

# We Energies' generating system



**WIND**

## Blue Sky Green Field Wind Energy Center

*In the mid-1990s, We Energies wanted to meet growing customer demand for renewable energy generated from sources such as the sun, wind, water and plant materials. To accomplish this, we launched the Energy for Tomorrow® renewable energy program in June of 1996.*

*The Energy for Tomorrow program initially offered electricity generated from water and plant materials – more often referred to as hydropower and biomass. The program was a success, and customer demand for it increased. To expand the program, and make a highly visible commitment to renewable energy, We Energies added electricity from wind power in 1999.*



**Location:**

Blue Sky Green Field is located in the towns of Calumet and Marshfield in northeastern Fond du Lac County, east of Lake Winnebago.

**Type of Plant:**

Wind turbine

**Initial Cost:**

Approximately \$300 million

**Units:**

88 turbines

**Year in Service:**

2008

**Net Generating Capacity:**

1.65 megawatts each – 145 megawatts total

# Blue Sky Green Field

**Turbine Manufacturer:**

Vestas Wind Systems

**Turbine Design:**

The Vestas V82 is a horizontal axis, up-wind pitch regulated wind turbine.

**Total Weight:**

Tower and turbine: 204 tons

**Rotor Design:**

Three blades constructed of a glass fiber-reinforced epoxy coating around a wood/carbon fiber frame.

**Rotor Diameter:**

134 ft.

**Rotor Speed:**

14.4 rpm

**Generator:**

An asynchronous 6-pole, 3-phase induction generator with wound rotor and full load reactive power compensation.

**Generator Nominal Voltage:**

600 volt, 3-phase

**Integrated Lightning Protection:**

The protection system includes lightning receptors and conductors in the rotor blades, lightning arrestors, deep earth grounding and shielding.

**Control System:**

A microprocessor controls all turbine functions.

**Tower Dimensions:**

Hub Height:	262 ft.
Weight:	140 tons
Base diameter:	13.8 ft.
Rated Power Output:	1.65 MW @ 30 mph

**Cut-in Wind Speed:**

8 mph

**Cut-out Wind Speed:**

54 mph

**Extreme Gust Wind Speed:**

133 mph