



Community Wind Financing

A Handbook by the



Environmental Law & Policy Center





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INTRODUCTION

Wind power is the fastest growing source of electricity generation in the United States. In 2003, the installed U.S. wind power capacity increased by 1,700 megawatts (MW) to a total of 6,374 MW.¹ Most of this additional capacity came in large projects of 50 MW or more, typically owned by strategic investors who have developed or acquired a portfolio of projects. As wind power generation continues to grow, these large projects and experienced developers will likely continue to dominate wind power development. Because of their scale and access to capital, these large projects are the fastest way to move towards increasing renewable energy's share of the generation mix—and they provide significant economic benefits to the communities where they are located, from payments to farmers for wind rights and turbine easements to construction-related spending to permanent operations and the maintenance staff at each project.

At the same time, there has been a growing interest in community wind power development. While the notion of community wind varies, these projects are generally smaller scale (less than 20 MW), and are locally initiated and owned. Projects range from single turbines erected by municipal utilities, school districts and tribal reservations to larger multi-turbine installations owned by one or more local investors and landowners. These projects may capture and retain more of the economic benefits locally (both construction-related and ongoing returns) and drive continued reinvestment in the communities. As a result, community wind projects often enjoy more favorable community support than large-scale commercial projects.

There have been numerous publications and conferences on community wind development, but less specific attention on options for project structuring and financing. The goal of this handbook is to identify critical financing issues and present several possible financing models that reflect the differing financial positions and investment goals of various project owners/developers.

The handbook includes six sections:

- **Section I** describes various models for community wind power ownership.
- **Section II** examines sources of equity and debt financing and the steps necessary to secure this financing.
- **Section III** identifies federal grant and loan programs and state incentives for wind power development.
- **Section IV** reviews the federal tax incentives supporting wind power projects, the impact of these incentives on project economics, and limitations on utilizing these incentives.
- **Section V** examines power purchase agreements and the value of green tags to community wind power projects.
- **The Appendix** contains a list of operating community wind projects in the United States and a list of project consultants and financing resources.

¹ American Wind Energy Association, www.awea.org.

I. OWNERSHIP MODELS


Wind power development in Germany and Denmark grew rapidly while following a community wind ownership model. Groups of farmers, landowners and other small investors have built projects as small as a single turbine. In these countries, community wind development has been aided by regulated power purchase rates, the strong interests of both rural landowners and other small investors and the difficulty of siting large-scale projects. In the United States, wind power development has taken a different pattern. Of the 6,000 MW of installed wind power capacity, only 2 percent can be characterized as community-owned (including electric cooperatives, schools, municipal electric systems, tribes, and private owners; see Table 1 for a summary of these projects). Tax laws favoring large investors, lack of access to capital, less favorable project economics and lack of state policies specifically supporting smaller wind power projects have held back community wind development.²  overcome these disadvantages, there are a number of possible ownership structures to support community wind projects.

Table 1: Summary of U.S. Community Wind Projects

<u>Ownership Type</u>	<u># of Projects</u>	<u>MW</u>
Electric Cooperative	4	12.1
School	8	5.8
Municipal	17	36.9
Tribal	1	0.8
LLC/Private	13	99.6
Total	43	155.2

Source: AWEA. Data is current as of 3/31/04. Projects broken down into multiple LLCs are counted as a single project. Does not include projects under development. Also excludes <2 MW projects owned by Navitas and Project Resources Group.

- Municipal: Several municipal utilities (e.g., Lamar, CO; Waverly, IA; Moorhead, MN; Hull, MA) have installed wind turbines. These projects are locally popular and can smooth the way for additional wind power development in the area. These projects do not qualify for the federal Production Tax Credit³ (PTC) but may be eligible for the Renewable Energy Production Incentive (REPI), a parallel cash incentive program subject to annual Congressional appropriations.⁴ These projects also cannot take advantage of favorable depreciation rules for wind turbines because they are not tax paying entities. However, municipal projects do have a major advantage in their access to lower-cost public financing, lowering development costs dramatically.⁵ As public entities, municipal utilities also have

² Community-owned wind projects have been concentrated in Minnesota where state policy has been supportive. See Section III for more detail.

³ The Production Tax Credit is a tax credit for actual power produced (1.8 cents per kwh, adjusted for inflation) for the first ten years' electricity output from a qualified privately-owned wind generation facility. This credit expired in 2003 but Congress is likely to renew it in 2004. See Section IV for more on this program.

⁴ While these projects are eligible for the REPI program, authorization for this program expired in 2003. The REPI program may be replaced by a system allowing municipal projects to sell PTC's to tax-paying entities.

⁵ Two analyses have shown that municipal ownership could lower the cost of a wind power project by over 30% compared to private ownership. See Steve Clemmer, "Strong Winds: Opportunities for Rural Economic Development Blow Across Nebraska," Union of Concerned Scientists, 2001. Also R. Wiser and E. Kahn, "Alternative Windpower Ownership Structures: Financing Terms and Project Costs," Lawrence Berkeley Laboratory, 1996.

lower financial return requirements. Electricity generated from these projects can be sold at a premium to customers through a green power marketing program.⁶ Alternatively, the green tags can sometimes be sold outside the municipality.⁷

Case Study: Moorhead (MN) Public Service's twin 750 kw turbines went on line on June 24, 1999 and August 25, 2001. Moorhead was one of the first municipal utilities in the country to install wind turbines. Moorhead Public Service (MPS) established a voluntary green power subscription program ("Capture the Wind") to cover the incremental cost between conventional coal-fired generation and wind power. Approximately 900 community residents signed up for the program, purchasing all of the available green tags from these turbines, and paying a premium of no more than ½-cent per kwh. MPS has the most successful green power marketing program in the nation measured by share of customers. MPS also received over \$60,000 in REPI payments from the federal government in 2003.

- Schools: School districts in Illinois, Iowa and Minnesota have installed wind turbines to offset their own electricity consumption. Like municipally-owned projects, these projects can use low-cost financing and are also eligible for REPI payments. School-owned projects in Iowa have been aided by generous net metering rules (where the utility credits the customer for power generated at the rate that the customer pays⁸), low-cost financing and grants.

Case Study: Eldora-New Providence Community School District in the central Iowa town of Eldora installed a 750 kw wind turbine in October 2002 after years of talks, negotiations, setbacks and planning with the school board and IES Utilities. The school district borrowed a total of \$800,000 to finance the project—including the cost of the turbine, consultant and attorney fees, interconnection fees, and an extended 5-year warranty—and expects to pay off the loans in ten years. Part of the financing came through a \$250,000 no-interest loan from the Iowa Energy Bank, an energy management program run by the Iowa Department of Natural Resources Energy Bureau. The remaining \$550,000 was borrowed from the local Hardin County Savings Bank. The turbine is large enough to offset the school district's entire electricity bill under a net metering arrangement. Excess power is sold back to IES at a generous 3.8 cents/kwh. The Eldora wind turbine is not receiving REPI payments.

- Rural Electric Cooperatives: Several generation cooperatives in Minnesota, North Dakota and South Dakota (e.g., Great River Energy, Basin Electric) have invested in small wind power projects to supply their green power marketing programs. Distribution cooperatives may be contractually limited in the amount of power they can self-generate, but many could own one or more wind turbines to supply their members. By building wind turbines, electric co-ops can also benefit their members through payments for wind turbine easements. Rural electric cooperatives cannot utilize the PTCs or the depreciation tax benefits but may be eligible for REPI payments. To lower financing costs, they can borrow at low cost from the USDA Rural Utilities Service. RECs may be able to sell wind power at a premium to customers who choose to pay for it or to sell the green tags from the project.

⁶ Moorhead's green power marketing program has the highest participation rate (6%) of any program in the country.

⁷ Green tags represent the non-energy attributes of wind power. See Section V for more information on these.

⁸ Iowa's net metering program formerly had no project size limit, allowing for the economies of scale of larger turbines. The net metering program is now capped at 500 kw units.

Case Study: Illinois Rural Electric Cooperative (IREC), with 10,000 electric customers in central Illinois, has broken ground for a 1.65 MW wind turbine to be operational by the end of 2004. The turbine will provide about 5 percent of the peak load for its members, which is below the contractual limit IREC has with its generation coop. IREC management was eager to build the turbine as a commitment to renewable energy and a catalyst to encourage additional privately owned wind projects in Pike County. The co-op had no plans to sell the output to its members at a premium, however, so they had to find additional sources of funding to justify the investment. IREC was able to tap into three separate sources of grant funding to make the project financially feasible: a \$438,000 grant from the USDA Section 9006 program, a \$250,000 grant from the Illinois Department of Commerce and Economic Opportunity and an unusual \$175,000 grant from the Illinois Clean Energy Community Foundation. In providing this grant, the Foundation essentially pre-purchased all the future green tags from the project, valuing them at approximately 0.2 cents per kwh generated over a 20-year project life.

- Sole Ownership: Owning one or more utility-scale wind turbines individually is possible if a business or individual has the resources to put the project together and can provide the required equity.⁹ A project owner should establish the venture as one or more LLCs (limited liability corporations) in order to avoid personal financial liability for the project. If the owner is actively involved in managing the project and has sufficient tax liability, then the federal PTC and accelerated depreciation benefits can be used to reduce taxable income and taxes. If an outside manager is hired to run the project, then the owner would be considered a “passive” investor and the PTC could then only be used to offset income tax liability associated with other passive income (not including dividends or capital gains from selling securities).
- Local Investor Ownership: Many of the private community wind power projects developed to date are owned by groups of individuals who have purchased shares in a project. The much-discussed MinWind projects in southwestern Minnesota are the best examples of this ownership structure. These projects are formed as an LLC so that investors are insulated from liability, and profits and losses flow through to individual members. In forming an investor-owned wind project, the investment and ownership rules can be tailored to meet the project goals. For example, the project can: (1) establish both the minimum and maximum amounts that any given person can invest; (2) require that investors be “local”; and (3) allow for proportionate voting rights or adopt “co-op like” voting principles (one vote per investor). In a project with multiple individual owners, each owner will be treated for tax purposes as a passive investor, which again means that the PTC and project losses can only be used to the extent that the owner has passive income to offset them against.

⁹ Good examples of sole ownership of utility-scale turbines are the Minnesota projects owned by Garwin McNeilus. Mr. McNeilus and his family have developed 56 MW of wind, all in ownership blocks of under 2 MW to qualify for the Minnesota small wind production incentive.

Securities Registration Issues: An LLC with multiple investors will require an offering prospectus and *may* be subject to state and federal securities registration. A full review of state and federal securities requirements related to small offerings is beyond the scope of this Handbook. However, here are the general options for raising equity from multiple smaller investors. Note that these options are generally consistent across states although parameters such as maximum numbers of investors or disclosure requirements may vary slightly.¹⁰

- **Private Placements:** An unlimited amount of money can be raised through a private placement which does not have to be registered with state or federal securities offices. An Offering Memorandum or Prospectus is needed. A private placement cannot attract more than 35 “non-accredited” investors in any 12-month period; however, there is no limit to the number of accredited investors (e.g., high net worth individuals). In addition, there cannot be advertising or a general solicitation for investors.
- **SCOR Offerings:** SCOR (“small corporate offering registration,” part of SEC Regulation D) offerings are in-state offerings that are limited to \$1 million, but have no limit on the number of investors. Again, the offering cannot be advertised. Registration costs and requirements are relatively low; however, the \$1 million cap limits the applicability of SCOR offerings to single-turbine projects.
- **ULOE Offerings:** The “Uniform Limited Offering Exemption” allows for an offering of up to \$5 million provided that all investors are in-state and that there are no more than 35 non-accredited investors.
- **Regulation A Offerings:** Regulation A offerings have no size or investor limits but have more extensive and expensive registration requirements and are limited to intra-state investors.

The legal costs associated with a registered offering will generally be higher than with a private placement. In addition, a number of targeted investors may be “accredited” because of the value of their land, thereby allowing more than 35 investors for a private placement. There may also be organizational reasons to stay below the 35-investor threshold. One way to do this is to break up a larger project into multiple LLCs. For example, a 9 MW project (six 1.5 MW turbines) might require over \$3.6 million in owner equity. To stay at the 35-investor threshold would require an average investment of \$102,000. By breaking this up into three 3 MW projects (2 turbines each) and forming three separate LLCs, the average investment could fall to \$34,000 while staying at 35 investors per LLC.

Case Study: MinWind I and II in the Buffalo Ridge area of southwestern Minnesota were established as two identical LLCs, each owning two turbines with nameplate capacity of 1.9 MW. Each LLC issued shares (\$5,000 per share) for the roughly 40 percent equity portion of each \$1.6 million project through a private placement. All investors were local, and 85 percent of the shares were reserved for farmers. Each owner has a single vote in the LLC regardless of the number of shares purchased. There were 33 investors per LLC (just below the 35-investor cut-off for private placements). Each project is just under 2 MW to take advantage of Minnesota’s 1.5 cent per kwh small wind production incentive. Project debt was provided

¹⁰ For a quick overview of the rules pertaining to small offerings in Iowa, see www.iid.state.ia.us/docs/2039lett.pdf. The Iowa Insurance Division also has a useful guide to developing a small offering memorandum; see www.iid.state.ia.us/Division/Securities/scor. For an easy introduction to private placements, see Anthony Mancuso, *Form Your Own Limited Liability Company*, 2002, page 33.

through the local branch of Farmers and Merchants' Bank which had already worked with the project's principals on a farmer-owned ethanol facility. While the federal production tax credit is not being fully utilized in these projects, a number of the investors have been able to take advantage of the PTC.

These projects proved successful enough that the same financing model is being used for MinWind III-IX, currently under development. These new projects have been aided financially by USDA Rural Development renewable energy grants of \$178,000 for each, reducing the capital cost of each project by roughly 10 percent. In addition, by being developed at the same time in the same location, these projects will benefit from the economies of scale for larger commercial projects.

- LLC/C-Corporation Joint Ownership: Joint ownership by local investors in an LLC and an outside corporate investor allows a community wind investment group to achieve long-term ownership and financial benefits from the project with less up-front capital while ensuring that the project's tax benefits are effectively utilized. This is the structure used for many of the commercial wind power projects developed to date—the difference here is that, for a community-owned project, the minority owners are local landowners or investors, rather than a dedicated wind power development firm. The project would be structured in the following way:
 - ⇒ The local investor group does the pre-development work on a project including wind monitoring, negotiating wind rights, and local zoning and permitting.
 - ⇒ The local group then markets the project to potential tax-motivated corporate investors. These corporations have taxable income to shelter and, because of the PTC and accelerated depreciation, view wind power investments as attractive.
 - ⇒ The local investors obtain construction and permanent debt financing together with a commitment from the corporate investor to acquire an interest in the project at commercial operation, with the local investors typically providing 25 percent of the required equity capital (10 -15 percent of overall capital).
 - ⇒ The corporate investor makes its equity investment in the project when it is completed and begins to generate power.
 - ⇒ The corporate investor realizes its financial return objectives in the first ten years of the project, primarily through a combination of the PTCs and accelerated depreciation benefits. During this time frame, most of the project debt is also paid down.
 - ⇒ At the 10-year mark when the PTCs end, the ownership shares “flip” so that the local investors are now the majority owners for the remaining life of the project. Note that federal tax laws require that the majority corporate investor maintain a “significant” ongoing interest in the project and cannot pre-arrange to sell its interest to the minority local investors or to

another party at a pre-determined fixed price. However, the corporate investor can grant to the local investors the right to purchase its interest at fair market value.¹¹

Co-ownership with an outside equity investor entails complex legal and tax challenges. The Treasury regulations lay down complicated rules to determine the validity of allocating tax benefits disproportionate to ownership shares. The legal fees for addressing these issues may be substantial and documented resolution (e.g., an IRS private letter ruling) is essential for securing outside equity.

- “Loan to Own”: A variation on this project flip approach was explored by Cooperative Development Services for the Wisconsin Focus on Energy program.¹² In this model, the local ownership group would not make an upfront equity investment in the project; instead, the group pools capital to make a loan to the outside corporate investor. This loan lowers the corporate investor’s required equity contribution and increases its financial returns. The local investors would earn interest income only over the term of the loan. The corporate investor is initially the 100 percent owner of the wind project and receives all of the project’s tax benefits and income or loss. At the end of ten years, the corporate investor sells the project to the local investors at a pre-negotiated price equal to the principal value of the loan in effect, the local owners forgive the loan. The local investors then earn a return on their original investment (the loan) from the operating income of the project through its remaining useful life. This approach has not yet been tested on a project. The primary tax risk is caused by selling the project at what may be perceived to be a pre-determined sales price, rather than through an arm’s-length negotiated transaction.
- Project Bundling: One approach to attracting outside corporate investors and lowering overall development costs may be to bundle smaller projects together. By aggregating smaller projects, the investment starts to reach a scale that attracts tax-motivated investors. This bundling could also create greater leverage in purchasing and installing turbines, would spread interconnection costs across multiple turbines and may help in negotiating a power purchase agreement. In this framework, there might be a master LLC in which each of the individual project LLCs participates.
- Project “Lease”: One approach to working with an outside equity partner while avoiding the uncertainty regarding tax-benefit allocations could involve leasing the development rights to the outside investor. In this scenario, the landowners or local partners would do the pre-development work, including wind monitoring, zoning, permitting, negotiation of the power purchase agreement (PPA) and contracting with a project operator. These partners would then lease the wind rights and assign a portion of the PPA (e.g., 10 years out of a 20-year PPA) to the equity investor. The equity investor would own the project for the first ten years, capturing the project’s tax benefits, and the local owners would receive a negotiated royalty based on the wind rights and a value assigned to the pre-development expenses. At the end of the 10-year period, the local owners would have the option of purchasing the project from the equity investor at the fair market value based on a qualified outside appraisal. The outside

¹¹ E-mail communication with tax-motivated corporate investor, February 9, 2004.

¹² Cooperative Development Services, Wisconsin Community Based Windpower Project, Final Report, 2003. Contact Mary Myers at Cooperative Development Services (memyers@merr.com) or Wisconsin Focus on Energy (www.wifocusonenergy.org) for more information on this model.

equity investor would, by then, have already realized its financial return by utilizing the tax benefits. The fair market value of a 10-year old wind turbine should be quite low—perhaps 10 percent or less of the original project cost—because it will then be fully depreciated and cannot be easily relocated.

- “Sweat Equity”: This model is similar to the lease model described above in that landowners and investors would carry out much of a project’s pre-development work, then sell the construction-ready project off to an outside developer. The distinction here is that the local participants are not retaining a project ownership stake, either upfront or later; rather, they receive a more generous royalty stream as compensation for their pre-development activities. This avoids the legal, tax and management issues associated with splitting ownership interests between corporate and local investors.

Case Study: Trimont Wind Farm. A group of landowners in central Minnesota wanted to develop a large-scale wind project without incurring the operating or financing issues associated with actual project ownership. The Trimont landowners carried out the project pre-development work and responded to a Request for Proposal for wind power issued by Great River Energy, a rural electric generation cooperative. After being awarded the contract by Great River, the landowners then sold the development rights to PPM Energy, an established wind project developer. In exchange, the landowners will receive both a standard lease payment and a percentage of the ongoing revenue stream from the project. They will never own this project, but they will have a long-term royalty stream that is greater than the value of leasing wind rights alone. In addition, the revenue will be shared among landowners regardless of whose land the turbines are actually sited on.

II. SOURCING EQUITY AND DEBT

- Finding an Equity Partner: Finding an outside tax-motivated investor is one of the greatest hurdles facing community wind projects. Despite the recent growth in the U.S. wind power industry, the pool of large investors for these projects has been relatively small. Most of the equity capital for U.S. wind power projects has come from a handful of strategic investors such as subsidiaries of utility holding companies (e.g., FPL Energy and PPM Energy). Institutional investors, such as commercial banks and insurance companies, have large tax liabilities and experience in structured finance; however, only a few U.S. institutional investors are active in wind power projects, and these invest in larger projects initiated by commercial developers. A third untapped group of potential corporate investors is other companies that have tax liabilities and may want to reduce their corporate income taxes while investing in a “green” business. As awareness of wind power grows and the tax and regulatory environments stabilize, some large corporations may see the benefit of these investments. Any of these equity partners—strategic or institutional—will be seeking after-tax rates of return of 15-20 percent with the non-strategic investors seeking returns at the higher end of the range.
- Arranging Debt Financing: Securing debt financing for a project can also be a challenging and time-consuming process. It will require developers to complete almost all of the pre-development work including wind monitoring, permitting, zoning, interconnection studies and PPA negotiations without knowing that the project will definitely go forward.

There are a variety of potential sources of debt financing ranging from local lenders to larger regional or national banks to commercial finance firms that focus on energy project finance:

- ⇒ Local Lenders: For small projects, local banks may work with customers who already have an established relationship. The MinWind projects in Minnesota were able to borrow locally since the lender had already supported a farmer-owned ethanol cooperative managed by the same individuals. However, financing a wind turbine is very different than financing agricultural land or machinery for traditional farm lenders. Bankers may be unfamiliar with the technology and the project risks, the required loan amounts may exceed the bank’s lending threshold, and the bank may seek to secure the loan with investors’ land because the turbine itself has no value to the bank. At the same time, as the number of successful small wind power projects grows, community banks will likely become more familiar with them and will better understand the lending risks.
- ⇒ Regional Agricultural Lenders: AgStar Financial, a Minnesota-based lender affiliated with the Farm Credit Administration, has developed specialized lending programs for wind power and other renewable energy projects. Other Farm Credit Services affiliates may also be interested in financing wind power projects.
- ⇒ Commercial Banks: Foreign banks have financed almost all large U.S. wind power projects. U.S. commercial banks have stayed away from wind projects after being overexposed in lending for merchant natural gas plants in the late 1990s. Mid-tier regional banks may be willing to provide debt for smaller projects. In addition, outside

corporate investors may have banking relationships that can open doors in providing debt financing for a project.

- ⇒ Commercial Finance: Commercial finance companies that specialize in energy projects are participating in financial structuring of wind power projects. They can package a project and sell it to both potential lenders and equity investors. However, they also typically have a minimum project size threshold that is above that of most community wind projects. One exception to this rule is GE Structured Finance, which is beginning to explore financing for smaller projects.
- ⇒ Vendor Financing: Historically, wind turbine manufacturers have not provided project or equipment financing. However, they may be willing to structure payment terms for turbines to provide bridge financing during construction.
- Debt Structuring: Most utility-scale projects are structured with 40-70 percent debt, using non-recourse financing (i.e., secured by the project itself). Although the project financing could be secured with Power Purchase Agreements, banks generally do not go beyond these debt levels because of the perceived risk factors associated with wind projects. If the loan were to default, banks do not want to own the project, and can't easily resell it. Larger banks may be willing to "monetize" the future value of the PTCs. This, in effect, reduces the amount of equity that an investor would put into the project by paying down this additional debt as PTCs are realized over the life of the project. Other banks, however, may not even recognize the value of the PTCs and may require that a project be able to meet debt service coverage requirements without them. Lenders to recent community-owned projects are requiring pre-tax cash flow to exceed expenses plus debt service by 10 percent and debt-service coverage ratios of 1.25.
- Getting the Project Financed: The loan application package will require, at a minimum, the following information:
 - ⇒ A comprehensive wind monitoring study (minimum 1 year of data) conducted at the site
 - ⇒ A project feasibility study by a credible consultant
 - ⇒ Proven expertise in managing a wind project or an agreement with a qualified 3rd party project manager
 - ⇒ Zoning and site permitting approval
 - ⇒ Turbine performance data
 - ⇒ Turbine warranties and operations and maintenance agreement
 - ⇒ A completed interconnection study
 - ⇒ A long-term power purchase agreement (at least 10 years and preferably 15 years) with a creditworthy utility that will purchase the electricity generated at specified prices
 - ⇒ Commitments for all required equity
 - ⇒ A business, financial and risk management plan for the project including complete pro-forma financial statements

The risk management plan will be an important factor in a lender’s decision. Because of lenders’ unfamiliarity with wind power technology or economics, they will want to see a risk mitigation strategy for a variety of potential project risks (see Table 2).

**Table 2:
Wind Project Risk Factors from a Lender’s Perspective**

Source of Risk	Mitigating Factors
Wind	Minimum 1-2 years site-specific data with longer term correlating data from nearby site (e.g., nearby airport)
Equipment	Performance data, warranties
Operations and Maintenance	Experienced manager, maintenance contract
Revenue	Long-term PPA with credit-worthy utility; also wind, equipment and O&M risk mitigating factors listed above; business interruption insurance
Construction	Construction contract requiring completion dates and penalties
<i>Force Majeure</i>	Project insurance
Transmission	Interconnection agreements with clear curtailment risk allocation
Tax Benefit Utilization	Tax opinions that the proposed tax benefit allocation structure is acceptable; IRS Private Letter rulings may be necessary to address specific technical tax issues

Source: Adapted from Brandon Owens, Platt’s Research & Consulting Renewable Power Service

III. FEDERAL AND STATE SOURCES OF FINANCIAL SUPPORT

State and federal grant and loan programs and other incentives can play a significant role in improving the economics of community wind projects. Without this support, it is virtually impossible for these projects to overcome their higher costs relative to large-scale wind farms.

Federal Support: There are several USDA and Small Business Administration grant and loan programs that can be used to support community wind development:

- Renewable Energy and Energy Efficiency Grants: Section 9006 of the 2002 Federal Farm Bill, the Renewable Energy Systems and Energy Efficiency Improvements Program, provides up to \$23 million annually in grants for renewable energy systems and energy efficiency improvements on farms, ranches and rural small businesses.¹³ This competitive grant program, administered by USDA Rural Development, is an important source of funding to reduce the capital costs of community-owned wind projects. Grants for renewable energy systems can be up to \$500,000, but no more than 25 percent of the total project cost.¹⁴ Grant funds are not paid out until the project is built and matching funds are used up; thus, full construction financing is still needed from other sources. These grants can be used to cover many costs associated with a project—both hard (equipment, construction) and soft (engineering studies, legal fees). In 2003, the first year of the program, community-owned wind projects received the largest share of this funding—\$7.2 million was awarded to 25 projects, primarily in Minnesota and other Midwestern states. Funding for this program is confirmed for 2004, but future funding depends on annual Congressional appropriations.
- Value-Added Agriculture Producer Grants: This program, Section 6401 of the Federal Farm Bill, offers grants up to \$500,000 for business planning, feasibility studies and working capital related to value-added agriculture activity.¹⁵ While most of the grants go to groups seeking to market value-added agricultural products, new program rules have clarified that wind projects are eligible; in recent years, small wind power projects have received grants for feasibility studies. Since the upfront technical and legal costs of developing a wind project are considerable, these grants are valuable in minimizing out-of-pocket expenses before committing to a project. The funding for this program is also subject to annual Congressional appropriations.
- Other Rural Business Cooperative Service Programs: USDA's Rural Business Cooperative Service administers a number of grant and loan programs which could provide financial assistance to locally-owned wind projects. The underlying purpose of all of these programs is to support job creation and sustainable economic development in rural areas.¹⁶

⇒ Business and Industry Guaranteed Loan Program: This program guarantees up to 80 percent of a loan made by a commercial lender or other approved lender, including Farm Credit banks and Rural Utilities Service borrowers based in a rural community. Loan

¹³ For more information on this program, see www.farmenergy.org or www.rurdev.usda.gov/rd/farmbill.html.

¹⁴ Grants from other federal programs cannot be used towards the matching funds requirement.

¹⁵ For more information on this program, see www.rurdev.usda.gov/rbs/coops/vadg.htm or contact your local USDA Rural Development Office.

¹⁶ For information on these programs, see www.rurdev.usda.gov/rbs/busp/bprogs.htm.

proceeds may be used for working capital, machinery and equipment, buildings and real estate, and certain types of debt refinancing. Borrowers also have to contribute a small amount (1-2%) towards the guarantee. Currently, this program guarantees \$906 million of loans.

- ⇒ Rural Economic Development Loan and Grant Program: The loan program provides zero-interest loans to electric and telephone utilities financed by the Rural Utilities Service. Rural utilities then re-lend these funds interest-free to an eligible third-party recipient. Not all rural electric cooperatives participate in this program. This is a relatively limited program with 2004 funding set at \$15 million.

The grant program provides grants to rural utilities for the purpose of setting up a revolving loan fund to be used for community facilities and business development. The rural utility is required to provide a 20 percent match to the grant. Initial loans must go towards the construction of community-owned facilities; however, subsequent loans can go to private businesses. This is a limited program with only \$4 million authorized in 2004.

- ⇒ Rural Business Opportunity Grants: This program provides technical assistance grants to units of government, non-profits, tribal organizations or cooperatives. In the context of community wind power, grants can be used either to help local wind power projects with planning or feasibility assistance or to provide education and training for potential wind power developers and owners.
- ⇒ Intermediary Relending Program: This program offers subsidized loans (now at 1%) to qualified intermediaries (non-profits, public agencies, tribes, cooperatives) to establish revolving loan funds to be used for business development and expansion or other community development projects. Loan recipients can be private businesses or public/non-profit agencies. While loans may be at market rate, this program does provide an additional source of capital for wind power projects. In 2004, \$40 million will be available through this program.
- ⇒ Rural Business Enterprise Grants: This program provides grants to units of government, tribal organizations and non-profits for financing or developing small and emerging businesses. Although these grants cannot be made directly to a private business, a non-profit group could receive a grant and, in turn, use these funds as seed money or as a revolving loan fund for wind projects. In 2003, 515 grants were awarded totaling \$51.4 million. This program is authorized at \$44 million in 2004.

Table 3: Summary of Applicable USDA Rural Development Grant and Loan Program

Program	Eligibility	What Program Supports	Type of Support	2004 Funding Level
Renewable Energy and Energy Efficiency	Farms, Ranches, Rural Small Businesses, Cooperatives	Capital costs of renewable energy and energy efficiency equipment	Grants (loans and loan guarantees in future years)	\$22.8 Million
Value-Added Producer Grants	Farms, Ranches, Cooperatives, Producer Groups	Planning, marketing and feasibility studies; working capital	Grants	\$10.5 Million
Business/Industry Guaranteed Loan Program	Rural businesses	Guarantees for business loans made by rural lending institutions	Loan guarantees up to 80%	\$840.0 Million
Rural Economic Development Loan and Grant Program	Rural Electric and Telephone Cooperatives	Low-interest/no-interest loans	Loans to Rural Businesses, Public Agencies, others	\$18.9 Million
Rural Business Opportunity Grants	Local government, non-profit, tribes, cooperatives	Technical assistance and training supporting rural economic development	Direct grants to organizations	\$3.0 Million
Intermediate Relending Program	Local government, non-profit, tribes, cooperatives	Revolving Loan Fund	Subsidized loans to intermediaries	\$39.8 Million
Rural Business Enterprise Grants	Local government, non-profit, tribes, cooperatives	Loan funds or direct grants	Grants to intermediaries for use as seed grants or loans	\$43.8 Million

Source: USDA Rural Development

• Other Sources of Federal Support:

The U.S. Small Business Administration has two basic programs that may help community wind developers to fill lending gaps in financing their project:

- ⇒ 504 Loan Program: The Certified Development Company (CDC)/504 Program provides growing businesses with long-term, fixed-rate financing for major fixed assets. A CDC is a nonprofit corporation set up to contribute to the economic development of its community; there are 270 CDCs nationwide. A typical 504 project includes a loan from a private-sector lender covering up to 50% of the project cost, a loan from the CDC (guaranteed by the SBA) covering up to 40% of the cost, and at least 10% equity from the business. The maximum SBA loan is \$1.3 million for meeting one of the SBA’s public policy goals which include rural development.¹⁷

¹⁷ See www.sba.gov/financing/sbaloan/cdc504.html.

⇒ 7(a) Loan Guarantee Program: Private lenders can use the SBA 7(a) loan program to guarantee up to 75% of the value of the loan. The upfront guarantee fee (paid by the borrower) is 3.5% of loans over \$700,000 and an additional 0.25% for the amount over \$1 million. The annual guarantee maintenance fee is 0.36% of the amount guaranteed.¹⁸

- State Support: While the level of state support for renewable energy development varies considerably, most states that have wind power potential offer some type of financial incentive, including production incentives, direct grants, sales and property tax exemptions, and low-interest financing. State support has been critical in developing the existing community-owned wind projects.¹⁹ For example, Minnesota has provided a 1.5 cent per kwh production incentive for wind projects less than 2 MW in size.²⁰ Incentive payments for the first 100 MW of projects were funded through state funds while the second 100 MW will be financed through Xcel Energy's Renewable Energy Development Fund. In addition, as part of the state Public Utilities Commission's(PUC) renewable energy purchase mandate for Xcel Energy, 60 MW of this capacity has to come from projects of 2MW or less by 2006 with an additional 100 MW from small wind projects by 2010. The Minnesota PUC also directed Xcel Energy to develop a standard buyback rate for small distributed projects (3.3 cents/kwh for 20 years) and a standardized power purchase and interconnection agreement. This generous tariff and the standardized agreements increase the revenue certainty from and lower the transaction costs of developing a small wind project. Xcel Energy's Renewable Development Fund also administers a competitive renewable energy grant program for innovative projects.²¹ Two community wind projects have received financing through this program.

In Illinois, the Department of Commerce and Economic Opportunity administers a competitive grant program that provides up to 30 percent of project costs or \$500,000 for wind projects under 2 MW and provides production incentives for larger projects.²² The Massachusetts Technology Collaborative has launched a \$4 million community wind collaborative to provide technical assistance, feasibility studies, and equipment purchasing aggregation for municipalities wishing to install small wind projects.²³ While not providing direct capital grants, this program is useful in providing municipalities with the resources necessary to make a "go/no go" decision.

A number of states offer sales tax exemptions on wind power equipment that could lower overall project costs by 3-5 percent. 17 states are also offering property tax exemptions on the value of the installed wind power equipment. A comparison of state incentives is presented in Table 4.

¹⁸ See www.sba.gov/financing/sbaloan/7a.html.

¹⁹ For a detailed review of state support for community wind projects, see Mark Bollinger, "A Survey of State Support for Community Wind Power Development", http://eetd.lbl.gov/ea/EMS/cases/community_wind.pdf.

²⁰ This program is now fully subscribed. Projects not already in the queue will not be eligible for the incentive.

²¹ See http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_11824_11838-801-0_0_0-0,00.html.

²² This was a 2003 program. Program may differ in future years.

²³ See www.masstech.org/windpower.

Table 4: State Incentives for Utility Scale Wind Power Development

State	Property Tax Exemption	Sales Tax Exemption	Grants, Rebates	Loans	Production Incentives
Alabama					
Alaska				√	
Arizona		√			
Arkansas					
California			√	√	
Colorado					
Connecticut	√		√		
Delaware			√		
Florida					
Georgia					
Hawaii					
Idaho			√	√	
Illinois			√		√ (large projects only)
Indiana					
Iowa	√	√		√	
Kansas	√				
Louisiana					
Maine			√		
Massachusetts	√	√	√		
Michigan	√				
Minnesota			√		√ (< 2 MW)
Mississippi					
Missouri				√	
Montana			√		
Nebraska				√	
Nevada	√	√			
New Hampshire	√				
New Jersey		√	√	√	√
New Mexico					
New York	√		√	√	
North Carolina				√	
North Dakota	√	√			
Ohio	√	√	√	√	
Oklahoma					
Oregon	√		√	√	
Pennsylvania			√		
Rhode Island	√	√			√
South Carolina					
South Dakota	√				
Tennessee	√				
Texas	√				
Utah		√			
Vermont			√		
Virginia					
Washington		√	√		
West Virginia	√				
Wisconsin	√		√		
Wyoming		√			

Source: Directory of State Incentives for Renewable Energy, See www.dsireusa.org.

IV. FEDERAL PRODUCTION TAX CREDIT AND DEPRECIATION RULES

The Federal Production Tax Credit and favorable depreciation rules are the two key economic drivers for utility-scale wind power development in the United States. The value of these two tax benefits, if fully utilized, represents over 60 percent of the total financial return of a wind project. The PTC alone is worth between \$47,000-55,000 (after tax) per year per installed MW of wind generation or as much as 40 percent of the installed project cost using a net present value calculation.²⁴ Table 5 demonstrates the importance of the PTC to project economics. The current uncertainty over the extension of the PTC greatly limits utility-scale wind power development. If the PTC and accelerated depreciation are extended, projects should be structured to take full advantage of these benefits and do so in a way that avoids Internal Revenue Service challenges.

**Table 5:
Impact of Production Tax Credit on Hypothetical Community Wind Project Economics**

Scenario	Net Present Value (10 years)	Internal Rate of Return (10 years)	Simple Payback (Years)
Full PTC Utilization	\$510,612	18%	2.8
50% PTC Utilization	\$77,045	10%	5.0
No PTC	<\$356,523>	-2%	10.5

Based on financial model developed by Cooperative Development Services for 3 MW project in Wisconsin. Assumes 1.8 cent/kwh PTC constant over 10 years, 40% equity/60% debt, 8% discount rate for NPV calculation.

- Key Provisions of the Production Tax Credits: Whether the PTCs are used directly or allocated to an outside equity partner, there are several key provisions governing use of the credits:
 - ⇒ The taxpayers taking the credit must own the turbines and sell the electricity to an unrelated third party. Allocation of the credits must be in direct proportion to ownership interests. A “special” allocation can be made where one partner receives a disproportionate share of the credits; however, any special allocation must meet complex “substantial economic effect” tax regulations.
 - ⇒ The extent to which the investor utilizing the tax credits must have an underlying profit motive is unclear. There is some support in Congressional testimony and related tax cases that the tax credits are a form of price subsidy. Therefore, they can be treated the same as pre-tax cash in meeting the Internal Revenue Code requirement that a project must have the ability to return a profit independent of the tax credits.
 - ⇒ Individuals or closely held corporations cannot use credits unless they either actively participate in the project or have offsetting passive income. “Active” participation requires day-to-day involvement in the project.
 - ⇒ Credits cannot be used to reduce a taxpayer’s alternative minimum tax liability.

²⁴ Assumes capacity factor net of line losses of 35% x 8760 hours per year x \$0.018 cents/kwh; net present value calculation assumes PTC escalates at 2% per year and applies an 8% discount rate.

⇒ Credits may be reduced if a project receives other federal, state or local government grants, subsidized financing or other subsidies related to a project's capital costs.²⁵ Even the value of a sales tax exemption on wind power equipment could trigger a PTC offset. The PTC offset is not triggered if a project receives ongoing production incentives such as those available in Minnesota.

- Accelerated Depreciation: Wind power projects are eligible for Modified Accelerated Cost Depreciation which allows a project to be depreciated over 5 years for tax purposes instead of the 20 years for depreciating conventional energy projects.²⁶ Like the PTC, individuals and closely held corporations can only utilize this depreciation tax benefit if they are actively involved in the project or have offsetting passive income.

As of May 2004, the federal PTC has not been extended. The absence of this incentive severely hampers utility-scale wind power development. Privately-owned community wind power projects are economically feasible only with federal or state financial assistance or in those instances where utilities and customers have shown a willingness to pay a premium for green power.

²⁵ A detailed discussion of the offset issue can be found in a report by Ed Ing, "The Effect of NYSERDA's Wind Project Assistance on the Federal Production Tax Credit," March 2002. www.nyserda.org/energyresources/taxcreditpaper.pdf. See also Wisner, R., M. Bolinger, LBNL, and T. Gagliano, "Analyzing the Interaction Between State Tax Incentives and the Federal Production Tax Credit for Wind Power," National Conference of State Legislators, September 2002. <http://eetd.lbl.gov/ea/EMS/reports/51465.pdf>.

²⁶ Under the 2001 Economic Recovery Act, projects that are placed in service by December 31, 2004 can depreciate an additional 50% of the project cost in the first year if they were "committed to" after May 6, 2003.

V. POWER PURCHASE AGREEMENTS AND GREEN TAGS

While Federal and State tax credits and other incentives can improve project economics, Power Purchase Agreements (PPA) and monetizing the green tags from a project are two important steps for maximizing revenue from the project.

- **Power Purchase Agreements**: Securing a PPA is a key component in arranging project financing as it guarantees a revenue stream for the electricity output of a project. The rate and terms negotiated will reflect the project size, the quality of the wind resource, existing renewable power mandates or demand for green power in the area and the cost of conventional power generation. In addition to the power purchase rate itself, investors and lenders will be looking at the duration of the agreement (15 or more years is optimal), the creditworthiness of the utility purchasing the power, and the costs of breaching the contract. For example, if a project does not generate as much power as the purchaser anticipates, the project owner may have to purchase power on the open market to make up the shortfall. PPAs can be long, complex documents. In recognition of this and in support of community wind projects, some utilities are beginning to standardize and simplify their PPAs for small distributed projects.²⁷
- **Green Tags**: Renewable energy credits (RECs) or green tags may provide an additional, though uncertain, revenue stream to support a community wind project. These RECS represent the so-called “green attributes” of wind generated electricity as a derivative of the underlying electricity produced. In states with renewable portfolio standards, but insufficient in-state renewable energy sources, RECs may be used by a utility to fulfill that renewable energy mandate. In states with voluntary green power marketing programs, RECs may also be purchased to satisfy consumer demand for green power. There are also independent green power marketers that purchase and re-sell RECs to retail customers who don’t have access to green power. PPA contracts will often assign ownership of the green attributes to the purchasing utility rather than the project owners.²⁸ If the project is fulfilling a renewable power mandate, neither the project owner nor the utility can sell the RECs separately. The demand for these green tags is still thin and their value varies considerably from state to state. Most projects would be better off capturing the green power premium upfront in the negotiated PPA. Alternatively, if the costs associated with distributing the power to a purchasing utility are high, it may be better to sell the power as “system power” and retain the green tags for sale to others.

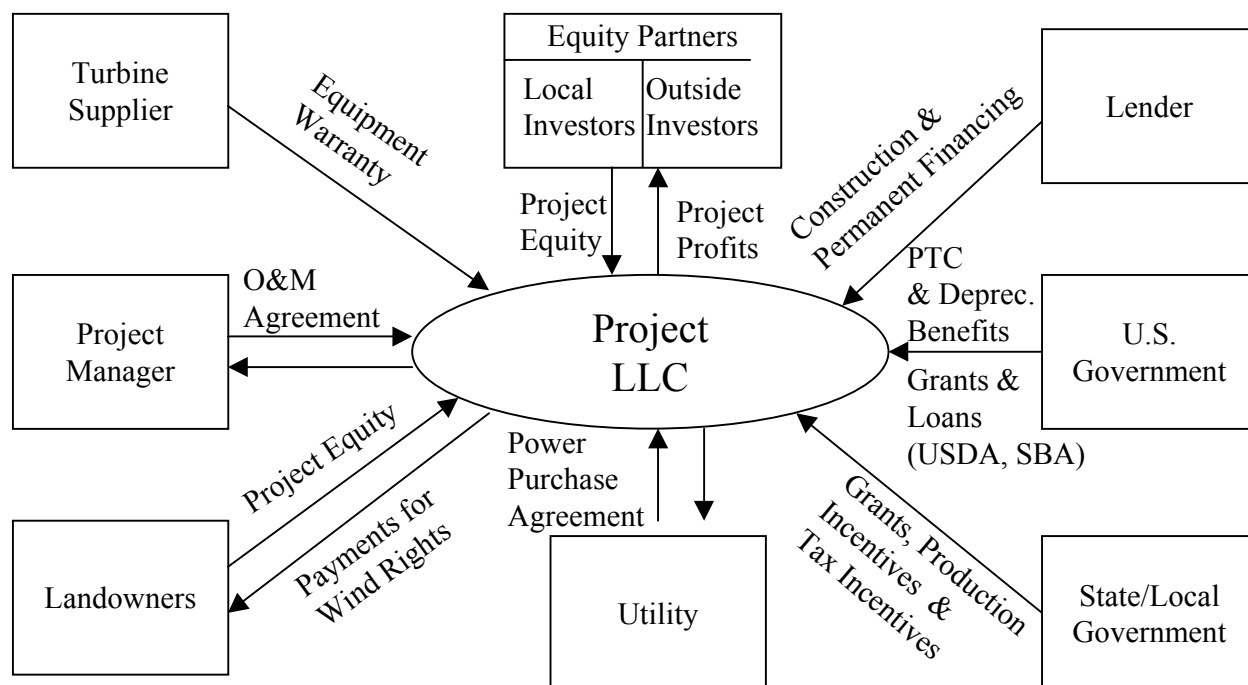
²⁷ Xcel Energy’s standardized PPA and small wind tariff can be found at www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-5_2267_2526-1578-5_762_1306-0,00.html.

²⁸ A recent Federal Energy Regulatory Commission ruling specifies that if ownership of these green attributes are not specifically assigned to the purchasing utility in a PPA, then they are owned by the generating facility. See American Ref-Fuel Company, et. al., 105 FERC 61,004 (10/1/03).

VI. CONCLUSION: MAKING COMMUNITY WIND PROJECTS WORK

As this handbook has shown, putting together the financing for a community wind project is challenging and involves coordinating the activities of many different partners (see [Figure 1 below](#)). Moreover, financing is just one of the obstacles in putting a project together—zoning, permitting, interconnection and power purchase agreements present equal challenges to anyone contemplating developing a wind power project. There are no "cookie-cutter" models to follow. This Handbook has identified many different options for project structuring, different sources for equity investors and debt financing, and a variety of government incentives and sources of financial assistance. Wind power and community wind are still in the early stages of development and subject to a dynamic regulatory and policy environment, that will affect both project financing and project economics. Despite these challenges and uncertainties, determined entrepreneurs and landowners with the right physical resources (good wind and access to transmission lines) should be able to find an ownership and financing structure that can make a project work.

Figure 1. Schematic Summary of Community Wind Financing



Appendix 1: U.S. Community Wind Projects

State	Project	Owner	MW	Ownership Type
Colorado	Lamar	City of Lamar, ARPA	6.0MW	Muni
Illinois	Pittsfield	Illinois Rural Electric	1.65MW (under construction)	REC
Iowa	Akron School District	Akron Comm Schools	0.6	School
	Forest City HS	Forest City School Dist	0.6	School
	Nevada HS	Nevada HS	0.5	School
	Waverly	Waverly Lt & Power	0.9	Muni
	Spirit Lake	Spirit Lake Schools	0.75	School
	Eldora Schools	Hardin County	0.75	School
	Wall Lake	Wall Lake Muncip Utilities	0.66	Muni
	Lenox	Lenox Muncip Utilities	0.75	Muni
Massachusetts	Hull	Hull Municipal Light	0.66	Muni
Michigan	Traverse City	Traverse City Lt & Power	0.6	Muni
	Mackinaw City	Bay Windpower	1.8	LLC
Minnesota	Chandler Hills	Great River Energy	6.0	REC
	Moorhead	Moorhead Public Service	0.75	Muni
	Lac qui Parle Valley School	Lac qui Parle School District	0.225	School
	Pipestone County	Kas Brothers	1.5	LLC
	Hendricks/Lincoln County	Otter Tail Power	0.9	Utility
	Pipestone County	Olsen Farm	1.5	LLC
	Moorhead	Moorhead Public Service	0.75	Muni
	Missouri River Energy Services (MRES)	MRES	3.6	Muni
	MinWind 1-2	Multiple owners	3.8	LLC
	Woodstock	Edison Capital/Dan Juhl	10.2	LLC
	Don Sneve Co Op	Farmer's	1.9	LLC
	McNeilus (multiple projects)	Garwin McNeilus	56.0	LLC
	Fairmont	SMMPA	1.9	Muni
	Farmer's Co Op	Farmer's Co Op	7.6	LLC
	Pipestone School District	Pipestone School District	0.75	School
	Missouri River Energy	Worthington	1.9	Muni
Nebraska	Lincoln	Lincoln Electric	1.3MW	Muni
	Springview	NE Public Power District	1.5MW	Muni
	Near Valley	Omaha Public Power	0.66MW	Muni
	Kimball	Municipal Energy Agency of NE	10.5MW	Muni
North Dakota	Infinity Wind	Minnkota Power Coop	1.9MW	REC
Ohio	Bowling Green	Bowling Green Municipal Power	3.6MW	Muni
South Dakota	Prairie Winds	Basin Electric Coop	2.6MW	REC
	Rosebud	Rosebud Sioux Tribe	0.75MW	Tribal

Source: AWEA. Data current as of 3/31/04.

Appendix 2: Resource Guide

The following is a select list of project consultants and financing sources that can assist in wind power project development. This listing does not represent an endorsement of any of these individuals or firms.

Project Consultants:

Dan Juhl
DanMar & Associates
996 190th Avenue
Woodstock, MN 56186
Bcelaya@iw.net

Tom Wind
Bill Raney
Wind Utility Consulting
412 S. Locust
Jefferson, IA 50129
515-385-3405
tomwind@netins.net
wraney@netins.net

Warren Ault
Wes Slaymaker
Windustry
2105 1st Avenue South
Minneapolis, MN 55404
612-870-3464
800-946-3640
wault@windustry.org
wslaymaker@windindustry.org

Banks and Other Financing Firms:

Ken Reiners
Agstar Financial Services
P.O. Box 4249
Mankato, MN 56002
877-424-7827

Mike Hansen
First Farmers and Merchants Bank
107 E. Main St.
Pipestone, MN 56164
507-825-3301
mikehansen@ffmbank.com

Ed Woolsey
Iowa Renew
387 Kirkwood St.
Prole, IA 50229
641-764-2689
woolsey@netins.net

Earl Cummings
Turning Point Management
PO Box 3128
Mankato, MN 56002
507-345-8600

David M. Drew
Vice President
Marathon Capital, LLC
2102 Waukegan Rd.
Bannockburn, IL 60015
847-405-0610
ddrew@marathon-cap.com

Daniel Otten, Credit Consultant
80612 200th St.
Hayward, MN 56043
507-377-6000
Doconsult@deskmedia.com



Environmental Law & Policy Center

The Environmental Law and Policy Center (ELPC) is the Midwest's leading public interest environmental legal advocacy and eco-business innovation organization. We develop and lead successful strategic environmental advocacy campaigns to improve environmental quality and protect our natural resources. We are public interest environmental entrepreneurs who engage in creative business dealmaking with diverse interests to put into practice our belief that environmental progress and economic development can be achieved together.

ELPC's multidisciplinary staff of talented and experienced public interest attorneys, environmental business specialists, public policy advocates, and communications specialists bring a strong and effective combination of skills to solve environmental problems. ELPC's teamwork approach uses legal, economic analysis, public policy advocacy and research, and communications tools to produce success.

ELPC's strategic advocacy and business dealmaking involves proposing solutions when we oppose threats to the Midwest environment. We say "yes" to better solutions; we don't just say "no". ELPC works to:

- Develop clean energy efficiency and renewable energy resources while reducing pollution from coal and nuclear plants that harms our environment and public health.
- Design and implement smart growth planning solutions to combat sprawl and promote innovative transportation approaches, including development of a Midwest high-speed rail network, which will lead to cleaner air and more jobs.
- Advocate sound environmental management practices that preserve natural resources and improve the quality of life in our communities.

ELPC's vision embraces both smart, persuasive advocacy and sustainable development principles to win the most important environmental cases and issues. We have achieved a strong track record of success on both national and regional clean energy development and pollution reduction, transportation and land use reform, and natural resources protection issues. ELPC brings a new form of creative public advocacy that effectively links environmental progress and economic development and improves the quality of life for people in our communities.

Environmental Law & Policy Center

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