

North Dakota has the greatest wind energy potential of any state in the country. A 1991 study conducted by Pacific Northwest Laboratory, *An Assessment of the Available Windy Land Area in the United States*, determined wind turbines in North Dakota could produce 1.2 billion kilowatt-hours (kWh) of electricity annually—an amount that could supply more than 14,000 times the electricity consumption in the entire state, or 36% of the 1990 U.S. electricity consumption.

Although minor variations in elevation appear to have a significant impact on the North Dakota wind resource, the entire state has a class 3 (14 to 15 miles per hour) or greater wind resource. Areas with high potential, containing class 5 winds (16 to 18 miles per hour), include the Missouri Escarpment, which rises about 600 feet above its surrounding terrain; the Pembina Escarpment; and Turtle Mountain, with elevations ranging from 600 to 700 feet above its neighboring topography.

The Executive Summary of a 1999 report, *Wind Energy in North Dakota*, prepared by PanAero Corporation for the North Dakota Division of Community Services, concluded that the state is motivated to become a leader in wind-generated electricity. This motivation includes an opportunity to contribute to general economic development in the state with short- and long-term jobs, investments, landowner income, operation, maintenance, and manufacture.

Although wind energy development is expected soon, the wind energy industry has already made a major capital investment in North Dakota. LM Glasfiber (LMG), the largest wind turbine blade manufacturer in the world,



opened a plant in Grand Forks in 1999 that employs about 75 people. LMG anticipates creating another 50 jobs as technology transfer and procedural methods are ironed out.

The future is promising for North Dakota wind energy development. It is only a matter of time before the state with the greatest wind energy potential takes advantage of this pervasive renewable resource.

Green Power

"Green power" is power produced by renewable ("green") energy sources, as distinct from power produced by fossil fuel, nuclear, and other types of generators. Customers can arrange to purchase a certain amount of green power (actually energy, in kilowatt-hours) per month, for which they commonly pay a small premium to completely or partly offset any higher cost of renewable power sources. The policy of transferring these costs to green power customers is called "green pricing."

In September 1999, participating cooperatives and municipalities in North Dakota began offering their customers the opportunity to participate in Minnkota Power Cooperative Inc.'s Infinity Wind Energy Program. Interested customers can participate by indicating their intention to purchase 100 kWh blocks of energy at cost. These blocks of energy will not be available until a suitable wind turbine is designed, sited, and operational. Minnkota anticipates this may be as early as October 2000.

What is the installed wind energy capacity in the United States?

By January 2000, the total U.S. installed wind energy capacity was 2500 MW. (See <http://www.awea.org/faq/instcap.html>) That's enough electricity to meet the needs of 600,000 to 800,000 typical U.S. homes.



North Dakota

Additional Resources

National Renewable Energy Laboratory
National Wind Technology Center
1617 Cole Boulevard
Golden, Colorado 80401
(303) 384-6979
www.nrel.gov/wind

U.S. Department of Energy
Denver Regional Support Offices
1617 Cole Boulevard
Golden, Colorado 80401
(303) 275-4826
<http://www.eren.doe.gov/dro/>

U.S. Department of Energy
Wind Energy Program
Forrestal Building
1000 Independence Ave., S.W.
Washington, D.C. 20585
(202) 586-5348
www.eren.doe.gov/wind

American Wind Energy Association
122 C Street, NW, 4th Floor
Washington, D.C. 20001
phone (202) 383-2500
fax (202) 383-2505
www.awea.org



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State Financial Incentives

Legislative Code 57-02-08 (27) exempts from local property taxes any solar, wind, or geothermal energy device (whether standalone or part of a conventional system) <http://www-solar.mck.ncsu.edu/finance/ND02.htm>. In the case where the solar, wind, or geothermal system is part of a conventional energy system, only the renewable energy portion of the total system is eligible. This exemption is applied only during the five-year period following installation.

Legislative Code 57-38-01.8 <http://www-solar.mck.ncsu.edu/finance/ND01.htm> allows any taxpayer to deduct 5% of the cost of equipment and installation of a geothermal, solar, or wind energy device for a period of three years.

Net Metering

The concept of net-metering programs is to allow the electric meters of customers with generating facilities to turn backwards when their generators are producing more energy than the customers' demand. Net metering allows customers to use their generation to offset their consumption over the entire billing period, not just instantaneously. This offset would enable customers with generating facilities to receive retail prices for more of the electricity they generate.

North Dakota has a net-metering program with a 100-kW generator limit for utility customers with privately owned wind generation systems. However, Rural Electric Cooperative members do not benefit and are subject to the avoided cost concept of electricity purchase. Passed in 1991 by the North Dakota Public Utility Commission, this net-metering ruling applies to both renewable energy generators and cogenerators with 100 kW or less capacity. Net metering is available to all customer classes in North Dakota, and there is no statewide limit to total generating capacity.

State Summary

Total—0.39 MW

**In-State Wind Energy Potential:
686,000 MW capacity after land use
and environmental exclusions
1182 billion kWh per year electric
energy**

Key Contacts

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Energy & Environmental Center
www.eerc.und.nodak.edu
Dr. Gerald Groenewold (701) 777-5131

U.S. Senator Byron Dorgan
www.senate.gov/~dorgan/
Mike Eggl (701) 250-4618

Installed Projects

Belcourt, 0.1 MW, Turtle Mt. Chippewa, NEG Micon

Fort Totten, 0.1 MW, Spirit Lake Sioux, NEG Micon

Grafton, 0.065 MW, Grafton Technical College

Richardton, 0.125 MW, Richardton Abbey, Silver Eagle