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## Performance of Global Wind Atlas for Distributed Wind Resource Assessment in the United States

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Distributed wind projects, particularly those involving small wind turbines, are more subject to financial and temporal limitations than utility-scale wind energy. Onsite measurements are often not feasible or economically viable investments, leading to developers, analysts, and customers in the distributed wind community relying on wind resource models to establish generation estimates. One popular wind product used by the distributed wind community in the United States is the global, high-resolution Global Wind Atlas from the Technical University of Denmark and the World Bank Group.

Wind resource models are valuable tools for siting and establishing generation expectations but are not entirely accurate, which can lead to distributed wind customer dissatisfaction when actual energy generation does not meet pre-construction expectations. To enhance the understanding of the performance and limitations of utilizing Global Wind Atlas for wind resource assessment, this work presents the validation of the model wind speeds using meteorological towers across the diverse geography of the United States with measurement heights relevant to distributed wind hub heights (20 m – 100 m). The analysis expands to quantify the performance of Global Wind Atlas in representation of seasonal, diurnal, and interannual variability in the wind resource along with an assessment of wind shear accuracy at locations with measurements at multiple heights.