



CONCRETE WIND TOWER PROTOTYPE

ADAM'S COUNTY, IA

SDI Scope

*PT Tendons:
Fabrication,
Installation, Stressing*

Contractor

*Baker Concrete
Construction, Inc.*

Owner

*MidAmerican Energy
Company (with
Siemens)*



Photo Credit: MidAmerican

PROJECT DESCRIPTION

The Adam's County Concrete Wind Tower Prototype is the largest land-based wind turbine ever built in the United States. At 379 feet from ground to hub, the concrete turbine is over 100 feet taller than neighboring steel-constructed turbines. This prototype 2.415-megawatt concrete turbine enables MidAmerican Energy to evaluate the amount of additional wind energy that can be generated at higher altitudes. Construction of the tower began in August 2015 and proved to be an entirely different process than constructing a steel tower turbine. Instead of manufacturing tower sections in a factory and transporting them, crews poured the concrete in segments to erect the tower onsite.

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SDI'S SCOPE OF WORK

SDI fabricated, installed, and stressed each 19-strand (0.6"), 320 ft long tendon, providing excellent structural support for the Adam's County Concrete Wind Tower Prototype.

The concrete edifice is one of 64 wind turbines at the 154-megawatt Adams Wind Farm. With the blades extended, the turbine reaches 557 feet, standing taller than the Washington Monument. Aside from working at a great height, SDI also faced several weather challenges. Cranes could not operate when wind gusts exceeded 17 mph, and ice and snow were expected to cause delays. Even with these challenges, SDI completed its work as scheduled with no delays.



PROJECT HIGHLIGHTS AND FACTS

- Steel tower height is constrained by width allowed to be transported on highways whereas concrete wind towers are constructed on-site allowing for a wider base thus a greater height.
- With greater height, the wind turbine can achieve faster, more constant wind speed.
- To date, this is the tallest wind turbine in America.

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