

Wind Power

by Jeff Griffin ■ Senior Editor

Generates Work For Michels



Although wind power still represents only a tiny fraction of the electrical power consumed today, that is changing – faster than many may realize.

The American Wind Energy Association (AWEA) reports that the U.S. wind energy industry is on track to add more than 3,000 megawatts (MW) to the nation's power generating capacity in 2007, thereby topping the 2006 record of 2,454 MW (one MW of wind power produces enough electricity on average to serve 250 to 300 homes).

AWEA cites industry growth in the United States at an average rate of 22 percent from 2001 to 2006 with installed wind generating capacity at 11,603 MW by the end of 2006.

The association has estimated that by the end of 2007, electricity generated from wind in the U.S. will be enough to service the equivalent of three million average U.S. households, about 0.7 percent of the nation's total electrical supply.

While wind power for generating electricity remains largely untapped, AWEA estimates U.S. wind energy potential at 10,777 billion kilowatt hours (kWh), more than twice the amount of electricity generated in the U.S. today.

With wind farms under construction and those projected to be built in the immediate future, some utility contractors are installing both overhead and underground cable needed to route power generated by massive wind turbines to substations, transmission lines to a power grid and control systems to monitor and regulate each turbine.

The Michels Corp. has extensive experience in wind farm construction and has established Michels Wind Energy specializing in wind generation construction.

Michels is a full BOP (balance-of-plant) contractor with the capabilities and experience to turnkey wind power projects, including electrical engineering, quality assurance and control (QA/QC), and project management, as well as any civil construction required.

Dan Buehrens, general manager of Michels Wind Energy, says a typical wind generation system consists of turbines to capture the wind, access roads to enter the turbine sites, a collection system to route the power generated by the turbines to the substation, a substation to step up the level of power, transmission lines to move the power to the grid and an operation and

maintenance building to monitor and regulate the wind farm.

Michels typically works with the developers who purchase the turbines and towers. Michels performs all the engineering to the owner's turbine manufacturer's specifications. Many turbine manufacturers handle the erection portion of the BOP. Michels has performed the erection on numerous projects through the assistance of qualified subcontractors.

"For wind energy projects," Buehrens continues, "Michels has experience in the installation of both overhead and underground collection systems from 5 kV through 35 kV distribution and 69 kV through 345 kV transmission. We provide cable installation, instrumentation, splicing, terminations, sheath grounding, riser structures, dead end structures, transition structures and overhead line needs. We have the capabilities for complete substation construction, from greenfield sites to working substations. Our staff will deliver the project from the line interconnect to the control system."

Runs of cable range from 70 feet to more than 9,400 feet. The ratio of underground to aerial cable construction varies from project to project. To install underground cable on wind farm projects, Michels crews employ backhoes, excavators, trenchers and horizontal directional drilling equipment for road and stream crossings.

Michels also has the experience constructing vertical drilling spread footings, piers and caissons, caisson foundations and power transmission pole foundations.

Among recent projects completed or under construction are:

■ **GSG LLC Wind Farm (Illinois)**, a 80-MW, 40-turbine wind farm: Michels was the prime contractor and completed the substation, collection, interconnects foundations and the civil work.

■ **Sleeping Bear (Oklahoma)**, a 94.5 MW wind farm, with forty-five 2.1-MW turbines: Michels completed the substation, collection system, interconnect, civil construction, turbine foundations and erection, QA/QC, electrical engineering and project management.

■ **Blue Grass Ridge (Missouri) and Locust Ridge (Pennsylvania)**: Michels completed the collection systems, the installation and terminations of transformers, switch gear and controller terminations for these wind farms.

■ **Twin Groves (Phase II) (Illinois)**: As prime contractor, Michels is currently building Phase II of this 198-megawatt, 120-turbine farm. Responsibilities include completion of the substation, collection system, interconnects, civil construction, turbine foundations, erection, QA/QC, electrical engineering and project management.

■ **Forward Wind Farm (Wisconsin)**: When complete, this project will operate sixty-six 1.5-MW turbines producing an additional 99 MW – enough power for approximately 50,000 homes. Michels is the prime contractor and will complete the substation, collection system, interconnects, civil, turbine foundations, erection, QA/QC, electrical engineering and the project management.

Michels was established in 1960 as a pipeline construction company and has evolved into today's Michels Corp., one of the largest privately-owned construction companies in the U.S. serving energy, utility and transportation markets.

FOR MORE INFORMATION:

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