Chapter 2

The Law of Electricity

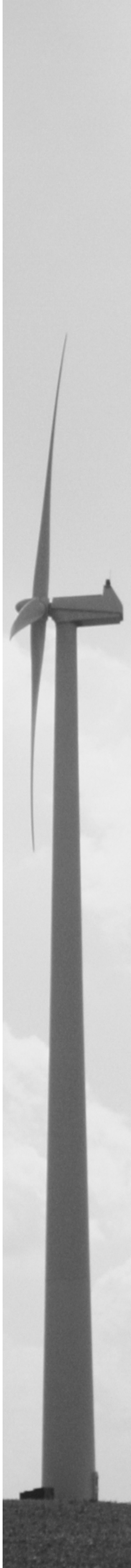
I. Introduction to the Legal Framework of the Electric Industry

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***
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> 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.[1]

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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[1] 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.[2]
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> 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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[2] *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.[3] 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."[4] 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.[5]

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[3] *See generally* 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.03 (2006).

[4] Minn. Stat. § 216B.01 (2006).

[5] 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.[6]

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.[7]

> ***Independent Power Producers***
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> 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.

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

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[6] *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).

[7] 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.[8]

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

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.[12]

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

[9] Minn. Stat. § 216B.01 (2006).

[10] Minn. Stat. § 216B.027 (2006).

[11] Minn. Stat. § 216B.026 (2006).

[12] *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.[13] Indeed, the current *grid* is still essentially a combination of several utility-owned, but now interlocking, electric systems.[14]

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.[15] 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.[16]

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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[13] *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 (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.

[14] Currently, there are 3 major interconnections in the United States. These are the Eastern Interconnect, the Western Interconnect, and Texas.

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

[16] *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.[17]

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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[17] *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.[18] 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.[19]

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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[18] *See generally* 1-2 G. Philip Novak, *Energy Law and Transactions* § 2.03 (2006).

[19] *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.[20] 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.[21]

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[20] Minn. Stat. § 216B.2422, subd. 2 (2006).

[21] *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.[22]

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.[23]

FERC also administers accounting and financial reporting regulations and monitors the conduct of certain energy companies that operate across state lines.[24] 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).

[22] *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).

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

[24] *See* 16 U.S.C. §§ 824b, 824c (2006).

cooperatives. Recent changes in the law, however, have created some exceptions to this.[25]

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

[25] 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.[26] 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.[27]

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.[28]

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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[26] *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).

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

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