

The background of the cover is a photograph of a wind farm in a flat, brown landscape under a bright blue sky with scattered white clouds. Several white wind turbines are visible, with the largest one in the foreground on the right side. The text is overlaid on the upper portion of the image.

South Dakota

Landowner's
**Wind Power
Development**
Handbook

Prepared by:

**South Dakota Energy Infrastructure Authority
South Dakota Public Utilities Commission
South Dakota Attorney General's Office**

Foreword

Interest in developing South Dakota's vast wind resource has been growing by leaps and bounds. To better acquaint South Dakota landowners with the wind development process, the South Dakota Energy Infrastructure Authority, the South Dakota Public Utilities Commission, and South Dakota Attorney General's office have prepared the South Dakota Landowner's Wind Power Development Handbook.

The Handbook provides background information for South Dakota landowners who may be considering development of the wind resource on their property for generating electricity. The handbook is divided into three sections according to the type of wind development being considered:

- Large scale commercial wind power developments
- Community based wind power developments
- Small (private or personal) wind power systems

The Handbook is intended for general informational purposes only, and is not intended as legal or financial advice.

Prepared by:



ENERGY INFRASTRUCTURE AUTHORITY



Public Utilities Commission





Landowner's Wind Power Development Handbook

Prepared by: South Dakota Energy
Infrastructure Authority South Dakota Public
Utilities Commission South Dakota Attorney
General's Office

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Purpose – The purpose of this handbook is to provide background information for South Dakota landowners who may be considering development of the wind resource on their property for generating electricity. The handbook is divided into three sections according to the type of wind development being considered:

- Large scale commercial wind power developments
- Community based wind power developments
- Small (private or personal) wind power systems

Each of these three options has a different set of risks and rewards for the landowner.

Large scale commercial wind power developments

A large scale commercial wind power development generally has a total electrical generating capacity of 40 megawatts (MW) or more and may consist of 35 or more wind turbines. On average, each wind turbine requires approximately 60 acres to avoid interference with other turbines. A large scale development can easily be spread over many landowner parcels. Wind power developments of 100 MW or greater require a permit from the South Dakota Public Utilities Commission (South Dakota Codified Law 49-41B-2 (5), (6), and (12)).

Large scale developments involve an external developer who secures land leases and handles all development and operational issues. This type of development may present the landowner with the least amount of risk. Before entering into any negotiations with a developer, the landowner should attempt to verify the corporate and financial soundness of the developer. For example, how many operational as well as planned projects does the developer have? What is their experience nationally as well as in South Dakota? Has the developer identified all environmental issues that would impact the project? Have they identified a specific market to purchase or use the electricity? What electricity transmission issues have to be resolved in order to move the electricity to market? Is the project schedule realistic, or does it depend on too many variables? Has the wind resource been evaluated on or near the proposed development site? If not, does the developer have plans to do so, and when? Learn as much about the project as possible. If possible, check to see if there are any other proposed projects in your area.

Finally, check to see what your neighbors are doing. If all your neighbors sign on with a different company, chances are that your land will not be built on. More information on wind energy land lease agreements has been prepared by Windustry, a wind energy organization, and can be found at their website at: <http://www.windustry.com/sites/windustry.org/files/LandEMain.pdf>

Because of the lack of in-state demand for electric power, the electricity from a large scale wind development will most likely have to be sold and delivered to markets outside South Dakota. The current lack of adequate electric transmission facilities, both within South Dakota and outside the state, to move large amounts of electricity to out of state markets presents a major obstacle to large wind power development in the state. An extensive discussion of this subject may be found in the South Dakota Energy Infrastructure Authority's report – "South Dakota Wind Power Report", which can be found on the Internet at www.SDEIA.com. Landowners should be aware of this issue and question developers concerning how they propose to overcome it.

Developers usually first secure an option for a wind power development lease on land they consider as a candidate for development. South Dakota law provides the easement itself is void if no actual development occurs within five years (South Dakota Codified Law 43-13-17), but there is some question whether that five year limitation also applies to an option to obtain a lease. Accordingly, if the developer wishes to purchase an option, it is important for the landowner to understand all of the terms and conditions of the option. These may include how long the option will prohibit the landowner from granting an actual easement to another developer and any other restrictions on the landowner's use of the property.

The first step in a wind power development is to survey the potential site and erect a meteorological tower to collect detailed wind and weather data. At a minimum, one year of data is needed to accurately quantify the value of the wind resource. Two or more years of data are preferred. The developer uses these data to plan the location of towers and estimate the amount of electricity that will be generated.

Large scale wind developments are not built quickly. In addition to the minimum of one year's worth of meteorological data, there is the time required to order and manufacture the wind turbines. Finally, there is the time required to obtain permits for and construct electric transmission facilities to deliver the power to markets, as was noted above.

Regarding the lease document, legal counsel is highly recommended. Unfortunately, there is no standard lease form to rely on. Talk to your neighbors about proposed lease agreements. Here is a list of practical issues that should be addressed at a minimum.

- How much of my land will be tied up and for how long? (See "Other Considerations;" and "Length of Lease" below) This includes the construction period as well as the operating period.
- Construction of the wind turbines will require access by large cranes and other heavy equipment. Will the construction interrupt farming and livestock operations? Will I be reimbursed for these interruptions?
- During operation of the wind development, each turbine requires approximately one acre of land. Will operation affect cropping and livestock operations?

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- Restoring land after the construction phase – cleaning up the construction site and any damage to fences and land.
- Provisions for maintenance during the operational phase. If work is to be done on the turbine, a large crane may be required.
- Removal of the wind turbine and restoration of the site when the lease expires or if the equipment is no longer functional. Whether or not the turbine concrete foundations should be removed, or to what depth should the foundations be removed, and how quickly after shutdown, must be clarified. (Administrative Rules of South Dakota 20:10:22:33, 33.01, and 33.02)
- Will the wind development affect any possible future uses of the land?
- Will the developer have the future right to replace the wind turbine with a newer model during the lease period if the developer believes it is economically justified?
- Will the developer have the right to place additional turbines on the property and what is the notification process, compensation, and locations?
- Possible noise impacts on any landowner-occupied dwellings near a turbine.

Financial issues that should be addressed in the lease focus on how much will be paid and how will payments be made. Typical leases are written for at least 20 years, and in some cases for 30 years. Lease payments typically fall into three categories:

- Fixed payments;
- Royalty or percentage of revenue payments; and
- Some combination of the two.

Fixed payments offer a stable source of income to the landowner; however some form of payment escalator should be incorporated. The escalator should be based on some official index. Payments are usually on a per-turbine basis. Properly structured, fixed payments should insulate the landowner from lapses in electricity production caused by maintenance or equipment breakdowns. If a turbine is to be replaced with a newer, more efficient or productive model, the lease should include a provision for renegotiation. Fixed payments provide an incentive to the developer to maintain the equipment in order to maximize revenue.

Royalty or percentage of revenue payments give the landowner a vested interest in the success of the project, but also require the landowner to have some information about the power sales from the project. Landowners should have audit rights to verify production. While the landowner may have a vested interest in the success of the project, in reality, there is little the landowner can do regarding operations. Lease payments tied to the electricity produced do not necessarily provide an incentive to the developer to keep the equipment maintained and at maximum production. A situation could arise in the later years of the lease where equipment may become obsolete or incur a major breakdown. From the developer's point of view, it might be more economical to simply shut the turbine down. Consideration should be given to incorporating some form of incentive to the developer to keep the equipment operating properly.

Combination payments can take several forms – a fixed payment plus a percentage of revenue; fixed payment or a percentage of the revenue (usually whichever is greater); or some form of equity partnership.

Each developer has their own preferred payment method and may require a specific type of payment as a condition for development. Landowners, however, should be aware of the pros and cons of each form of lease and attempt to incorporate as many protections as possible in their agreements. Landowners should also clarify what will happen with the lease if the property is sold.

Other considerations:

- Length of lease. Average leases run between 20 and 30 years. Power sales contracts usually are for 20 years. Equipment suppliers speak in terms of 20 year lifetimes for wind turbines. Landowners should be cautious about lease terms over 30 years. South Dakota Codified Law 43-13-19 limits land leases for wind development to fifty years, but states that “Any such lease is void if no development of the potential to produce energy from wind power has occurred on the land within five years after the lease began.”
- Automatically renewable leases limit the landowner’s (and their heirs’) rights to re-evaluate conditions.
- Evaluate whether a wind development lease will impact such things as your insurance, USDA policies, and your tax liability.
- Confidentiality agreements may limit your ability to talk to consultants, advisors, and your neighbors.
- In addition to the impact of the project on farming and ranching, will there be any impacts on issues such as hunting and recreation?
- Finally, as noted earlier, always consult a qualified attorney before signing any contract.

Community-based wind power developments (sometimes referred to as C-BED wind power – “Community-Based Energy Development”)

Community-based wind power projects involve local ownership participation. Farmers, ranchers, investors, businesses, schools, or other public or private entities may invest in the project. The key feature is that local community members have a direct financial stake in the project beyond lease payments and tax revenue, which may help to optimize local benefits.

Given the significant amount of investment capital required to build a wind project and the average individual’s difficulty in accessing the federal tax incentives for wind development, many individual investors would struggle to put up a project entirely on their own. Therefore, local investors frequently partner with outside, tax-motivated equity investors. By setting up such a co-ownership arrangement, local investors can more quickly raise the needed capital. In addition, the fact that these outside equity investors are able to access the federal tax credits can significantly improve the project’s financial prospects.

There are several types of business entities that can be used for a community-based wind power project. Each has its own legal and financial characteristics and requirements. For most investors and entrepreneurs, the major issues to consider when evaluating business entity types are: (1) whether the entity will shield investors and owners from personal liability for business obligations and debts, and (2) how income and losses of the entity will be taxed.

The formation of a business entity may range from a simple oral partnership to a more formal corporation or limited liability company. How the entity is governed or controlled may also vary from simple to complex. Consideration must also be given to the impact of state and federal securities regulations.

To allow community-based wind developments to take advantage of federal tax incentives for wind power development, a business model referred to as the flip model has been developed. Generally, this flip model works by bringing in a tax-motivated equity investor who will own virtually the entire project in its first ten years. This equity partner then “flips” project ownership back to the local investors for the second half of the project.

This timing is largely tax-motivated. Although power purchase agreements typically last for twenty or more years, the major federal production tax credit (PTC) for wind generation is available for only the first ten years of the project. Therefore, the legal structure of these tax-motivated co-ownership arrangements is carefully designed so that the outside equity investors can get in and get out, with sufficient return on their investment, in the first ten years of the project when the PTC is available. During the first ten years of the project, the outside equity investors generally receive the majority of the financial benefits.

There are several variations to the flip model and a full discussion of their details is beyond the scope of this document. Suffice it to say that local investors considering participation in a community based wind development should seek knowledgeable legal counsel. Local investors should also carefully consider the ramifications of full ownership of the wind power development after the 10th year. For example, what will be the maintenance requirements on ten year old wind turbines? Wind turbine technology is still evolving, and no one knows for sure if a ten year old turbine will still be able to produce electricity at a competitive price.

Local investors should also question the outside project developer as to whether or not a market for the wind generated electricity has been secured, along with the transmission capacity to deliver the electricity to that market. The list of construction and operational considerations discussed under the large scale wind power development topic earlier should also be reviewed for applicability.

Small (private or personal) wind power systems

For the purposes of this discussion, small wind power systems are considered to be those which serve a single residence, commercial business, or a farm or ranch, and consist of a single wind turbine of generally 100 kilowatts (kW) or less. The installation may be designed to provide all or part of the landowner’s electricity needs. A useful reference is the U.S. Department of Energy publication – “Small Wind Electric Systems – A South Dakota Consumer’s Guide”.

Small wind systems fall into two categories – those connected to the existing electric grid, and those systems which are not (stand alone). Each has its own special considerations.

Wind does not always blow when you want it. Thus, there will be times when a wind system can be generating more electricity than is needed and times when it may not be producing enough power, or any power, for that matter. For grid-connected systems, the surplus is sold back to the utility. Shortages are made up by purchasing from the utility. For stand alone systems, some form of battery storage is needed.

Selling electricity back to your utility requires an agreement and special metering and equipment. Each of the six investor-owned electric utilities serving customers in South Dakota have established rates and procedures, approved by the Public Utilities Commission, for purchasing surplus electricity from small wind projects. These procedures include some form of interconnection agreement and insurance requirements. Rural Electric Cooperatives have voluntarily established similar procedures. The price paid for surplus electricity varies from provider to provider and is an important part of the economic consideration in deciding whether or not to install your own wind system.

A landowner interested in installing a small wind power system will generally contract with a professional installer. The discussion that follows will focus on questions the landowner should ask the installer in order to evaluate the merits of such a system.

Initial siting questions:

- How good is my wind resource? How was it determined – by actual measurement, extrapolation of nearby data, or estimation?
- What siting issues are present which would affect the wind capture (hills or other objects such as a barn)?
- Are there any zoning or building code issues?
- Any special insurance requirements?
- What size wind turbine is recommended?

Since wind does not blow all the time (though it may seem like it), or with equal intensity, electricity production will vary greatly over time. For initial planning purposes, a generally-used estimate is that on an annual basis, a wind turbine will produce only about 30% of the kilowatt hours that it would be capable of producing if the wind blew full force all the time. Actual production will be a function of the weather at the specific site and the type of equipment installed. In addition, a percentage of the kilowatt hours generated will be at a time when they are not needed and will be considered surplus to be sold back to the grid.

Economic questions:

- How many kilowatt hours are estimated to be produced annually? How many of these kilowatt hours will be consumed at the site (replacing electricity purchases)? How many will be considered surplus (sold back to the utility)? These are key factors in making an economic evaluation of the project.
- What is the installed cost of the wind system, including all metering and connections built to utility requirements and electrical and building code specifications?
- What rebates and/or incentives are available?
- What are the grid connection and metering requirements?
- What equipment guarantees are there?
- What is the expected lifetime of the equipment?

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- Who would provide service if the installer is no longer in business?
- What are the maintenance requirements and their cost?
- What insurance liability would be required by the electricity provider?
- What is the cost of property insurance required for the wind turbine?
- How would the wind turbine affect property taxes?

A simplified cost/benefit analysis to determine if the wind turbine installation would pay for itself would include:

- The cost (less rebates and incentives) to install the equipment (including financing).
- The annual estimated savings from kilowatt hours generated and consumed at the site (those replacing service from the utility) computed at the current retail electricity price.
- The annual estimated revenue from kilowatt hours sold to the electricity provider computed at the provider's purchase price.
- The annual operating costs for maintenance, property insurance, liability insurance, metering, and increased property taxes.
- How much interest income are you losing that might have been earned if you did nothing and kept the cash portion of your investment in the bank?
- Will the wind turbine increase the valuation of your property and your property taxes?

The wind equipment provider/installer should be prepared to make this analysis.

Specific questions regarding wind development in South Dakota should be addressed to the South Dakota Governor's Office of Economic Development, Office of Energy Policy at (605) 773-3301 or the South Dakota Public Utilities Commission at (605) 773-3201.

Additional wind resources on the Internet may be found at:

<http://sdwind.com/> <http://www.eia.doe.gov/cneaf/solar.renewables/page/wind/wind.html>

<http://www.c-bed.org/>

http://www.eere.energy.gov/windandhydro/windpoweringamerica/filter_detail.asp?itemid=324

http://www.nationalwind.org/calendar/wind_Energy_transmissionsouth_dakota_landscape.htm

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<http://www.awea.org/>

