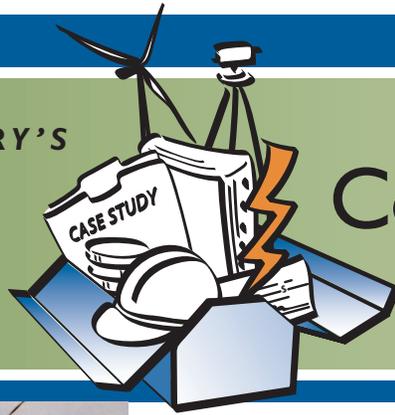


WINDUSTRY'S



Community Wind Toolbox



This chapter is part of **Windustry's Community Wind Toolbox** which is designed to guide you through various aspects of developing a commercial-scale community wind project. Each section gives you background information about particular steps in project development and provides you with resources to help you to do more in-depth research on your own.

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Chapter 13:

Power Purchase Agreements

A power purchase agreement (PPA) is a contract to buy the electricity generated by a power plant. These agreements are a critical part of planning a successful wind project because they secure a long-term stream of revenue for the project through the sale of the electricity generated by the project. Securing a good PPA is often one of the most challenging elements of wind project development.

This section covers the basics of a power purchase agreement and things to consider as you negotiate with a power purchaser. The main topics covered in this section are:

Length of the Agreement

Commissioning Process

Sale and Purchase

Curtailement

Transmission Issues

Milestones and Defaults

Credit

Insurance

Environmental Attributes or Credits

Basic Elements of a Power Purchase Agreement

A Power Purchase Agreement (“PPA”) is a long-term agreement between the seller of wind energy and the purchaser.

Negotiating and signing a PPA is a critical step in the development of any wind energy project because it secures a long-term revenue stream through the sale of energy from the project. Securing a PPA will also be a condition to any equity and debt financing of the project. Power may be sold through a PPA to an investor-owned, municipal or rural electric cooperative utility in the local market or, in some cases, to more distant utilities or wholesale or retail customers in unregulated markets. Or, it could be said power is sold to an off-taker.

While price terms are often thought of as the most important element of a PPA, typically PPAs include many vital provisions addressing issues such as the length of the agreement, the commissioning process, the purchase and sale of energy, curtailment agreements, transmission issues, milestones and defaults, credit, insurance and environmental attributes or credits. This article discusses these key elements of a typical wind energy PPA.

Length of the Agreement

PPAs are long-term agreements. The stated term of most PPAs is 20 years, although a term ranging anywhere from 15 to 25 years is not unusual. The PPA is usually legally binding once it has been executed by representatives of both the seller and the purchaser, subject to early termination rights. The end date of the PPA is usually measured in the number of years from the commercial operation date. The commercial operation date is the date the seller has met all the conditions necessary to deliver wind energy to the purchaser, such as getting all, or nearly all, of the turbines up, running and able to deliver wind energy.

The PPA may also provide the purchaser an opportunity to extend the PPA to include a renewal term beyond the initial stated term of 15 to 25 years, such as an additional 5 years. This option may state that the price and terms included in the initial stated term will apply during the renewal term, or may provide for an indexed price.

PPAs will include several provisions that will allow one or both parties to terminate the PPA early if certain events occur. For example, the PPA may allow one or both parties to terminate

PPA prior to the commercial operation date if: 1) the federal production tax credit (PTC) is not available; 2) the seller’s or purchaser’s internal approvals, or any required regulatory or third party approvals, are not received; 3) permits necessary for the construction and operation of the project are not obtained; 4) the seller has not entered into an acceptable interconnection agreement; 5) in some cases, financing is not available; 6) transmission access has not been secured; or 7) site control is not secured. Typically, turbine or other supplier shortages, or actual costs being greater than anticipated, are not a conditions allowing the seller to terminate early.

The PPA early termination provisions will usually require the terminating party to give notice to the other party and often times will allow the parties time to address the underlying issue before the termination is effective.

Commissioning Process

There are a number of steps involved in the commissioning process of a wind project that must be completed before the facility can reach commercial operation. While some of these steps may be included in the milestone section of the PPA (discussed below), other PPAs include them elsewhere as conditions to commercial operation. Each of these steps is aimed at ensuring that the facility will be able to reliably deliver wind energy to the purchaser.



PPAs often require the seller to demonstrate that they have an interconnection agreement.

Photo: Windustry staff

These conditions for commercial operation may require the seller to demonstrate to the purchaser that:

- the seller has completed all testing required by the financing documents, government permits, interconnection agreement, seller's operating agreement, seller's engineering, procurement and construction agreement and any manufacturers' warranties;
- an officer of the seller has certified that the equipment installed at the facility has a maximum designed output equal to the agreed megawatts (MW);
- the facility has achieved initial synchronization with the interconnection provider's system;
- the communications systems reliably communicates with the purchaser's systems;
- an independent professional engineer has certified that the facility has been completed in all material respects in accordance with the PPA;
- the facility is performing under the interconnection agreement at a generation level acceptable to the interconnection provider without causing any abnormal or unsafe operating conditions on any interconnected system;
- a separate agreement is in effect to deliver energy to the facility to allow for turbine start-up and shut down and maintenance;
- security arrangements have been made;
- certificates of insurance have been obtained; and
- all permits, consents licenses, approvals and authorizations required by any government authority have been obtained.

PPAs also address when the seller must have 100% of the project capacity up and running, or if less than 100% is acceptable and for how long.

Sale and Purchase

Price terms vary depending on the structure of the project financing, quality of the wind resource, available transmission resources, turbine performance characteristics and many other issues. Market prices for wind energy have increased over the last few years, reflecting the increase in turbine, equipment and labor costs. For example, over the last couple of years, prices in Minnesota have ranged anywhere from 4.0¢ per kilowatt hour (kWh) to 6.4¢ per kWh. Prices are also affected by the geographic area where the project is built. Price terms are very important to project development, as the PPA allows investors to estimate the total revenue available over the life of the project. If the

price is too low, the project may not have a positive cash flow or the investors may be unable to earn a reasonable rate of return. If so, it is unlikely the project will be financed. Conversely, purchasers have a keen interest in keeping the price low to ensure the utility can deliver low-cost electricity to its customers.

Prices terms may remain flat, or may escalate or deescalate, over the life of the project. For example, Minnesota's community-based energy development ("C-BED") statute (Minnesota Statutes, Section 216B.1612), requires utilities to develop a tariff with a higher rate during the first 10 years of the project, recognizing that wind projects have high upfront capital costs. C-BED PPAs reflect this structure by providing a higher rate in the first ten years of the project and a lower rate in the later 10 years.

In addition, the PPA typically provide for a lower initial rate, or trial price, that is applied to energy delivered to the purchaser before the date of commercial operation, or in some cases, excess energy after commercial operation if too much energy is delivered.

In order to measure the amount of wind energy delivered to the purchaser, most PPAs include provisions that require the seller to install, maintain and test metering equipment at the point of delivery. While these meters are owned by the seller, purchasers often require that the seller give the purchaser access to the meters or install equipment that allows the purchaser to read the meter remotely.

PPAs will address invoice and billing procedures. It is common for the seller to provide a monthly invoice detailing wind energy delivered or available capacity. Timelines for payment, and billing dispute procedures, are often included as well.

Curtailement

Most PPAs require that the seller deliver and sell to the purchaser all the wind energy generated by the facility. However, most PPAs recognize that there will be times when either the purchaser, transmission owner or transmission authority (such as the Midwest Independent Transmission System Operator (MISO) or the Mid-Continent Area Power Pool (MAPP)) may mandatorily curtail the production of wind energy at the facility because of constraints on the system, emergency or other reasons. Curtailement can also be for the convenience of the purchaser for it to best manage its available energy supply sources.

During negotiation of a PPA, the parties must decide who will bear the financial risk for losses that arise when the purchaser, transmission owner or transmission authority exercises its curtailment right. Many PPAs are structured as “take-or-pay” agreements, which means that the purchaser will pay the seller not only for wind energy actually delivered to the point of delivery but also for “available capacity,” or energy that would have been delivered but for the curtailment. Curtailment provisions are very important because they can directly impact the required pricing, or profitability, of the project.

Various PPAs differ regarding the conditions under which the purchaser must pay for available capacity that was not actually delivered. For example, in some PPAs, the purchaser pays regardless of the reason for the curtailment. In other PPAs, the purchaser pays for available capacity only if the purchaser exercised its discretionary curtailment right, not if the wind energy was curtailed because of an emergency, force majeure event (discussed below) or another event that would have damaged the transmission system.

The parties usually agree to calculate available capacity based on wind data available during the curtailment period and the power curve data for the wind turbines. The seller is often required to construct and maintain a meteorological tower capable of measuring and recording representative wind data 24 hours a day, and this data can be used to calculate the payment owed by the purchaser for the curtailed energy.

The amount the purchaser must pay to the seller because of curtailment includes both the agreed price for the MWs of available capacity and an additional “grossed up” tax amount reflecting the loss of the federal production tax credit (“PTC”)



A commercial-scale wind project in Southwestern Minnesota.

Photo: Windustry staff

value. PTCs are available only for wind energy actually delivered. To make a seller whole, typically the PPA will provide that the purchaser must also pay for the lost PTC, as well as a gross up for the income taxes payable upon receipt of the lost PTC payment.

Transmission Issues

Transmission provisions are becoming an increasingly important part of PPAs. These provisions include allocating both responsibility for securing adequate transmission access and the costs for any required transmission upgrades, and other key transmission concerns.

The seller is often responsible for the costs of all transmission upgrades necessary to deliver the wind energy from the generation facility (the wind turbines) to the point of delivery, but sometimes sellers negotiate for the right to pass some or all of these costs on to the purchaser. The point of delivery is a specific point in the transmission system where the wind energy is deemed to be delivered to the purchaser, and the purchaser assumes the risk of loss beyond that point. Costs for transmission upgrades that are necessary to reliably deliver the wind energy from the point of delivery to the ultimate customer are called “network upgrades,” and costs for these network upgrades are allocated following applicable transmission authority, FERC or state laws for large generator projects.

The transmission authority’s determination as to whether a project is designated as an “Energy Resource” or a “Network Resource” significantly impacts the allocation of costs related to needed network upgrades. For MISO, Energy Resource and Network Resource are terms defined in the MISO Open Access Transmission and Energy Markets Tariff. Designation as an Energy Resource makes the facility’s electric output eligible to interconnect with the transmission system using the existing firm or non-firm capacity on an “as available” basis. Designation as a Network Resource means that the facility must meet specific deliverability requirements, and then the transmission provider (e.g. MISO, PJM, ERCOT etc) will integrate the resource in the same manner as other large generating facilities already designated as Network Resources.

If a wind project is designated as a Network Resource and other requirements are met, the seller will be reimbursed for fifty percent of the costs of network upgrades needed to interconnect the project to the transmission system. If, however,

the wind project is designated as an Energy Resource, the allocation of costs for network upgrades are not eligible for this reimbursement. Instead, allocation of costs is dependent upon who requests Network Resource Interconnection Service. Typically, the entity requesting the interconnection is responsible for the costs of necessary network upgrades.

At the time a PPA is negotiated and executed, it is common that the analysis and studies conducted by MISO or other transmission authority are not complete. Thus, there is no final determination as to the allocation of costs for network upgrades. The seller or the purchaser may insist that they have the option to terminate the PPA if they determine that the costs for needed transmission upgrades are unreasonable or exceed estimates.

Milestones and Defaults

PPAs often address milestones to be met to reach commercial operation. Construction or development milestones are intended to allow the purchaser and seller to track the project's development progress. The PPA may identify a variety of milestones, including: acquisition of all permits needed for construction; execution of a construction contract; commencement of construction; evidence of the seller's purchase of wind turbines; and, ultimately, commercial operation.

If the PPA addresses milestones, typically the seller must meet the dates established in the PPA for each of the milestones or risk paying delay damages. Delay damages are often calculated by multiplying a dollar amount (e.g. \$5) by the number of MWs of contracted capacity for each day the seller fails to meet a milestone. For example, if the seller is sixty days late performing a construction milestone on a 25 MW project, the delay damages might be \$7,500 (\$5 x 25 MW x 60 days). Failure to meet the construction milestone for commercial operations may trigger penalties that are much larger, such as penalties of \$100 to \$1000 per day per MW. The PPA may also include a provision that allows the seller to recover any delay damages paid to the purchaser for earlier missed milestones if the seller is able to deliver the project by the milestone for commercial operation.

PPAs include detailed sections related to events of default. Events of default are situations where the action or inaction of one of the party significantly jeopardize the overall project. Many events of default are curable, which means there is an

opportunity to resolve the issue. However, when one party is responsible for an event of default, the other party is typically entitled to damages if the default cannot be cured. Some events of default may be considered incurable and allow for immediate termination rights.

When negotiating a PPA, the parties acknowledge that there may be circumstances beyond the parties' control that could prevent them from performing under the PPA, that is, for events of "force majeure." If a force majeure event occurs, the agreement will excuse both parties from responsibility and liability related to any delay or failure to perform. Most agreements will require that the party asserting force majeure to provide the other party with notice. Often, sellers and purchasers negotiate over how broadly or narrowly to define what constitutes force majeure.

When an event of default occurs and remains uncured, the non-defaulting party may be entitled to actual damages and/or the right to terminate the PPA. If the seller defaults, this will usually mean the purchaser can recover costs for purchasing replacement energy in addition to any other costs incurred.

Liability for damages due to a delay or event of default are often capped, and sellers and purchasers negotiate over that the appropriate caps should be in different situations. The liability cap for delay damages may be substantially less than the cap for overall damages following an event of default.

Credit

Both sellers and purchasers face risks associated with the credit of the other party.

Many purchasers require sellers to provide some form of credit enhancement to cover expected damages to the purchaser if the project does not meet construction milestones or is not commercially operational by the agreed date. Since sellers are often special purpose entities whose only assets are the project assets, purchasers may be concerned about their ability to recover damages to which they are entitled if the project is not timely completed. This credit enhancement may take several forms, including guaranties by credit worthy affiliates, cash collateral or escrow accounts, irrevocable standby letters of credit or performance bonds. Meeting the credit enhancement requirements can be a key challenge for project developers who often will to rely on financial partners to provide the required

credit or capital. Further, the costs of meeting these requirements can significantly increase the overall project costs or alter the arrangements between the developer and the financial partners.

Sellers may also require purchasers to provide a security fund or letter of credit to assure payment for electricity produced by the project. The requirement for the purchaser to provide a letter of credit is usually triggered if the purchaser's credit rating is downgraded by a major credit rating source (such as Standard & Poor Rating Group or Moody's Investor Services, Inc.) to a level determined in the PPA.

Insurance

The PPA will usually require that the seller maintain, at the seller's expense, specific insurance policies. In some cases, the seller is required to list the purchaser as an additional insured under the policy. Policies typically required include: commercial general liability insurance; worker's compensation insurance for seller's employees; automobile liability insurance; builder's risk insurance; all-risk property insurance; and business interruption and extra expense insurance. The business interruption and extra expense insurance covers lost revenues or increased expenses needed to resume operations after a claim under the property insurance policy.

Environmental Attributes or Credits

All PPAs include provisions that assign ownership of the environmental attributes or credit to the purchaser who typically is keenly interested in meeting applicable "green energy" requirements. Even if there is no state or federal tracking or trading system applicable for a specific wind project, many PPAs are including provisions assigning ownership of such credits if a system is developed. Sellers usually are fine with allocating these credits and attributes so long they are compensated for the sale of the credits along with the sale of the electrons. The PTC and similar tax benefits are retained by the sellers.

Basics of a Power Purchase Agreement was authored by Daniel A. Yarano and Christina Brusven, Fredrikson & Byron, P.A.

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Conclusion

Negotiating and securing an acceptable PPA is an essential step in developing a wind energy project and should not be entered into without the advice of experienced legal counsel. PPAs include many critical terms and conditions beyond just the price for wind energy generated by the project. PPA terms and conditions warrant careful analysis and consideration, and parties nearing negotiations on a PPA should confer with counsel to ensure that the PPA meets the needs of the specific project.



Wind energy and agriculture share the same space near Hendricks, Minnesota.

Photo: Windustry staff