Sandia National Laboratories
U.S. DEPARTMENT OF ENERGY
NNSA Nation
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Characterizing Scaled Wind Farm Technology Facility Inflow

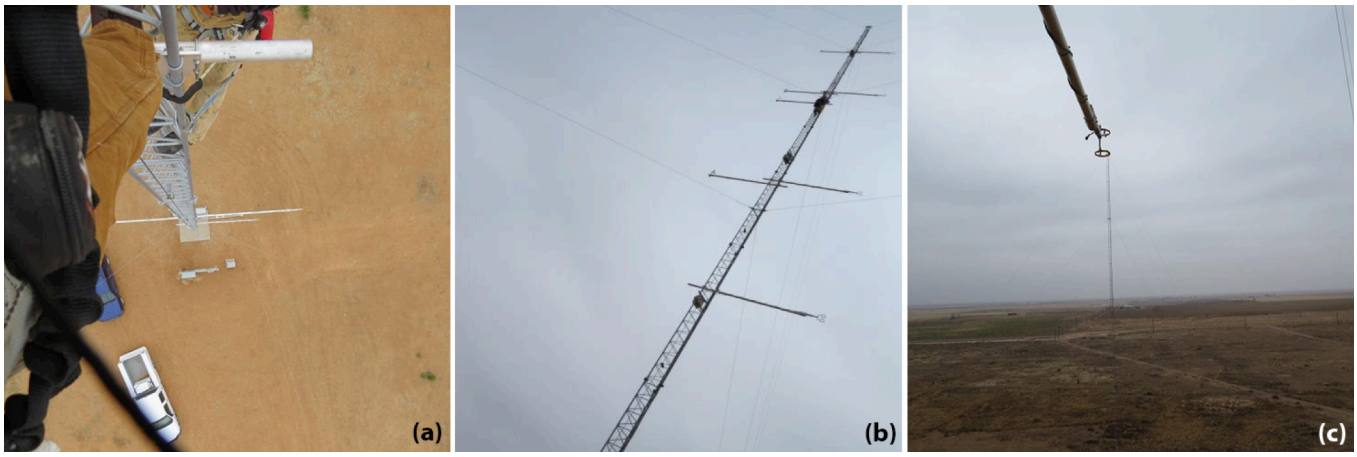
The Scaled Wind Farm Technology (SWiFT) research facility will provide meteorological measurement well advanced of the industry standard. Two anemometer towers have been installed 2.5 rotor diameters upstream of the first row of wind turbines. When fully instrumented, these towers will provide both the industry standard averaged value (wind speed and direction, i.e., two-dimensional wind vector) and research high-resolution three-dimensional wind vector.

In each mast, a total of five measurement heights up to 58.5 m are recorded, above and below the rotor. The setup allows a much more detailed understanding of wind-turbine power production, including study themes like

- atmospheric wind shear across the rotor,
- rotor disk velocity profile, and
- rotor loading imbalance.

Once the full system is verified, it will provide a robust set of meteorological instrumentation which complements the research capabilities of the SWiFT wind turbines.

The hub height wind speed and direction sensors for International Electrotechnical Commission (IEC) power performance are operational, enabling standard industry power curve testing to commence.



A view of the anemometer tower installation (a) from *working height and (b)* of *working height on the tower as work continued on wiring, troubleshooting, and verification of instrumentation. Shown in (c) is a view of a typical 3-D sonic deployment.*

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