is required to acquire enough renewable energy to meet consumer demand.<sup>55</sup> Some states specifically require utilities to offer these programs.<sup>56</sup> In other states, some utilities voluntarily offer such programs, sometimes with the help of an independent—but also voluntary—entity that oversees and certifies the validity of these programs.<sup>57</sup>

A second option for states and the federal government in seeking to create demand for green energy is to regulate to ensure a functional, viable market for Renewable Energy Certificates (RECs), which are also known as *green tags*, *green certificates*, or *tradable renewable certificates*. RECs represent the positive attributes of renewable energy separate from the actual energy produced. Depending on the laws of a given state, utilities may be able to

### *A Federal Standard in the Future?*

In 2005, a federal renewable energy standard was included as an amendment to the broader Energy Bill passed by the U.S. Senate. This national standard would have required utilities to increase renewable electricity generation or purchases to 10 percent by 2020. However, the standard was dropped from the legislation after it failed to garner support from either the House of Representatives or the Bush Administration.

<sup>55</sup> U.S. Dept. of Energy, *Guide to Purchasing Green Power*, [http://www.eere.energy.gov/femp/pedfs/purchase\\_green\\_power.pdf](http://www.eere.energy.gov/femp/pedfs/purchase_green_power.pdf) (last visited Aug. 1, 2006).

<sup>56</sup> See, e.g., Minn. Stat. § 216B.169, subd. 2(a) (2006); Iowa Code § 476.47 (2006).

<sup>57</sup> See generally Green-e, *Renewable Electricity Certification Program*, <http://www.green-e.org> (last visited June 17, 2007).

purchase RECs to meet their renewable energy mandates, and other end-users can voluntarily purchase them for their environmental, social, and other benefits.<sup>58</sup> As discussed in the chapter on selling power (Chapter 9), these RECs can add value to the energy sales of wind projects, and the value of the generated RECs depends in large part on how transparent and trustworthy the existing REC tracking and verification system is.

### **3. Preference for Renewable Energy Purchases in Utility Planning Rules**

Generally, a regulated utility must get permission from the state public utilities commission (PUC) to build or acquire large amounts of energy from a new generation source. State laws and regulations set criteria the PUC should use to evaluate utilities' requests. Traditionally, PUCs have primarily sought to minimize electricity costs for consumers, and therefore have required utilities to make decisions based largely on a least-cost standard. Renewable energy, such as wind, may be more expensive in some respects than conventional energy sources and can be disadvantaged in this process.

States can eliminate this disadvantage by giving a preference to renewable sources in the energy development and planning process. Minnesota's mandatory utility planning process, for example, explicitly prefers renewable energy sources.<sup>59</sup>

## **B. Special Community-Based Energy Development Tariffs (C-BED)**

Some states also promote commercial-scale wind projects by mandating favorable rates or contract terms from utilities that buy energy from community-owned wind projects. Essentially, states can require utilities to offer a standard contract to wind projects that meet the state's requirements. Examples of this are most commonly considered in the context of mandatory power purchase agreements and interconnection standards for Qualifying Facilities (QFs) taking advantage of the "must buy" provision of the federal Public Utility Regulatory

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<sup>58</sup> See generally Ed Holt and Lori Bird, *Emerging Markets for RECs: Opportunities and Challenges* (N. Am. Wind Power July 2005), available at [http://www.eere.energy.gov/greenpower/resources/pdfs/0705\\_naw\\_ehlb.pdf](http://www.eere.energy.gov/greenpower/resources/pdfs/0705_naw_ehlb.pdf) (last visited June 17, 2007).

<sup>59</sup> Minn. Stat. §§ 216B.2422, subd. 4, 216B.243, subd. 3a (2006); see also Minn. R. 7843.0400, subp. 2 (2006).

Policies Act (PURPA), as discussed in more detail in the earlier chapter on selling power (Chapter 9).<sup>60</sup>

In 2005, Minnesota took a further step by enacting an innovative law—the first of its kind in the United States—requiring utilities to create special tariffs for locally owned and locally supported wind energy projects.<sup>61</sup> This Community-Based Energy Development law is commonly referred to as *C-BED*. This section describes the goals, benefits, and process of C-BED.

In order to encourage the development of broad-based, local ownership of new wind energy installations in Minnesota, the C-BED law requires every utility providing electric service—including municipal power agencies and generation and transmission electric cooperatives—to file a special C-BED tariff with the Minnesota Public Utilities Commission (PUC).<sup>62</sup> Each tariff must include terms and conditions that allow qualifying community-owned projects to have the utility front-load its power purchase payments in the first half of a 20-year contract.<sup>63</sup> It is important to note that filing this tariff does not require the utility to contract with every potential C-BED project, but the law encourages prioritization of C-BED projects. Utilities must “take reasonable steps” to determine whether a C-BED project is available when they consider new generation, in order to meet Minnesota’s new renewable energy standard.<sup>64</sup> The

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<sup>60</sup> E.g., Oregon Public Utilities Commission, *Staff’s Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Order No. 05-584, at 17 (May 13, 2005), available at [http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC\\_PURPA\\_order\\_5-584.pdf](http://www.oregon.gov/ENERGY/RENEW/Wind/OWWG/docs/OPUC_PURPA_order_5-584.pdf) (last visited June 21, 2007).

<sup>61</sup> 2005 Minn. Laws (Ch. 97, art. 2, § 1) (codified at Minn. Stat. § 216B.1612). In 2007, the Minnesota legislature expanded C-BED to provide the same benefits to other renewable energy sources: solar, wind, hydro (for plants with a capacity under 100 kWh), and hydrogen from biomass. See Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 1) (to be codified at Minn. Stat. § 216B.1612, subd. 2(f)); Renewable Energy Act, 2007 Minn. Laws (Ch. 3, § 1) (to be codified at Minn. Stat. § 216B.1691, subd. 1(a) (defining eligible “renewable” energy)).

<sup>62</sup> Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 5) (to be codified at Minn. Stat. § 216B.1612, subd. 5(a)).

<sup>63</sup> Minn. Stat. § 216B.1612, subd. 3(a), (c) (2006).

<sup>64</sup> See Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 5) (to be codified at Minn. Stat. § 216B.1612, subd. 5(a)).

Minnesota PUC also will consider utilities' C-BED-related efforts when evaluating compliance with their renewable energy obligations,<sup>65</sup> and the utilities must regularly report on their C-BED plans.<sup>66</sup>

This front-loading of payments allows utilities and power generators to negotiate for higher payment rates for the first 10 years of the project, and lower rates for the last 10 years. This allows C-BED projects to more readily overcome the high startup costs of energy development and repay loans more quickly.

From the utilities' perspective, the bottom line does not change because rates are calculated using the economic concept of *net present value*—which reflects the fact that an amount of money received today is more valuable than the same amount of money received next year because of inflation, lost investment income, and other factors. By taking net present value into account, front-loaded payments do not cost the utility any more than fixed payments over the term of the contract. Prior to 2007, the C-BED law put a cap on the net present value rate a utility could pay a C-BED project over its useful life, but in 2007 the Minnesota legislature removed this rate ceiling.<sup>67</sup>

The C-BED law ensures that the benefits of these front-loaded payments will flow to community members by limiting access to the C-BED tariff to *qualifying owners*.<sup>68</sup> Qualifying owners are local people and organizations, including individual Minnesota residents, public entities such as school districts, and, as a

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<sup>65</sup> Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 5) (to be codified at Minn. Stat. § 216B.1612, subd. 5(c)).

<sup>66</sup> Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 5) (to be codified at Minn. Stat. § 216B.1612, subd. 5(b)).

<sup>67</sup> See Next Generation Energy Act, 2007 Minn. Laws 2007 (Ch. 136, art. 4, § 3) (to be codified at Minn. Stat. § 216B.1612, subd. 3(a)). Formerly, the statute capped all rates at 2.7 cents net present value per kWh. See Minn. Stat. § 216B.1612, subd. 3(a) (2006).

<sup>68</sup> Minn. Stat. § 216B.1612, subd. 2(c) (2006). If a non-qualifying owner has a share of the project, the project can still receive C-BED benefits, but only in proportion to ownership interest in the project held by qualifying owners. Minn. Stat. § 216B.1612, subd. 7(c) (2006). In 2007, the C-BED law was amended to expressly allow utilities serving retail or wholesale customers to form partnerships with qualifying owners subject to these limitations. Next Generation Energy Act, 2007 Minn. Laws 2007 (Ch. 136, art. 4, § 7) (to be codified at Minn. Stat. § 216B.1612, subd. 8).

result of the 2007 C-BED amendments, some local utilities.<sup>69</sup> At least 51 percent of gross revenues must flow to qualifying owners and to “other local entities” over the life of the project.<sup>70</sup>

To the extent feasible, a developer of a C-BED project must provide an opportunity to invest in the project to landowners on whose property a high-voltage transmission line is constructed to transmit the energy to market.<sup>71</sup>

To further ensure local involvement and control, all C-BED projects must also receive a resolution of support from the local county board or tribal council.<sup>72</sup>



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<sup>69</sup> Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 2) (to be codified at Minn. Stat. § 216B.1612, subd. 2(c)). Utilities were expressly excluded from being a qualifying owner until the 2007 legislative changes. Qualifying owners now include municipal utilities and rural electric cooperatives.

<sup>70</sup> Next Generation Energy Act, 2007 Minn. Laws (Ch. 136, art. 4, § 2) (to be codified at Minn. Stat. § 216B.1612, subd. 2(g)(2)).

<sup>71</sup> Minn. Stat. § 216B.1612, subd. 6 (2006).

<sup>72</sup> Minn. Stat. § 216B.1612, subd. 2(f)(3) (2006).





## Chapter 13

# Tax Benefits and Obligations for Wind Development

### I. Be Aware of Tax Consequences of Wind Projects

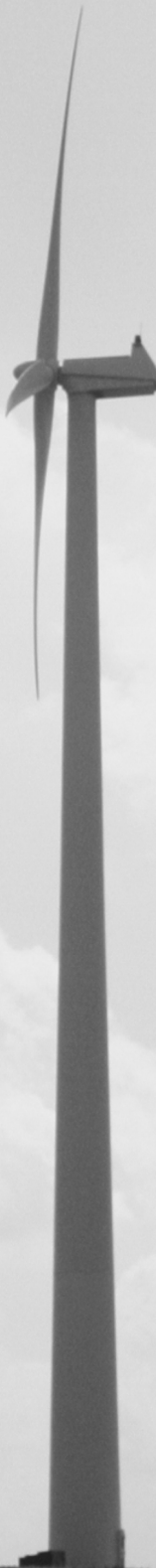
Receiving any kind of financial benefit, or suffering any loss, as a result of a wind energy development may have significant income tax consequences for farmers. If a farmer invests directly in a wind project, any return on that investment will likely be counted as income for federal and state income tax purposes. However, exactly how these revenues will be treated will depend on many factors, including the form of the business entity (if any) used for the wind project, and whether any of the generated energy is used on-site.

Even if a farmer does not own a wind project directly, but rather negotiates property agreements with a wind developer, payments received under those agreements will affect a farmer's income taxes.

The primary intent of this chapter is to highlight various tax *incentives* that can be available to wind project owners. However, farmers must keep in mind that wind projects can also result in complicated new tax *obligations* not detailed in this chapter. Furthermore, this chapter cannot answer questions about the details of state and federal income tax consequences for a specific project. Instead, it is crucial for farmers to find expert advice on the tax consequences of their particular wind project.

### II. Income Tax Incentives for Wind Energy Development

As has been mentioned several times throughout this guide, many of the government incentives that have encouraged wind energy development in the U.S. over the last several years are in the form of income tax credits or other income tax relief. These have presented unique challenges for farmers who do not always have sufficient tax liability to take full advantage of tax incentives. However, farmers and other individual community members have developed some creative business models to allow projects to take full advantage of federal and state production tax credits; see the chapters in this guide on financing



(Chapter 8) and business structures (Chapter 10) for more information about these business models.

This section provides an introduction to the major federal and state income tax incentives for wind energy generation.

## **A. Production Tax Credits**

Production tax credits (PTCs) are a form of government support for renewable energy. PTCs allow project owners to reduce their income tax liability based on a per kWh credit for energy generated by the facility.

### **1. Federal Production Tax Credit**

The federal government provides a PTC to reduce the income tax liability of the owner of any qualified renewable energy facility, including wind turbines.<sup>1</sup> The federal PTC has been a significant incentive for wind project owners who are able to use the credit, and many projects have relied on full use of the federal PTC to make the project profitable. In fact, the federal PTC has been credited with making large commercial projects economically feasible.<sup>2</sup>

For the 2006 tax year, the federal PTC was 1.9 cents per kWh.<sup>3</sup> The amount is adjusted each year to account for inflation.<sup>4</sup> Turbine owners can claim the credit for the first 10 fiscal years of the facility's operation.<sup>5</sup> The incentive is currently available for projects in service by December 31, 2008, at which

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<sup>1</sup> 26 U.S.C. § 45(a)(1), (c)(1)(A) (2006).

<sup>2</sup> See Phil Davies, "Fickle like the Wind" from *Fed Gazette* (Fed. Reserve Bank of Minneapolis Nov. 2005), available at <http://minneapolisfed.org/pubs/fedgaz/05-11/wind.cfm> (last visited June 5, 2007).

<sup>3</sup> IRS Form 8835, "Renewable Electricity, Refined Coal, and Indian Coal Production Credit" 3 (2006), available at <http://www.irs.gov/pub/irs-pdf/f8835.pdf> (last visited June 5, 2007).

<sup>4</sup> 26 U.S.C. § 45(b)(2) (2006).

<sup>5</sup> 26 U.S.C. § 45(a)(2)(A)(ii) (2006).

time Congress will have to extend the credit to ensure continued availability for new projects.<sup>6</sup>

Farmers and other individual investors face challenges in using the federal PTC directly. Many individuals simply do not have sufficient tax liability to take advantage of credits of this size.

Internal Revenue Service (IRS) *passive income* rules create an additional hurdle for most individual owners of wind facilities. Unless an owner or investor actively manages the wind project, the wind project will be considered a *passive* activity for tax purposes; and tax credits acquired through passive activity can only be applied against income from other passive activities, such as investing in other businesses that do not require the owner's material participation or renting out other properties.<sup>7</sup> This makes the PTC attractive only to wind project owners who have substantial passive income—a significant limitation for most farmers or other community members for whom the vast majority of income comes from production agriculture, off-farm jobs, and other *active* sources.

#### ***The Federal PTC's Boom-and-Bust Cycle***

The federal PTC has been subject to off-and-on availability. Congress has historically authorized the PTC in two-year increments, with gaps in funding before subsequent renewals. However, wind projects typically take more than two years to plan and put into production. If the federal PTC is not renewed for the period in which a wind project is expected to begin, a wind project owner cannot take advantage of the PTC unless the project is delayed until it has been renewed. This has resulted in what the Government Accountability Office (GAO) in 2004 called a distinct "boom-and-bust cycle in the installation of new wind power capacity." Recently, the industry has suffered fewer disruptions because the federal PTC has been more stable. Congress "seamlessly" renewed the tax credit in the Energy Act of 2005, and extended it again in 2006 to be available through the end of 2008.

Wind project owners must also be aware of the federal PTC's *double-dipping* provision, which may undercut the value of other federal and state incentives for wind power by reducing the federal PTC. The amount that a

<sup>6</sup> Tax Relief and Health Care Act of 2006, 109 Pub. L. 432, Div A, Title II, §§ 201, 207, 120 Stat. 2944, 2946 (Dec. 20, 2006) (to be codified at 26 U.S.C. §§ 45(d)(1), 48(c)(2)(E)).

<sup>7</sup> IRS Pub. 925, "Passive Activity and At-Risk Rules" 2 (2006), available at <http://www.irs.gov/pub/irs-pdf/p925.pdf> (last visited June 5, 2007).

project's federal PTC will be reduced is based on the amount of state and federal incentive funding and the capital cost of the project. The incentives most likely to trigger the federal double-dipping provision are federal and state grants that reduce the up-front capital costs of the project, government loan programs offering below-market interest, and other forms of subsidized financing.<sup>8</sup> State tax credits do not offset the federal PTC,<sup>9</sup> and production incentive payments, other state tax incentives, grants for operational costs, and loan guarantees are unlikely to trigger the federal double-dipping rules.<sup>10</sup> Accordingly, USDA Section 9006 grants, described in chapter 12 of this guide, will trigger the double-dipping provision, while federal loan guarantees will not.<sup>11</sup>

## 2. State Production Tax Credits

A few states have PTCs that a wind project owner can apply toward state income tax liability. For example, Iowa has two separate PTCs for wind and renewable energy production. The Wind Energy Production Tax Credit (WEPTC) applies only to wind facilities, while the more recent Renewable Energy Production Tax Credit (REPTC) applies to a variety of renewable energy sources.

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<sup>8</sup> 26 U.S.C. § 45(b)(3)(A)(ii), (iii) (2006); *see also* Ryan Wiser and Mark Bolinger, *Analyzing the Interaction Between State Tax Incentives and the Federal Production Tax Credit for Wind Power* 2, 5, 9 (Lawrence Berkeley Nat'l Lab. Sept. 2002), *available at* <http://eetd.lbl.gov/ea/emp/reports/51465.pdf> (last visited June 5, 2007).

<sup>9</sup> IRS Rev. Rul. 2006-9, 2006-9 I.R.B. 519, *available at* [http://www.irs.gov/irb/2006-09\\_IRB/ar06.html](http://www.irs.gov/irb/2006-09_IRB/ar06.html) (last visited June 17, 2007) (reducing the federal PTC by "any other credit allowable," held to apply only to federal tax credits, not state tax credits); *see also* U.S.C. § 45(b)(3)(A)(iv) (2006).

<sup>10</sup> Ryan Wiser and Mark Bolinger, *Analyzing the Interaction Between State Tax Incentives and the Federal Production Tax Credit for Wind Power* 5 (Lawrence Berkeley Nat'l Lab. Sept. 2002), *available at* <http://eetd.lbl.gov/ea/emp/reports/51465.pdf> (last visited June 5, 2007); IRS Priv. Ltr. Rul. 138756-01 (No. 200206034) (Nov. 8, 2001), *available at* <http://www.irs.gov/pub/irs-wd/0206034.pdf> (holding that a conditional refund of the Colorado state sales and use tax did not reduce the federal PTC) (last visited June 17, 2007)). Although this private letter ruling only applies in that particular case, it indicates the IRS interpretation of the statute.

<sup>11</sup> Mark Bolinger, *Avoiding the Haircut: Potential Ways to Enhanced the Value of the USDA's Section 9006 Program* 8-9 (Berkeley Nat'l Lab. July 2006), *available at* <http://eetd.lbl.gov/ea/EMS/reports/61076.pdf> (last visited June 5, 2007).

Iowa's WEPTC provides a tax credit equal to 1 cent per kWh of electricity sold for the first 10 years of a wind project placed in operation between July 2005 and June 2008.<sup>12</sup> This credit is available to wind facilities in Iowa without regard to size or ownership structure;<sup>13</sup> but to be eligible, the project must be approved by the board of supervisors in the county in which it is located.<sup>14</sup> If a facility is receiving the WEPTC, it is not eligible for other Iowa tax incentives—such as a special valuation for property tax purposes or an exemption from retail sales tax<sup>15</sup>—and a person may not own more than two qualifying facilities.<sup>16</sup>

#### *Real World Example*

The Trimont Area Wind Farm in Minnesota reportedly generates a PTC valued at about \$6.5 million annually. However, the Minnesota farmers who initially developed the project were not able to utilize a tax credit of that size, and the “revenue” from the credit was needed to make the project profitable. The farmers ultimately sold the project to PPM Energy of Portland, Oregon, in return for development fees, a percent of gross revenues, and standard lease payments for the turbine sites. This deal is described in more detail in the article, *Fickle like the Wind*, by Phil Davies from the November 2005 Fed Gazette, available online at <http://minneapolisfed.org/pubs/fedgaz/05-11/wind.cfm>.

Other farmers have used creative business models, such as the so-called “Minnesota flip,” to retain an ownership interest in a wind project while partnering with an outside equity investor who can make use of the passive tax credits generated from the wind as part of the return on the investment. These are discussed in more detail in the financing (Chapter 8) and business structures (Chapter 10) chapters of this guide.

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<sup>12</sup> Iowa Code §§ 476B.1(4)(c), 476B.2, 476B.3 (2006).

<sup>13</sup> Iowa Code § 476B.1(4)(b) (2006).

<sup>14</sup> Iowa Code § 476B.6(1)(a) (2006).

<sup>15</sup> Iowa Code § 476B.4(1) (2006).

<sup>16</sup> Iowa Code § 476B.5(5) (2006); *see also* Iowa Admin. Code r. 199-15.19 (2006).

Iowa's REPTC provides a tax credit equal to 1.5 cents per kWh of electricity generated and sold and may be claimed for 10 years of operation, so long as the facility remains eligible.<sup>17</sup> To qualify for the REPTC, a wind facility must be at least 51 percent owned by one or more Iowa residents—which may be an individual, farm or family farm corporation, limited liability company, family farm limited liability company, or cooperative, among others.<sup>18</sup> In addition, the facility must have at least one Iowa resident owner for each 2.5 MW of generating capacity, and none of these owners may own more than two eligible renewable energy facilities.<sup>19</sup> Unlike the WEPTC, credit under the REPTC is not contingent on county approval. Instead, the project owners apply directly to the Iowa Utilities Board for approval.<sup>20</sup>

Unlike the federal PTC, both WEPTC and REPTC credits may be transferred to another person, but only once.<sup>21</sup> The Iowa Department of Revenue issues certificates for tax credits and coordinates a registration system that will track transfers.<sup>22</sup> This ability to sell these credits makes their benefit to wind farmers much more flexible and accessible than the federal PTC.

Each Iowa incentive program has a limited amount of total credits that can be claimed, and once the limit has been reached, new projects are not eligible for the credit unless additional credits become available. The WEPTC is capped at 450 MW of eligible projects.<sup>23</sup> The REPTC is capped at 180 MW of wind projects and 20 MW of other renewable facilities.<sup>24</sup> During periods when the tax credits are fully pledged, new projects are put on a waiting list.<sup>25</sup>

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<sup>17</sup> Iowa Code § 476C.2(1), (5) (2006).

<sup>18</sup> Iowa Code § 476C.1(6)(b) (2006).

<sup>19</sup> Iowa Code §§ 476C.1(6)(c), 476C.3(5) (2006).

<sup>20</sup> Iowa Code § 476C.3 (2006).

<sup>21</sup> Iowa Code §§ 476B.7, 476C.6(2) (2006).

<sup>22</sup> Iowa Code §§ 476B.7-.9, 476C.4-6 (2006).

<sup>23</sup> Iowa Code § 476B.2 (2006).

<sup>24</sup> Iowa Code § 476C.3(4) (2006).

<sup>25</sup> Iowa Utilities Board, *Renewable Energy Tax Credits*, [http://www.state.ia.us/government/com/util/energy/renewable\\_tax\\_credits.html](http://www.state.ia.us/government/com/util/energy/renewable_tax_credits.html) (last visited June 5, 2007).

## B. Accelerated Depreciation

Under federal tax law, taxpayers who buy equipment for a business purpose, with a useful life extending beyond the tax year of the purchase, are allowed to take a tax deduction representing the depreciation of the equipment over its useful life.<sup>26</sup> Wind projects are eligible for the Modified Accelerated Cost-Recovery System (MACRS) depreciation method.<sup>27</sup> This allows equipment to be depreciated over 5 years instead of the typical 15 years, resulting in a larger annual depreciation deduction in the early years of the project.

However, like the PTC, taxpayers can only use this benefit if they have sufficient offsetting taxable income.<sup>28</sup> Additionally, federal or state incentives that provide tax-free capital funding for the project, such as grants, will reduce the depreciable basis of the property, thus reducing the overall depreciation deduction.<sup>29</sup>

Many states permit the federal depreciation schedule to also be used for state income tax purposes, and farmers should consult a tax professional in their area to learn what provisions will apply to their particular case.

## C. Tax Credits Based on Installation Costs

Rather than offering production-based tax credits, some states provide tax incentives to wind energy producers that are based on the project's initial

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<sup>26</sup> 26 U.S.C. § 167 (2006).

<sup>27</sup> 26 U.S.C. § 168(e)(3)(B)(vi) (2006); *see also* IRS Pub. 946, "How to Depreciate Property" (2006), available at <http://www.irs.gov/pub/irs-pdf/p946.pdf>; IRS Form 4562, "Depreciation and Amortization" (2006), available at <http://www.irs.gov/pub/irs-pdf/f4562.pdf>; IRS Instructions for Form 4562 (2006), available at <http://www.irs.gov/pub/irs-pdf/i4562.pdf> (all sites last visited June 17, 2007).

<sup>28</sup> Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law and Policy Center* (2004), available at <http://www.elpc.org/documents/WindHandbook2004.pdf> (last visited June 17, 2007).

<sup>29</sup> 26 U.S.C. § 1016(a)(1) (2006); *see also* Mark Bolinger and Ryan Wiser, *A Comparative Analysis for Business Structures Suitable for Farmer-Owned Wind Power Projects in the United States* 8 & n.10 (Lawrence Berkeley Nat'l Lab. Nov. 2004), available at <http://eetd.lbl.gov/ea/ems/reports/56703.pdf> (last visited June 5, 2007).

installation costs. Examples of such incentives from North Dakota and Oregon will be discussed briefly.

### **1. North Dakota Wind Energy Tax Credit**

A North Dakota taxpayer may claim a state income tax credit for the cost of a wind energy device installed before January 1, 2011.<sup>30</sup> If the device was installed before January 1, 2001, the taxpayer can claim a credit of 5 percent of the acquisition and installation costs each year for 3 years.<sup>31</sup> If the device was installed after December 31, 2000, the taxpayer can claim a credit of 3 percent of acquisition and installation costs every year for 5 years. If the income tax credit exceeds the amount of tax owed, the taxpayer can carry the credit forward for up to 5 years.<sup>32</sup>

Prior to 2007, small farmers and other wind energy producers with limited tax liability had difficulty taking advantage of this incentive. But in its 2007 session, the North Dakota legislature enacted changes intended to make the incentive more accessible.<sup>33</sup> Wind energy producers can now sell or assign any excess tax credit from this incentive to: (1) the person or entity that purchases the taxpayer's electricity, or (2) another North Dakota taxpayer who constructs or expands an electricity transmission line in the state after August 1, 2007.<sup>34</sup>

### **2. Oregon Energy Tax Credit**

Oregon taxpayers may benefit from a Business Energy Tax Credit (BETC) and a Residential Energy Tax Credit (RETC), both of which are based on the installation costs of wind energy projects.

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<sup>30</sup> N.D. Cent. Code § 57-38-01.8(1) (2007).

<sup>31</sup> N.D. Cent. Code § 57-38-01.8(1) (2007).

<sup>32</sup> N.D. Cent. Code § 57-38-01.8(6) (2007).

<sup>33</sup> 2007 N.D. Laws (Ch. 515, H.B. 1233, § 1) (to be codified at N.D. Cent. Code § 57-38-01.8(7)).

<sup>34</sup> 2007 N.D. Laws (Ch. 515, H.B. 1233, § 1) (to be codified at N.D. Cent. Code § 57-38-01.8(7)). This second option is intended to foster development of new transmission lines, a problem for current wind development in North Dakota.



The Oregon BETC is available to individuals, corporations, and other business associations.<sup>35</sup> Eligible wind projects are those producing energy for sale or for on-site use, if the project displaces 10 percent of non-renewable energy sources used on-site.<sup>36</sup> The amount of the tax credit is 35 percent of eligible project costs, with a maximum credit of \$3.5 million per project.<sup>37</sup> In each of the first and second years that the credit is claimed, it may be 10 percent of eligible costs, and in each year thereafter, 5 percent.<sup>38</sup> For projects under \$20,000, the entire credit may be taken in the first year.<sup>39</sup> If an available credit cannot be used in the tax year, it may be carried forward for up to 8 years.<sup>40</sup>

Oregon taxpayers who install residential wind energy equipment are eligible for the RETC.<sup>41</sup> This tax credit is equal to 60 cents per estimated kWh saved during the first year of the installation, up to a maximum credit of \$1,500.<sup>42</sup> The amount of the credit may not exceed qualifying costs associated with the project, such as turbines and other necessary equipment.<sup>43</sup> The total credit may be taken in the first year or carried forward for up to 5 years.<sup>44</sup>

A special feature of the Oregon tax credits is their pass-through option, which provides an innovative solution to the problem of tax incentives benefiting only those entities with significant tax liability. Oregon allows an owner of a wind facility to *pass through* its tax credits to another taxable

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<sup>35</sup> Or. Rev. Stat. §§ 469.185 to 469.225 (2006); Or. Rev. Stat. § 315.354 (2006); Or. Admin. R. 330-090-0105 to 330-090-0150 (2006).

<sup>36</sup> Or. Admin. R. 330-090-0110(54)(a) (2006).

<sup>37</sup> Or. Rev. Stat. § 315.354(3) (2006); Or. Admin. R. 330-090-0150(1) (2004) (allows \$10 million in eligible costs).

<sup>38</sup> Or. Rev. Stat. § 315.354(1)(a) (2006).

<sup>39</sup> Or. Rev. Stat. § 315.354(1)(b) (2006).

<sup>40</sup> Or. Rev. Stat. § 315.354(5) (2006).

<sup>41</sup> Or. Admin. R. 330-070-0010 to 330-070-0097 (2006) (interpreting Or. Rev. Stat. §§ 469.160 to 469.180).

<sup>42</sup> Or. Admin. R. 330-070-0022(2)(a) (2006).

<sup>43</sup> Or. Admin. R. 330-070-0022(2)(a) (2006).

<sup>44</sup> Or. Admin. R. 330-070-0024(2) (2006).

entity in exchange for a lump-sum cash payment.<sup>45</sup> The amount of the payment from the pass-through partner must be equal to the *net present value* of the tax credit. (Net present value converts the value of tax credits that will be received in the future into a corresponding current value for the lump-sum payment. The basic idea is that money in the future is worth less than money today.) The Oregon Department of Energy sets the rate to determine a tax credit's net present value.<sup>46</sup> Currently, the 5-year BETC pass-through rate is 25.5 percent, and the 1-year BETC pass-through rate is 30.5 percent.<sup>47</sup> This means that, for example, a project using the 5-year pass-through with \$100,000 of eligible project costs would receive a \$25,500 lump-sum payment from its pass-through partner. The partner in return would be able to claim the 35 percent BETC tax credit over the next five years, for a total credit of \$35,000.<sup>48</sup>

### III. Property Tax Issues for Wind Energy Development

Developing a wind project is likely to have some effect on the taxable value of a farmer's land.<sup>49</sup> Granting an easement or lease to a wind developer may also

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<sup>45</sup> Or. Rev. Stat. § 469.206 (2006); Or. Admin. R. 330-090-0110(4)(a), (b) (2006); Or. Admin. R. 330-090-0140(1)(b) (2006) (BETC); Or. Admin. R. 330-070-0014 (2006) (RETC); *see also*, Or. Dept. of Energy, *RETC Pass-Through Option*, <http://www.oregon.gov/ENERGY/CONS/RES/tax/passthrough.shtml> (last visited June 5, 2007).

<sup>46</sup> Or. Admin. R. 330-090-0110(31), (34) (2006); Or. Admin. R. 330-090-0140(1)(b) (2006) (BETC); *see also* Or. Admin. R. 330-070-0014 (2006) (RETC).

<sup>47</sup> Or. Dept. of Energy, *Business Energy Tax Credits*, <http://www.oregon.gov/ENERGY/CONS/BUS/BETC.shtml>; *see also* Or. Dept. of Energy, *Business Energy Tax Credit Pass-Through*, <http://www.oregon.gov/ENERGY/CONS/BUS/tax/pass-through.shtml> (both sites last visited June 5, 2007).

<sup>48</sup> Or. Dept. of Energy, *What You Need to Know about Being a Business Energy Tax Credit Pass-through Partner*, <http://egov.oregon.gov/ENERGY/CONS/BUS/docs/BETCprospectus1.pdf> (last visited June 18, 2007).

<sup>49</sup> Interestingly, studies have shown wind projects have neutral to slightly positive effects on the values of neighboring properties within view of the turbines. *See* George Sterzinger, et al., *The Effect of Wind Development on Local Property Values 2* (May 2003), *available at*

impact property tax assessments to some degree. And some states impose a property tax based on the value of wind energy equipment.<sup>50</sup>

To counteract the increased assessments that would typically result from a property improvement, some states offer tax relief for any increases in land value due to a wind energy project. However, these tax exemptions may only be available for a certain number of years. For example, in Iowa, wind energy installations do not increase the actual, assessed, or taxable values of the underlying real estate for five assessment years.<sup>51</sup> In lieu of this complete five-year property tax exemption, Iowa cities and counties can elect to adopt an alternative assessment scheme that does not increase the taxable value of the land in the first year of the project, but increases the taxable value incrementally over a number of years by a maximum of 30 percent.<sup>52</sup>

Other states, including Minnesota and North Dakota, offer tax relief for the property taxes that are assessed on the value of the wind energy equipment. While the Minnesota law imposes no time limit,<sup>53</sup> North Dakota's exemption lasts for five years.<sup>54</sup> After the initial five-year exemption period in North Dakota, turbines constructed before January 1, 2011, with a nameplate generation capacity of 100 kW or more, are taxed at 3 percent of their assessed value; turbines constructed in 2005 and 2006 that meet other eligibility requirements will be taxed at only 1.5 percent of their assessed value.

#### **IV. Sales or Use Taxes on Wind Energy Equipment**

Most states have sales or use taxes that could apply to any wind energy equipment purchased or used in the state. Local sales and use taxes may also apply. Taken together, these tax rates tend to be 4 to 8 percent of the equipment

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[http://www.crest.org/articles/static/1/binaries/wind\\_online\\_final.pdf](http://www.crest.org/articles/static/1/binaries/wind_online_final.pdf) (last visited June 18, 2007).

<sup>50</sup> See Warren Ault, *Property Taxation of Wind Generation Assets* (N. Am. Wind Power May 2006), available at <http://www.windustry.org/news/NAW0506.pdf> (last visited June 14, 2007).

<sup>51</sup> Iowa Code § 441.21(8)(b) (2006).

<sup>52</sup> Iowa Code § 427B.26 (2006).

<sup>53</sup> Minn. Stat. § 272.02(22) (2006).

<sup>54</sup> N.D. Cent. Code § 57-02-08(27) (2007).

value, which can add up to a large tax obligation when buying high-cost equipment.

Some states provide express sales tax exemptions for the purchase of wind energy equipment. In Iowa and Minnesota, sales of wind energy equipment and materials used to manufacture, install, or construct a wind facility are exempt from retail sales tax.<sup>55</sup> North Dakota recently enacted legislation exempting wind facilities completed before January 1, 2011, with a nameplate capacity of at least 100 kW, from any sales or use tax on production or environmental upgrade equipment delivered on or after January 1, 2007.<sup>56</sup>

Other states, such as Colorado, provide a sales tax refund for wind turbines.<sup>57</sup> Colorado's refund is subject to the availability of funding each year.

## V. Energy Generation or Sales Taxes

Finally, farmers should be aware that some states impose a tax on the generation or sale of energy. Wind energy generation may be exempt from or specifically included in such a tax.

In Iowa, for example, generators of electricity normally pay a replacement generation tax of .06 cents per kWh.<sup>58</sup> However, electricity generated by wind facilities is exempt from this tax.

In contrast, Minnesota has implemented a special small energy production tax that specifically applies to wind projects.<sup>59</sup> Projects larger than 12 MW are taxed 0.12 cents per kWh produced; projects over 2 MW and up to 12 MW are taxed 0.036 cents per kWh; projects over 250 kW and up to 2 MW are taxed 0.012 cents

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<sup>55</sup> Iowa Code § 423.3(54) (2006); Minn. Stat. § 297A.68(12) (2006).

<sup>56</sup> Sales tax exemption: 2007 N.D. Laws (Ch. 530, H.B. 1365, § 1); 2007 N.D. Laws (Ch. 516, S.B. 2298, § 2) (to be codified at N.D. Cent. Code § 57-39.2-04.2). Use tax exemption: 2007 N.D. Laws (Ch. 530, H.B. 1365, § 2); 2007 N.D. Laws (Ch. 516, S.B. 2298, § 5) (to be codified at N.D. Cent. Code § 57-40.2-04.2).

<sup>57</sup> Colo. Rev. Stat. §§ 39-26-501, 39-26-502 (2006); *see also* Colo. Rev. Stat. § 25-6.5-201 (2006) (including wind turbines in the definition of pollution control equipment).

<sup>58</sup> Iowa Code § 437A.6(1)(c) (2006).

<sup>59</sup> Minn. Stat. § 272.029 (2006).

per kWh; and projects with a capacity of 250 kW or less are exempt.<sup>60</sup> However, a city, town, or county government seeking to attract wind development to its area may negotiate an alternative payment from a wind project in lieu of the energy production tax.<sup>61</sup>



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<sup>60</sup> Minn. Stat. § 272.029, subd. 2(a), 3 (2006).

<sup>61</sup> Minn. Stat. § 272.028 (2006).



## Farmers' Guide to Wind Energy

### Key Wind Energy Terms

Any farmer considering investing in a wind energy project will need to be familiar with a few key energy terms. *These are not precise legal definitions.* Rather, this information is provided to give farmers a sense of how these terms are typically used within the electric industry.

**Anemometer:** A device that measures wind speeds.

**Avoided Cost:** The price that a utility must pay for electricity obtained from a Qualifying Facility under the Public Utility Regulatory Policies Act. It is based on the cost the utility would have had to pay for an equivalent amount of electricity if it had not purchased that power from a Qualifying Facility.

**Commercial-Scale Wind Project:** Definitions vary, but for the purposes of this guide, wind projects larger than 100 kW are commercial-scale.

**Community Wind:** An approach to wind energy development that emphasizes local ownership, involvement, and benefits.

**Distributed Generation:** Electricity that is generated close to where it is used. Includes generation for on-site use. Contrasts with traditional, centralized large power plants that serve distant consumers.

**Distribution Lines:** Low-voltage power lines used to distribute electricity over relatively short distances from a power generation facility or substation to consumers.

**Electric Grid:** A system of transmission and distribution lines connecting synchronized power providers and consumers. Interconnects and facilitates the distribution of electricity to consumers.

**Electric Utility:** An entity that owns and/or operates facilities for the generation, transmission, distribution, or sale of electric energy to the public. Usually operates with some form of legal monopoly over the electric services in the geographic area.



***Federal Energy Regulatory Commission (FERC):*** An independent regulatory agency within the U.S. Department of Energy having jurisdiction over, among other things, interstate electricity sales and wholesale electricity rates.

***Independent Power Producer:*** An entity which generates electricity, but is not an electric utility.

***Independent System Operator (ISO):*** An entity organized by the electric industry to control and administer non-discriminatory access to electric transmission in a region or across several electric systems, independent from the owners of the transmission facilities.

***Interconnection:*** The physical and electrical interface between a power generator (like a wind turbine) and electric distribution or transmission lines.

***Kilowatt Hour (kWh):*** The basic unit of measurement upon which the price of electricity is based. In other words, customers pay per kWh of electricity used. One kWh is equal to 1 kilowatt (1,000 watts) of power used for 1 hour. A 1,000 watt lightbulb burned for 1 hour would use 1 kWh. Likewise, ten 100 watt lightbulbs burned for 1 hour would use 1 kWh of electricity.

***Megawatt (MW):*** A unit of electrical power equal to 1 million watts or 1,000 kilowatts.

***Meteorological Tower Agreement ("MET" tower agreement):*** A contract through which a landowner agrees to allow a wind developer to install wind testing equipment (a "meteorological tower") on his or her land.

***Nameplate Capacity or Rated Power:*** The amount of electricity a generator is expected to produce when operating at maximum performance. If a wind turbine has a rated power or nameplate capacity of 1,000 kW, then that wind turbine is expected to produce 1,000 kW of energy per hour of operation, when running at its maximum performance (that is, during high winds). In actual operation, investors expect a turbine to produce only 25 to 35 percent of its nameplate capacity.

***Net Excess Generation:*** The amount of electricity produced by a wind turbine constructed to meet on-site energy needs that exceeds the farm's or household's immediate demands. Usually calculated on a monthly basis.

***Net Metering:*** A method of measuring, on a single electric meter, the amount of electricity consumed from the electric grid *and* the amount of electricity produced on-site and put onto the grid. Allows an electric consumer to accumulate credit for net excess generation that flows back onto the grid.



***Parallel Generation:*** Electricity generated on the customer's side of the electric meter. Sometimes called cogeneration.

***Power Purchase Agreement (PPA):*** A contract through which a power purchaser (like a utility) agrees to buy electricity from a power generation facility (like a wind project).

***Production Tax Credit (PTC):*** A government incentive for wind energy development that reduces income tax liability based on the amount of renewable energy generation. Offered by the federal government and several states. The federal PTC, currently worth 1.9 cents per kWh, is an important stimulus to wind development in the United States.

***Public Utilities Commission (PUC) or Public Service Commission (PSC):*** A state's energy regulatory agency, typically having jurisdiction over, among other things, retail electricity sales to customers and on-site power generation projects.

***Public Utility Regulatory Policies Act (PURPA):*** A federal statute that, among other things, ensures a market for the electricity produced by small renewable energy generators (called Qualifying Facilities).

***Qualifying Facility:*** A renewable energy generator, as defined by the Public Utility Regulatory Policies Act, with a nameplate capacity of no more than 80 MW.

***Regional Transmission Organization (RTO):*** An entity very similar to an Independent System Operator (ISO), except that an RTO is also required to meet certain criteria regarding the geographical scope of its coverage. Some transmission providers are both ISOs and RTOs simultaneously.

***Renewable Energy Credit (REC) (also called a Green Tag):*** The environmental attributes of electricity generated from renewable sources, like wind, that are tracked or sold separately from the electricity itself. For example, a wind turbine owner might sell electricity to an electric utility, and might sell the associated green tags to a business seeking to market itself as environmentally responsible.

***Small-Scale Wind Project:*** Definitions vary, but for the purposes of this guide, wind projects of 100 kW and smaller are small-scale.

***Tariff:*** The terms and conditions, including prices, under which utility services are provided. Typically a lengthy document filed by a utility and approved by a state or federal regulatory agency. Some tariffs cover utilities' retail sales to consumers, while other tariffs cover utilities' wholesale purchases from independent power producers.

***Transmission:*** The transfer of electrical power from one place to another at high voltages.

***Transmission lines:*** High-voltage power lines used to move electricity over relatively long distances from a power generation facility to a substation or other distribution point.

## Farmers' Guide to Wind Energy

### Additional Resources

**American Wind Energy Association Web site,** [www.awea.org](http://www.awea.org).

The national trade association for the U.S. wind industry maintains this Web site for the public. Highlights include industry news, policy issues, a series of expert advice pieces for small wind development, and a database of U.S. wind projects.

***Energy Law and Transactions*** (David J. Muchow and William A. Mogel, eds., Matthew Bender 2006) (1990).

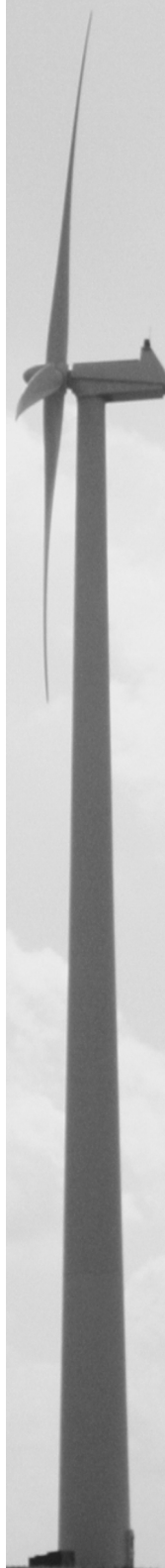
This is a seven-volume legal treatise and reference series on the business and legal aspects of all types of energy transactions. It is updated with regular supplements. Although very expensive to purchase, it may be available in a local law library.

**Energy Trust of Oregon, *Community Wind: An Oregon Guidebook*** (2005), [www.energytrust.org/RR/wind/community/oregon\\_wind\\_guidebook.pdf](http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf).

This guidebook investigates the opportunities, tools, challenges, and necessary steps for the development of community wind projects of up to 10 MW.

**Iowa Department of Natural Resources, *A Guide to Interconnection: Merging Onto the Electric Transmission Highway*** (2004), [www.iowadnr.com/energy/renewable/files/interconnectionguide.pdf](http://www.iowadnr.com/energy/renewable/files/interconnectionguide.pdf).

This handbook provides an introduction to the technical and legal aspects of interconnecting renewable energy facilities to the electric distribution and transmission system.



**Iowa Department of Natural Resources, *Iowa Wind Energy Checklist*** (2003), [www.iowadnr.com/energy/wind/files/checklist.pdf](http://www.iowadnr.com/energy/wind/files/checklist.pdf).

This is a step-by-step wind development guide for cities, schools, municipal utilities, rural electric cooperatives, businesses, and landowners.

**Izaak Walton League, *Landowner's Guide to Wind Energy in the Upper Midwest*** (2001).

This guide discusses how landowners can evaluate their land for wind energy, the economics of wind projects, and issues to consider when approached by a wind developer. Copies may be ordered from the Midwest office of the Izaak Walton League of America by calling (651) 649-1446 or e-mailing [midwestoffice@iwla.org](mailto:midwestoffice@iwla.org).

**National Wind Coordinating Committee & National Conference of State Legislatures, *State Siting and Permitting of Wind Energy Facilities*** (April 2006), [www.nationalwind.org/publications/siting/Siting\\_Factsheets.pdf](http://www.nationalwind.org/publications/siting/Siting_Factsheets.pdf).

These fact sheets set out state-specific siting guidelines for wind projects.

**National Wind Coordinating Committee, *Permitting of Wind Energy Facilities: A Handbook*** (2002), [www.nationalwind.org/publications/siting/permitting2002.pdf](http://www.nationalwind.org/publications/siting/permitting2002.pdf).

This handbook covers siting and permitting issues of concern to project developers and government agencies at all levels.

**New York State Energy Research and Development Authority, *Wind Energy Tool Kit***, [www.powernaturally.org/Programs/Wind/toolkit.asp](http://www.powernaturally.org/Programs/Wind/toolkit.asp).

This resource compiles several documents related to wind energy development, including a legal guidebook for landowners, reports on lease agreements and wind project site selection, and a sample annotated lease agreement.

**Stoel Rives, LLP, *The Law of Wind: A Guide to Business and Legal Issues*, [http://www.stoel.com/webfiles/LawOfWind WEB 05 07.pdf](http://www.stoel.com/webfiles/LawOfWind_WEB_05_07.pdf).**

This guide was produced by a large law firm with expertise in wind development and covers property interests, regulatory issues, permitting, taxes, negotiations, contracting, and other legal issues of importance to the wind industry. The Web address is to a somewhat expanded version posted on June 19, 2007, which was unavailable while the *Farmers' Guide to Wind Energy* was being written. Citations to *The Law of Wind* within the *Farmers' Guide* itself refer to an earlier version.

**Joseph P. Tomain and Richard D. Cudahy, *Energy Law in a Nutshell* (West 2004).**

This is a legal primer on the field of energy law. Local law libraries may have a copy on their shelves. Any bookstore should be able to order a copy.

**U.S. Department of Energy's *Wind Powering America* Web site, [www.eere.energy.gov/windandhydro/windpoweringamerica/](http://www.eere.energy.gov/windandhydro/windpoweringamerica/).**

"Wind Powering America" is a Department of Energy initiative committed to dramatically increasing the use of wind energy in the United States. Highlights of the initiative's Web site include state-by-state wind data, links to wind resource maps, and a special section with resources for the agricultural sector.

**Windustry Web site, [www.windustry.org](http://www.windustry.org).**

Windustry is a non-profit organization working to increase wind development in rural areas. Its Web site includes extensive practical information for developing a wind project from the local landowner and community perspective, including a special section on small wind development, a resource library, and wind project case studies.