Chapter 8

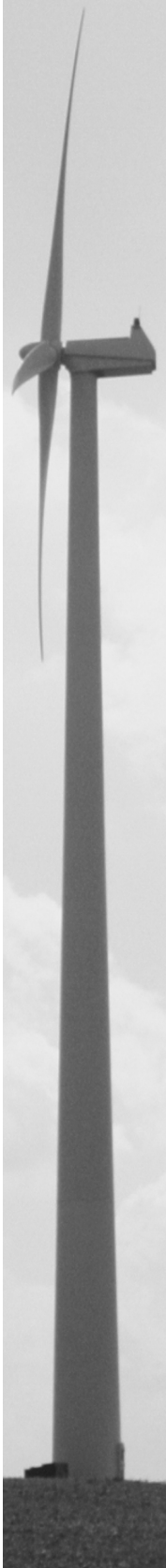
Financing a Commercial-Scale Wind Project

I. Developing a Commercial-Scale Wind Project

Farmers who choose to invest directly in developing a wind project to sell energy for profit will face a variety of legal and technical issues in the development and operation of the project. Indeed, a farmer who seeks to purchase his or her own turbine(s) or to invest in a large wind project with others will be required to navigate nearly all of the issues discussed in this guide—including securing wind rights and land access, siting the wind facility, interconnecting to the electric grid, transmitting energy across the grid, and planning for the potential liability of a wind project.

In addition to the issues mentioned above and other issues covered elsewhere in this guide, farmers who seek to develop their own large wind projects will need to understand how to finance the project, obtain a contract to sell the energy generated by the project, and organize the structure of their business arrangements for this endeavor. This chapter addresses project financing issues. The next two chapters examine how project revenues are obtained from the sale of energy (Chapter 9, Selling Power), and how to set up the business side of the wind project (Chapter 10, Business Structures).

The final chapters of this guide address several existing government incentive programs (Chapter 12) and potential tax benefits (Chapter 13) that can make wind projects more profitable and feasible for wind developers, including farmers. In many cases, accessing some combination of these state and federal incentive programs is essential to developing a profitable wind project. Accordingly, a farmer considering a larger wind investment should consider all of these chapters together.



II. Financing a Large Wind Project

A. What to Expect: Costs of Building a Large Wind Project

Very generally, most wind developers start with an assumption that the cost of installing a large wind project will range from $1,000 to $1,500 per kW of the project's nameplate capacity. This means that, even for a relatively simple project with a single 2 MW turbine, a farmer should expect a total investment cost in the range of $2 to $3 million.

Farmers should be aware, however, that some recent projects have been more expensive than the general $1,000 to $1,500, and have moved closer to $1,800 or even $2,000 per kW. This is due, in part, to some increasing costs of wind developments, including the rising price of steel, a primary component of wind turbines and the towers on which they sit, and the strength of the euro against the dollar (since many turbines and turbine components come from or are sold by European manufacturers).

Retaining Qualified Legal Counsel Is Essential

As with any major financial commitment or business endeavor, farmers should consult experts who are not personally involved in the project before signing any documents or assuming any major risks or obligations associated with a wind project. Attorneys can assist with reviewing and putting together the legal aspects of the deal, and wind development consultants can do a comprehensive financial analysis of the project to estimate the cash flow and evaluate the anticipated economics of a project over its productive life. Developing a large wind project requires significant business sophistication, and experts should be consulted and used throughout the process.

As a general rule, the lowest costs for a wind energy project per kW of capacity are achieved with the most turbines (because each additional turbine reduces the average, per turbine development costs), the best wind resource (because increased wind speeds at the turbine sites increase the amount of power that can be generated by each turbine), and the lowest local construction costs.[1] However, the actual final cost per kW for any particular project will vary greatly depending on the specifics of the individual development and will be affected by a range of variables including the availability and price of wind turbines, the property

[1] *See generally* American Wind Energy Association, *Wind Energy Costs*, http://www.awea.org/faq/wwt_costs.html (last visited June 7, 2007).

rights that must be acquired, feasibility studies and required permits, interconnection requirements and fees, transmission service costs, insurance coverage, and the fees for attorneys and other wind energy experts.

Nonetheless, initial cost estimates are helpful in the early planning stages of a project, and there are several sample wind project budgets available on the Internet to use as an initial point of comparison.[2] In addition, wind energy "calculators" are also available that may assist with predicting a project's cash flow needs and comparing various planning scenarios.[3]

Although the amount of capital required to build a wind project may seem daunting, many farmers have successfully pulled together this level of financing and have regularly earned significant profits from the ultimate cash flow of these wind projects in operation. In addition, it is possible for many farmers to band together to build a joint project—which allows for better distribution of both the risks and the rewards of wind development. There are also many wind development experts who can assist with this process.

B. Sources of Initial Project Financing

There are three main types of financing available to farmers seeking to build a new commercial-scale wind project. These three are equity, debt, and direct government support.

> ***Equity Financing.*** Equity financing refers to the sale of an ownership interest in the wind project. With equity financing, the project owners do not have to repay the equity investor's original investment if the project is unsuccessful. In this sense, equity investors put their capital at risk and have no guaranteed return on their investment. Instead, the project

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[2] *See, e.g.*, Mark Bolinger, et al., *A Comparative Analysis of Community Wind Power Development Options in Oregon* 44-52 (Energy Trust of Oregon July 2004), *available at* http://www.energytrust.org/RR/wind/OR_Community_Wind_Report.pdf; McNeil Technologies, Inc., *Handbook on Renewable Energy Financing for Rural Colorado* 11 (Colo. Gov.'s Office of Energy Mgmt. and Conservation Dec. 2005), *available at* http://www.colorado.gov/oemc/publications/handbook_rural_co.pdf (both sites last visited June 7, 2007).

[3] *E.g.*, National Renewable Energy Laboratory, *Wind Energy Finance*, http://analysis.nrel.gov/windfinance/login.asp (last visited June 7, 2007). For links to multiple financial calculators on-line, see generally Windustry, *Wind Project Calculator*, http://www.windustry.com/calculator (last visited June 7, 2007).

Equity Investors' Ownership Interests

An equity investor's ownership interest in the project may include both financial rights and governance rights. *Financial rights* give the equity investor the right to receive a portion of the project's profits. *Governance rights* give the equity investor the right to participate in the management of the project, either directly or through the right to select the project's decision-makers or managers.

owners give up some of their ownership rights to the equity investors. Equity investors generally receive rights to a certain portion of the profits of the project and often receive rights to a specified degree of decision-making power, for example, a certain number of votes.

A familiar form of equity financing occurs whenever a corporation sells shares of stock. In wind developments, most projects are organized as limited liability companies (LLCs), and the LLCs typically issue and sell membership interests or "units" of membership interest. Community members, including neighboring farmers, could be equity investors in a wind project if they purchase some ownership interest or share of ownership in the project. Or an equity investor could be a venture capitalist or large corporation that becomes a co-owner with the farmer in the wind development.

Two Types of Debt Financing

There are two main types of debt financing generally applicable to wind projects:

- ***Full Recourse Financing*** *(also called "Balance Sheet Financing")* occurs when a wind project's debts are backed by all of the project owners' assets, including the owners' personal and business assets not related to the particular wind project.
- ***Limited or Non-Recourse Financing*** *(also called "Project Financing")* occurs when lenders finance specific projects with the expectation that repayment of the debt will come *only* from the cash flow, and possibly the assets, of that particular wind project. In this scenario, the lender has no direct claim against any other assets or income of the farmer or other project owner.

Most farmer-owned wind projects will be funded with non-recourse financing, meaning the wind project assets alone are used to secure the wind development loan. *See generally* Edward D. Einowski, "Project Finance for Wind Power Projects" 6-2 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), *available at* http://www.stoel.com/webfiles/LawOfWind_EEB_02_07.pdf.

Debt Financing. Debt financing refers to the use of borrowed money from a bank or other lender. With debt, the borrower is legally obligated to pay back both principal and interest to the lender over the life of the loan. However, the lender receives no direct ownership interest in the project. In most cases, the lender will require a security interest in particular project assets that could be foreclosed upon if the borrower defaults on the loan. In some cases, the lender will require the individual owners of a project to provide personal guarantees of the business debt. This means that if the project loan is in default, the lender could attempt to recover the outstanding debt from the project owners' personal assets.

Government Financing Programs. Although direct government assistance is not a traditional form of financing for most businesses, some wind and other alternative energy projects have access to direct government assistance for some of the installation and operation costs of a new energy project. For example, competitive grants from the U.S. Department of Agriculture have been available in recent years to finance some percentage of a farmer's initial investment in a wind facility. Such grants do not need to be repaid, nor does the government claim an ownership interest in the project as an investor. Other government assistance may be available in the form of reduced interest rates for certain government-subsidized loans or government-issued loan guarantees. These programs are discussed in much greater detail in Chapter 12 (Incentives) of this guide and should be included when considering project finance options.

In most cases, a large commercial-scale wind project can be structured with 40 to 70 percent of the project financed by debt.[4] In other words, 40 to 70 percent of the project's costs will be borrowed in the form of a loan or loans. Potential lenders for farmer-owned wind projects include small local banks

[4] Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 69 (2005), *available at* http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf; Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 10 (2004), *available at* http://www.elpc.org/documents/WindHandbook2004.pdf (both sites last visited June 8, 2007).

(especially for smaller projects), regional agricultural lenders, and commercial banks.[5]

Even with this level of debt financing, however, most farmer-owned projects will still require a significant amount of equity financing to make the project possible. Again, this means the farmer developer needs to find investors who are motivated to provide upfront capital for the project's development and who, in exchange, will receive an agreed-upon ownership interest in the project and a measure of the project's future profits (or losses).[6]

In addition to providing capital for development, there are other reasons for the popularity of equity investment—and the establishment of co-owner relationships with outside investors. First, lenders providing debt financing will typically not loan any funds to a project unless the project has equity investors sufficient to cover remaining project investment costs. In addition, many farmers find that lenders are more willing to finance wind projects that have the backing of larger equity investors. When sophisticated equity investors are involved, the lender can to some degree rely on those investors' scrutiny of the project plans and belief in its profitability.

In many instances, the largest motivation for equity investment in wind from both the farmer's and the investor's points of view is the need to take full advantage of available tax credits in order for the project to be profitable. Although wind is increasingly competitive with traditional non-renewable sources of electricity, such as coal, the reality is that most wind development still requires the use of the federal Production Tax Credit (PTC) to make a project financially feasible.

The federal PTC, discussed in much greater detail in Chapter 13 (Tax Benefits and Obligations) of this guide, currently provides a tax credit to the owner of a wind project based on the amount of electricity generated. Because of complicated tax rules, this tax credit can typically only be offset against *passive income*—the type of income earned from passive investment activities such as renting out property or investing in a wind facility that is operated by

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[5] Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 9-10 (2004), *available at* http://www.elpc.org/documents/WindHandbook2004.pdf (last visited June 8, 2007).

[6] For more information and examples of how some business arrangements with equity investors have worked in the past, see the discussion of wind project business models in Chapter 10 of this guide.

another individual or entity. Most of a typical farmer's income will be considered *active income*, which the tax credit for wind development cannot be used against. In addition, the size of the tax credit that can be generated from a large wind project may itself be too much for individual farmer-owners to take advantage of fully.

Accordingly, as a practical matter, most farmer-owners of projects that must use the federal PTC to be profitable will need to partner with a tax-motivated equity investor who has sufficient passive income tax liability to take full advantage of the PTC generated from the project. As discussed in more detail in Chapter 10 (Business Structures), complicated business arrangements are often used to properly allocate the tax credits to these investors.

C. Typical Steps in Acquiring Project Financing

In almost every case, obtaining equity investment is a farmer's first step in wind project financing. This typically occurs in multiple stages, with smaller investors first providing pre-construction development costs and then larger investors financing the ultimate construction and operation of the project. Lenders will typically loan funds only after the project has (or has commitments for) all of the necessary equity investment.

Although each wind project has its own unique financing requirements, this section highlights a typical project financing process.

1. Project Founders Contribute Seed Money to Evaluate Feasibility

First, the original founding farmer or farmers contribute their own "seed money" to accomplish many pre-development activities for the proposed project. These activities include:

- Evaluation of the wind resource at the proposed site.
- Preliminary analysis of interconnection and transmission issues and initial deposits that might be required.
- Evaluation of property requirements and identifying local landowners who might be interested in leasing land for the proposed project.
- Preliminary discussions with possible purchasers of the energy that would be generated by the project (typically electric utilities).
- Preliminary analysis of project design and evaluation of turbines for use in the proposed project.

- Initial analysis of environmental permitting and other government approvals that might be required to construct the proposed project.
- Preliminary financial feasibility analysis of the proposed project.

2. Small Equity Investment for Pre-Construction Development

If the proposed project appears to be feasible, the founders often next seek additional equity investment from other local farmers and other relatively small investors in order to complete further pre-construction development activities. These activities include negotiating agreements with engineering, procurement, and construction contractors, attorneys, and other development team members, and working with these parties to complete all of the tasks necessary to finalize project plans and secure construction financing.

Often lenders and large equity investors will not commit construction funds unless all or substantially all of the pre-construction development activities are completed. This typically includes:

- One year of wind monitoring and data recording at the specific project site.
- Project feasibility study by a credible wind energy consultant.
- Leases or easements from landowners for use of the project site.
- All required project siting permits.
- Interconnection studies and an interconnection agreement permitting the project to connect to the electric grid.
- Negotiated *power purchase agreement* (PPA) with a reputable utility (or a commitment that one will be negotiated).
- Evidence of operation expertise or a contract with a qualified operator.
- Turbine purchase agreement and turbine operation and maintenance warranties.
- Construction contracts.
- Complete business and financial plan.[7]

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[7] *See* Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 9-10 (2004), *available at* http://www.elpc.org/documents/WindHandbook2004.pdf (last visited June 8, 2007).

As a result, it is important for farmer developers to have completed, or at least have a road map for completing, each of the pre-construction development activities when they approach potential large investors and lenders.

Although the actual funds from lenders and major equity investors typically will not be transferred until the pre-construction activities are complete, farmers need to be mindful that the negotiation process with lenders and investors can be lengthy. As a result, it is important to identify potential funding sources and make the initial approach to such investors and lenders as part of the pre-construction project work.

3. Debt and Equity Financing for Construction and Operation

Upon completion of the pre-construction development activities, a farmer must obtain financing for the actual construction and operation costs. As discussed above, this typically requires a combination of debt and equity.

Depending on the size of the project, the equity component of the construction financing could come from other farmers or additional local investors. However, as noted above, for projects of significant size, the equity component of the construction financing is often more likely to come from businesses or individuals who can make full use of the federal tax credits that may be generated by the project. Potential equity investors at the construction financing level include subsidiaries of utility holding companies, banks and insurance companies, and other corporate investors with passive tax liabilities.[8]

Difficult timing issues often arise. Lenders prefer not to make construction loans until there are commitments from equity investors, and equity investors prefer not to invest until there is a guarantee of sufficient debt financing. Similarly, a utility may be wary of committing to purchase energy from a new wind project—and relying on that project's promised future energy output to meet the utility's future energy needs—when the project does not yet have the financing it will need to actually be built and go into operation. And most lenders and equity investors will not finance a wind development without some guarantee that there will be a buyer for the

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[8] Charles Kubert, *Community Wind Financing: A Handbook by the Environmental Law & Policy Center* 9 (2004), *available at* http://www.elpc.org/documents/WindHandbook2004.pdf (last visited June 8, 2007).

produced energy, and therefore a source of revenue from which to repay the loan or make a profit.

An experienced attorney should be able to help navigate some of these timing issues, possibly through the use of careful contract contingency terms. In addition, an experienced wind consultant should have practical experience in handling these issues.[9]

D. Negotiating Agreements with Lenders and Equity Investors

1. Addressing Lenders' and Equity Investors' Concerns

The "cost" to a farmer of receiving any type of financing for a wind project, whether debt or equity, will depend on a multitude of factors, most importantly the degree of risk perceived by the lender or investor. The riskier the investment appears to be, the more expensive the money will be for the farmer to acquire. For debt financing, higher risk means that interest rates will be higher or the lender will require additional collateral, if the loan is made at all. Similarly, for equity financing, investors will likely demand a greater percentage of the ownership (which translates into a greater percentage of the profits) or more control over the actual development of the project if the future is more uncertain and the investment therefore riskier.

Lenders and investors will want to avoid assuming too much risk. In order to access sufficient financing at the lowest cost, a farmer developing a wind project will want to package the project to be as financially sound as possible. In addition, the farmer should be prepared to negotiate with potential lenders and investors about how the project's financial risks can be minimized and who will bear the financial risks that are unavoidable.[10] (Lenders, in particular, will want to include provisions in the loan documents to ensure that the loan will be repaid in full regardless of the actual profitability of the project.)

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[9] *See* William H. Holmes, "Power Purchase Agreements and Environmental Attributes" 4-5 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), *available at* http://www.stoel.com/webfiles/LawOfWind_WEB_02_07.pdf (last visited June 19, 2007).

[10] Edward D. Einowski, "Project Finance for Wind Power Projects" 6-1 from *The Law of Wind* (Stoel Rives, LLP, 3d ed. 2006), *available at* http://www.stoel.com/webfiles/LawOfWind_EEB_02_07.pdf (last visited June 7, 2007).

To successfully obtain the needed financing at a reasonable cost, a farmer should know the things a lender or investor would typically consider when determining a project's financial soundness. Both lenders and investors will need to be convinced of the seriousness and capability of the farmer developer as well as the feasibility of a profitable operation.

Lenders and investors will want to prepare for the risk that the turbine will malfunction or that technical aspects of the electric grid will not perform correctly, so that electricity cannot be generated or transmitted as required to produce profits. To address this concern, farmers may need to acquire adequate warranties from turbine manufacturers to ensure a well-functioning system and coverage for business interruption, and may need to include provisions in contracts with utility purchasers to address payment when technical problems with the electric grid prevent the project from delivering all of the promised energy.

Although wind predictions over the long term are very reliable, there is always some risk that the wind will not blow sufficiently in the short term, and therefore the project will not meet its projected revenues in the short term. Lenders will typically want to build in some margin of safety to account for this short-term volatility and may require that projected revenues be sufficient to cover 1.2 to 1.5 times the scheduled loan payments.[11]

Finally, there is always a risk that the government could at any time eliminate some form of necessary government support, such as the federal tax credits. Indeed, the federal PTC has notoriously suffered from a "boom-and-bust cycle" of expiring and then only belatedly being renewed. This is of particular concern to large, tax-motivated equity investors, but it would be of concern to all investors and lenders as it affects the project's financial viability. There may be little a farmer can do to alleviate this concern, except to stay well-informed of existing incentives, their availability, and eligibility windows, and to plan and time the project accordingly.

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[11] Energy Trust of Oregon, *Community Wind: An Oregon Guidebook* 69 (2005), *available at* http://www.energytrust.org/RR/wind/community/oregon_wind_guidebook.pdf (last visited June 15, 2007) (referring to this balance as the "debt coverage ratio").

2. Negotiating an Equity Finance Arrangement

Equity investors are motivated by the likelihood of profiting from investment in a successful venture. Each individual investor's determination whether to invest or not depends on his or her own assessment of the project's potential for success. As a general rule, most equity investors, including those willing to provide equity for the construction of a wind project, will invest in a project if they anticipate a 15 to 20 percent after-tax return on their investment. This profit comes both from direct project revenues and, for many equity investors, from taking full advantage of some tax-saving benefits of large wind developments, such as the federal PTC.

> ***Securities Laws and Other Challenges***
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> Farmers must understand that partnering with equity investors, who essentially become co-owners of the project, raises complex legal issues including securities regulation, choice of business entities, and a variety of tax and energy regulatory issues. Some of these issues are touched on in Chapter 12 (Business Structures); however, arrangements with equity investors should always be carefully scrutinized and handled by appropriate experts. For example, the rules related to offering and selling ownership interests in any business are extremely complex, and it is important for farmers to hire attorneys who understand state and federal securities laws, and who can guide the initial project owners in the offering process and in the preparation of the appropriate offering document and subscription materials.

In most cases, the investors in initial pre-construction activities do not negotiate the terms of their investment. Rather they will invest (or choose not to invest) based on the terms of the offering as dictated by the project owners. Because of this, before commencing any offering for pre-construction investment, the project owners must understand what terms will be required to entice potential investors to make an investment. Detailed securities disclosures are typically required at this stage.

Deals with equity investors, who will provide the funds required to construct and operate a wind project, can be extremely complex and should be the subject of intense negotiation. Farmer developers will want their experts' advice throughout this negotiation process. Once a potential equity investor has been selected and has expressed serious interest in the proposed project, the parties will typically negotiate a term sheet that summarizes the key agreements of the parties, such as the amount and timing of the

investment to be made by the investor, the conditions under which the investment will be made, what turbines will be used, who will construct the project, and who will manage the project once it is completed. Tax-motivated equity investors will also want to negotiate contract terms that sufficiently guarantee them the benefit of the tax credits generated by the project over a certain period of time.

In many cases, large equity investors are highly sophisticated and intensely profit-motivated. Farmers should keep in mind that choosing *who* to partner with is one of the most important decisions in determining the project's success—and especially the return the original farmer investors will receive on their investments. Farmers and their representatives should zealously advocate for fair deals that maximize the benefits to them as project owners. Farmers should not agree to any arrangement without careful consideration and their own legal representation.

3. Negotiating a Debt Finance Arrangement

To some degree, the difficulty of negotiating a debt finance arrangement with a lender will depend on how experienced the lender is with financing wind projects. In areas where wind projects are more rare, lenders may be more wary of financing a new project. However, as wind energy continues to grow, and more projects are successfully developed, lenders become more sophisticated about wind financing and more willing to work with new developers.

In almost every case, farmers should expect lenders to be fairly assertive about ensuring the project is responsibly developed and operated. Lenders may even seek to have the work and plans supervised by their own independent experts. Also, lenders will want to ensure that they have the ability to address any problems that arise. This could range from lender involvement in problem resolution (possibly allowing the lender to impose new loan terms in certain situations) to a lender's right to ultimately take over the project if it gets into trouble. The events or circumstances that would trigger when the lender may take the specified actions should be spelled out in the agreement—and can be a subject of significant negotiation.

Lenders will typically require a security interest in all of the project assets to secure the repayment of the loan. Most farmers have experience with security interests, which are created when a party owing a debt grants the creditor the right to take a specified asset or assets as payment for the debt if the debtor defaults on a payment agreement. There are legal formalities for

the creation of a security agreement. In the security agreement, the debtor typically promises not to sell, transfer, or otherwise encumber the assets without the permission of the creditor. The security agreement should also identify the events which will trigger the creditor's right to take the assets. The most common trigger events include failure to make scheduled payments, failure to maintain the property, and failure to secure required insurance or pay taxes on the assets.

To provide additional security for a wind project loan, lenders will often demand that key agreements of the project be "collaterally assigned" to the lender. Such key agreements would include the power purchase agreement, the turbine supply and maintenance agreement, the operations and maintenance agreements, and land leases. Under a collateral assignment, in event of default, the lender would be authorized to take action under those agreements (and demand payments or performance) without further involvement of the project owner.