



GRAND MEADOW WIND FARM

LOCATION: Southern Minnesota, in Mower County near Dexter, Minn.

PLANT DESCRIPTION: 67 wind turbines

POWER PRODUCTION CAPABILITY: Up to 100 megawatts (MW)

ABOUT THE FACILITY: Grand Meadow is the first wind farm in Minnesota owned by Xcel Energy. The company purchases most of the wind-powered generation on its system in the Upper Midwest. Ownership of the wind farm helps diversify the company's generation portfolio and reduces price risk volatility that can occur with dependence on fossil fuels – while producing energy that is emissions-free.

Grand Meadow taps into some of the best wind resources in the nation. The 100 megawatts of wind energy from Grand Meadow adds to the company's burgeoning wind generation portfolio and solidifies Xcel Energy's stature as the nation's No. 1 wind power provider. Xcel Energy has more than 1,200 MW of wind generation in the Upper Midwest and more than 3,000 MW system-wide. The company plans to have approximately 4,000 MW in place in the region by 2020 and 7,000 MW company wide.

The Grand Meadow wind farm, developed for Xcel Energy by enXco Development Corp., began commercial operation in December 2008. The project spans a stretch of farm fields six miles long and four miles wide, covering roughly 10,000 acres. The wind turbines are equipped with variable pitch blades enabling power output to be controlled if desired. The wind turbines also were built with cold-weather tolerant equipment to enable operation in below-zero temperatures.

WIND FARM FACTS AND FIGURES:

A wind turbine works the opposite of an electric fan. Instead of using electricity to make wind, wind turbines use wind to make electricity. The wind turns the blades, which spin a shaft that connects to a generator and makes electricity.

Wind speed affects the power output and generally increases with elevation

Minimum speed – 7.8 mph produces 0.1 MW

Rated speed – 31.3 mph produces 1.5 MW

Maximum wind operating speed – 55.9 mph

WIND TURBINE COMPONENTS:

Foundation: Each foundation is a concrete octagon, 52 feet x 52 feet wide and 7 feet deep, formed from 278 cubic yards – 28 truckloads – of concrete

Tower: The tower consists of 3 tubular steel sections stacked together, reaching a height of 253 feet.

Nacelle: The nacelle is a fiberglass shell, which houses control equipment and sits on top of the tower. Attached to the nacelle is the hub. Three blades are attached to the hub, which form the rotor.

Blades: The blades are made of fiberglass, each 122 feet in length. Total height of each wind turbine from base to highest blade is 389 feet.

OPERATION:

The Grand Meadow wind turbines can be monitored on-site or remotely at EnXco's Operations Control Center in southwestern Minnesota. The GE Wind Farm Management System also allows for wind farm power output to be regulated by the transmission system operator.

Wind farm operation and maintenance is conducted by personnel at a facility located on the west side of the project. This control center is connected to the turbines by over 36 miles of buried fiber optic cable. If connected together, access roads to the 67 wind turbines would extend more than 17 miles.

CONTACT INFORMATION:

- Plant information and tour requests — 1-800-895-4999
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