

Written by Ned Haluzan  
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The future of wind energy is often said to be offshore because of more powerful and more consistent winds compared to those on land. But there is also one solution to generate more wind energy from wind farms on land, in form of taller wind turbine towers.

The current height standard for wind turbines is 80 meters (about 262 feet) from the ground. However, if developers were to build higher projects it would generate more wind power and wind farms could expand into new areas and new states.

One interesting study from the Iowa University claims that the taller towers (of up to 140 meters) could enable wind energy production in all 50 U.S. states. Winds at higher elevations, generally speaking, are considerably stronger and more consistent, even in wind-rich states such as Iowa and Texas.

What technology needs to do is come up with the cost-competitive solution(s) to build these towers. One interesting technology that has plenty of potential is called "Hexcrete". The idea behind this technology is assembly from precast panels and columns made with high-strength or ultra-high-performance concrete. Those panels and columns can be cast in sizes that are easy to load on trucks. Afterwards they are tied together on-site by cables to form hexagon-shaped cells. A crane can stack the cells to form towers as high as 140 meters.

Sri Sritharan, a professor of civil, construction and environmental engineering and the interim assistant dean for strategic initiatives at the University of Iowa pushed and pulled an assembled test section with 100,000 pounds of force for more than 2 million cycles. The test section passed that fatigue test. The researchers have also tested a full-scale, cross-section of a tower

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cell for operational loads and extreme loads for a 2.3 megawat. Hexcrete technology passed all the tests.

The testing was successful, and who knows in few years time we could see new height standard for wind turbines.