



PRESS RELEASE

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Cause of damage to Vertical Sky[®] prototype established, measures being implemented

Following the incident involving the Vertical Sky[®] prototype system at the wind test field in Grevenbroich (NRW, Germany) in November 2020, extensive investigations were initiated and have now been completed. On the basis of the available measured data, it was possible to analyze the prevailing wind conditions, to reconstruct their effect on the system in a simulation environment and, finally, to determine the cause. A previously unknown wind situation led to an overload of the wind turbine in the operating state existing at that point in time. The investigations showed that the same and similar situations can be avoided in future by means of simple precautions. The measures for this are currently being implemented.

In the case of the wind situation that led to the accident, it was - to put it simply - a very turbulent gust of wind that picked up speed rapidly, associated with a sudden and sharp change of wind direction. The investigations have shown that the wind situation described caused resonance vibration in a rotor arm of the system in the operating state existing at the time, as a result of which it was overloaded and broke.

The wind event described has not been mentioned up to now in the certification standard and was therefore unknown during the development of Vertical Sky[®]. The simulations and calculations subsequently performed with the new knowledge have shown that the wind situation described can damage the Vertical Sky[®] systems in different operating states. It was possible to reproduce and document this several times.

The analyses carried out have shown that the same or similar events can be prevented in future by means of simple modifications without having to change the basic design. The measures concerned are braking and locking devices. The solutions have now been implemented.

What happens next?

The wreckage on the ground will now be disposed of. To do this it was necessary to lay out a temporary sheet metal road on the field to prevent the recovery vehicles sinking into the wet ground. In the coming April the necessary devices and cranes will be available to dismantle the remaining part of the rotor that is still on the tower. The work for the new modified rotor has already begun. The planning indicates that - providing the weather is good - the system will be fully assembled again and ready for commissioning at the end of October 2021.

The analysis of the unplanned incident has provided valuable knowledge that will lead to higher product safety. In addition, already identified improvements are being implemented during the repair of the prototype. Both represent a valuable further development of Vertical Sky[®], the first large wind turbine with a lesser effect on the environment, developed for the local power supply.

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