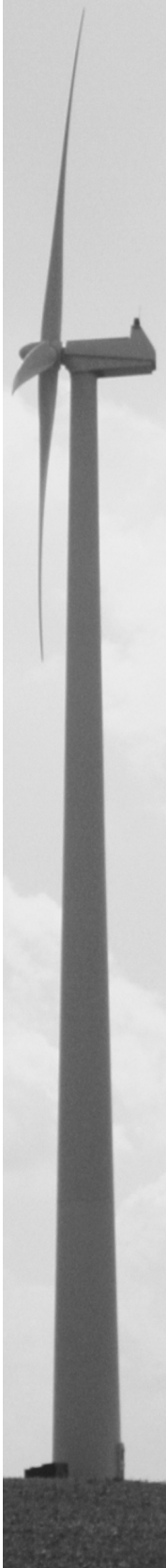

Chapter 9

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.[1] 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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[1] 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 (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.[2] 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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[2] *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 (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),[3] which include renewable energy generators with a capacity of 80 MW or less.[4] For wind projects with multiple turbines, this 80 MW cap is measured by combining all of the turbines at the site.[5]

Under PURPA, utilities are *required* to purchase a QF's generated energy at the utility's *avoided cost rate*.[6] 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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[3] 16 U.S.C. § 824a-3(a) (2006).

[4] 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).

[5] 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)).

[6] 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 (last visited June 21, 2007).

interconnection (Chapter 11) later in this guide.[7] 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.[8]

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.[9] 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.[10]

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.[11] FERC must act on the application within 90 days, or it will be deemed to have been approved.[12]

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.[13] Therefore, state law can define a utility's

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[7] 18 C.F.R. § 292.303(c) (2007).

[8] 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).

[9] 18 C.F.R. § 292.207(a)(1)(ii) (2007).

[10] FERC, *Electric—Qualifying Facilities: Self-Certification*, http://www.ferc.gov/industries/electric/gen-info/qual-fac/self-cert.asp (last visited June 7, 2007).

[11] 18 C.F.R. §§ 292.207(b)(1) and (2), 381.505 (2007).

[12] 18 C.F.R. § 292.207(b)(3) (2007).

[13] 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.[14]

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."[15] 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.[16] 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.[17]

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[14] *See, e.g.,* Iowa Admin. Code r. 199-15.2(1)(e) (2006); Minn. Stat. § 216B.164 subd. 2 (2006).

[15] 16 U.S.C. § 824a-3(d) (2006); *see also* 16 U.S.C. § 824a-3(b) (2006).

[16] 16 U.S.C. § 824a-3 (2006).

[17] 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 (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.[18] 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.[19] 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.[20]

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.[21] 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.[22]

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[18] 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 (last visited June 21, 2007).

[19] 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 (last visited June 21, 2007).

[20] 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).

[21] *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).

[22] 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.[23] 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.[24] 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.[25]

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).

[23] 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).

[24] 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).

[25] 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.[26]

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.[27]

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.[28] 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.[29]

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[26] 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).

[27] 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).

[28] 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 (last visited June 7, 2007).

[29] Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 64 (2005), *available at* 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.[30]

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.[31] 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.[32] 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.[33] 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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[30] 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 (last visited June 7, 2007).

[31] Examples of demand-generating state laws are discussed in the chapter on government incentives (Chapter 12) later in this guide.

[32] 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).

[33] 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.[34]

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

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-

[34] *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.[35]

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.[36] Alternatively, a PPA may take effect on a different date defined by the terms of the contract or upon approval by the state PUC.[37]

Duration of PPA. Experts estimate that the typical useful life of a new wind facility is 25 to 30 years.[38] PPAs are regularly long-term contracts lasting 15 to

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[35] 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 (last visited June 19, 2007).

[36] 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 (last visited June 19, 2007).

[37] 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 (last visited June 19, 2007).

[38] 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 (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.[39] 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.[40]

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.[41]

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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[39] 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 (last visited June 19, 2007).

[40] 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 (last visited June 19, 2007).

[41] 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 (last visited June 19, 2007).

performance of the agreements and payment of amounts due.[42] 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. [43] 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.[44]

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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[42] 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 (last visited June 19, 2007).

[43] 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 (last visited June 19, 2007).

[44] 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 (last visited June 19, 2007).

be measured, and what degree of output failure would justify termination of the PPA by the energy buyer.[45]

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.[46]

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.[47]

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.[48]

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[45] 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 (last visited June 19, 2007).

[46] 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 (last visited June 19, 2007).

[47] 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 (last visited June 19, 2007).

[48] 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 (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.[49]

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.[50]

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.[51]

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.[52]

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[49] 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 (last visited June 19, 2007).

[50] 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 (last visited June 19, 2007).

[51] 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 (last visited June 19, 2007).

[52] 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.[53] 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.[54] 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.[55]

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,[56] and in these so-called *compliance markets*, the value of RECs goes up markedly.[57]

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http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf (last visited June 19, 2007).

[53] 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 (last visited June 19, 2007).

[54] 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 (last visited June 19, 2007).

[55] 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).

[56] *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).

[57] 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.[58]

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),[59] New England Power Pool (NEPOOL), and Western Renewable Energy Generation Information System (WREGIS).[60]

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).

[58] 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).

[59] 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).

[60] 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.[61]

[61] 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).