Latest specifications for wind tunnel testing of photovoltaic panels

Do roof-mounted solar panels have a wind load?
The current codes and standards concerning wind loads on roof-mounted solar panels are discussed and summarized. Wind pressures on flat- and slope-roof-mounted solar arrays obtained from wind tunnel tests are compared with the recommended design values in ASCE 7-16 and JIS C 8955: 2017.

Do I need wind tunnel testing for my rooftop PV installation?
We recommend wind tunnel testing be conducted for the most common rooftop PV installations to verify methods and calculations. The installation types include stand- off mounting parallel to the roof, stand-off mounting at an incline relative to the roof, and ballasted installations on flat roofs.

Should wind load testing be included in ground-mounted solar arrays?
One recommendationincluded wind load testing for ground-mounted solar arrays. Cyclic loading of dynamic wind loads caused considerable damage to the ground-mounted arrays. A second recommendation is an addition to ASCE 7-22 to account for the design criteria of ground-mounted solar arrays.

What is a wind tunnel test?
Wind tunnel tests mainly include the rigid pressure test and the full aeroelastic test. The rigid pressure test determines the system coefficient,torque factor,and Dynamic Amplification Factor (DAF). Meanwhile,the full aeroelastic test determines the critical wind speed,which occurs when damping is negative.

What is a boundary layer wind tunnel test?
Boundary layer wind tunnel tests were performed to determine wind loads over ground mounted photovoltaic modules,considering two situations: stand-alone and forming an array of panels.

Why do solar trackers need wind tunnel tests?
Wind tunnel tests are hence needed to examine the aerodynamic stabilityof the tracker array under different influencing factors,such as incoming flow conditions,tracking angles,and layouts. These findings will then help solar tracker manufacturers to determine the parameters in the design of the solar tracker structure.

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