

Sargent & Lundy Services:

- ❑ Siting and Licensing Support
- ❑ Transmission Line Engineering & Design
- ❑ Substation Engineering
- ❑ Constructability Reviews and Planning

To expand the capacity of the transmission system in northeastern Wisconsin, American Transmission Company (ATC) constructed a new 345-kV transmission line from the Gardner Park Substation, located just south of the existing Weston Power Plant near Wausau, WI, to a new substation called Clintonville, in Shawano County. The line interconnects with the Morgan Substation, southwest of Oconto Falls, and to the Werner West Substation in the New London area.

The project was designed to relieve congestion on transmission facilities north of Green Bay, resulting in additional transfer capability and greater electric reliability for the area. In addition, it provides transmission service for a new 500 MW unit at the Weston Power Plant.

Siting, preliminary engineering and public outreach for the project, which crosses portions of five Wisconsin counties, 20 municipalities and 500 property owners, began in 2004. The Wisconsin Public Service Commission approved the application for the project in June 2006.



The GCMW Transmission Line at the Weston Power Plant

Sargent & Lundy's scope of work included complete engineering of 104 miles of double-circuit transmission line, which was designed for two 345-kV circuits, but constructed and energized as one 345-kV circuit and one 138-kV circuit. Work also included

the design of the new 345-kV Highway 22 Switchyard, expansion of the 345-kV Morgan Substation and 138-kV additions at the Badger and Clintonville Substations.

To minimize the environmental impact of the project, much of the line was routed along existing right-of-way, relocating an existing 138-kV circuit onto the new double-circuit structures. Other segments were constructed along highway, gas-pipeline and abandoned railroad corridors. Only 13 miles of the 104-mile project was located on completely new ROW.



345/138-kV Structures

Detailed engineering for the transmission line was finalized for the approved route during 2008. Designing the line to be compatible with the various existing facilities along the corridor presented challenges to the design team. Specifications were prepared to procure the materials for the project, including structures, conductors and insulator assemblies.

Construction began early in 2008. The first 75 miles of the project was completed in June 2009 and the last segment was placed in service in September 2009. The project was completed three months ahead of schedule and within the approved budget of \$263 million.

ATC owns, operates, builds and maintains the high-voltage electric transmission system serving portions of Wisconsin, Michigan, Minnesota and Illinois.