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**HOISTING ONE FOR WIND POWER: CLIMBING CRANE EXPECTED TO KEEP TURBINES SPINNING**

Wind power is one of the key sources of renewable energy expected to play an important role in helping to cut emissions and wean society from its dependence on fossil fuels, which means wind-power companies must be prepared to quickly fix mechanical problems that threaten to slow down renewable energy production.

Blown generators, misbehaving gearboxes and damaged rotors keep turbines from maximizing the energy they draw from nature, raising the question of how to reliably maintain dozens of mammoth towers, some of which rise more than 100 meters above the ground.

Large mobile cranes are used to assemble wind turbine components at the top of lofty towers and, later, to service these turbines. But the rapid expansion and interest in wind-harnessing technology has strained available crane resources, creating a shortage of capacity. Sometimes, even though spare parts are available to repair a turbine, it may take months to secure a crane to do the repair work. Given that some of turbines operate 70 to 105 meters above the ground, where the winds are strong, the heaviest cranes are required to do repair work. Unfortunately, such cranes are also the most difficult to move from place to place.

It was developed crane technology to avoid such problems. The Tower Crane, still in the prototype phase, is designed to attach to a cable lowered down from a small crane located inside the turbine tower's nacelle (the cover housing the wind turbine's generator and gearbox) and hoisted upward. The Tower Crane, which measures 10 meters long, 2.9 meters high and 3.3 meters wide, actually ascends through a multistep process: The cable lowered from the nacelle to the ground first connects to and hoists a tackle (a system of pulleys that distributes the crane's weight), which Vestas calls the "nacelle attachment system," or NAS. Once the NAS is pulled up and attached to the side of the nacelle, it uses a number of cables to hoist the crane itself.

After the crane reaches the top of the tower it clamps its four claws around the post like a giant robotic hand to provide stability, allowing the crane to operate in winds as strong as 15 meters per second.

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