

## Local Business

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# Turbines big and strong

### Wind farm blades built to sustain gusts as high as 172 mph

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## Wind Turbines



Two wind farm projects in Kenedy County aren't far enough along to demonstrate how their giant fan blades would fare in a hurricane such as Ike.

But if they were operating, those traveling nearby on U.S. Highway 77 would have nothing to fear from them, says a spokeswoman with one of the companies spearheading the projects. Mitsubishi Power Systems, the turbine manufacturer, has designed the turbines to withstand hurricane conditions, said Beth O'Brien, a spokeswoman with Australia-based Babcock and Brown Ltd., the developer of one of the wind farms.

O'Brien said Mitsubishi considered winds up to 172 mph in the design of its turbines. The turbines are designed to rotate the nacelle, or generator, to its best and safest position based on wind speed and direction.

That design also prevents excessive loads being applied to the blades and tower. As of Tuesday, only four of its 118 turbines had been erected. If there is a strong wind, the nacelle rotates to face downwind, alleviating the load, O'Brien said.

A Category 5 hurricane, the most damaging category of the Saffir-Simpson Hurricane Scale, produces winds of 131 to 155 mph. By that point, the blades likely will not be rotating.

"When the wind hits a 10-minute average of 56 miles per hour, the turbines automatically cut out until the wind speed falls below 56 miles per hour over the same period," O'Brien said.

Oregon-based Iberdrola Renewables plans to erect 84 turbines in property adjacent to Babcock and Brown's. Jan Johnson, an Iberdrola spokeswoman, declined to give information on how hurricane conditions would affect its turbines other than to say the turbines were designed by Mitsubishi.

In the event the blades from Babcock and Brown's turbines detach from the nacelle, it's unlikely it would cause damage to people or property, O'Brien said.

Each turbine blade weighs more than 24,000 pounds, or 12 tons, and studies show that if a blade is detached, it would fall straight down to the base of the turbine tower, she said.

"The nearest turbine is 20 miles from U.S. Highway 77 and it is not feasible for a blade to travel anywhere near this distance," she added.

Modern wind turbines are much safer than they were during the industry's early years, according to the American Wind Energy Association, a wind energy trade organization.

Blades coming off were common decades ago, but unheard of today because of improved designs and engineering. Wind turbine standards ensure a high level of operational reliability and safety in the United States, according to the association's Web site.

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transmission lines from the Penascal Wind Farm south of Sarita are already being build. these lines will carry wind produced electricity. photo taken Tuesday. photo by George Gongora

workers work connecting a blade to the rotator which goes on top of the towers to create a wind turbine. Workers are working feverishly now to ready more than 100 turbines before year is out or they loose their permit. This is at the Penascal Wind Farm south of Sarita. photo taken Tuesday. photo by George Gongora





Studies show that if a wind turbine blade is detached, it would fall straight down to the base of the turbine tower. Mitsubishi Power Systems has designed the turbines to withstand hurricane conditions



Photos by George Gongora/Caller-Times Workers prepare to hoist part of a giant turbine at the Penascal Wind Farm south of Sarita on U.S. Highway 77. As of Tuesday, four of the farm's 118 turbines had been erected. Each turbine blade weighs more than 12 tons.





As of Tuesday 4 wind turbines for the Penascal Wind Farm south of Sarita has been installed and there are more than 100 yet to be constructed by the end of the year or this people loose their permit. Can the Wind turbines handle hurricanes is yet to be seen. George Gongora photo

The work of putting up more than 100 turbines near Sarita is scheduled to be finished by the end of the year. Turbines are much safer than they were during the industry's early years, according to the American Wind Energy Association.

