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Assessment of Wind Turbine Seismic Risk: Existing Literature and Simple Study of Tower Moment Demand

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Abstract

Various sources of risk exist for all civil structures, one of which is seismic risk. As structures change in scale, the magnitude of seismic risk changes relative to risk from other sources. This paper presents an introduction to seismic hazard as applied to wind turbine structures. The existing design methods and research regarding seismic risk for wind turbines is then summarized. Finally a preliminary assessment is made based on current guidelines to understand how tower moment demand scales as rated power increases. Potential areas of uncertainty in the application of the current guidelines are summarized.