Dear Shawn Sheng - Associate Editor (WES),

Thank you for your valuable comments on our manuscript. Your feedback has been instrumental in improving the quality and clarity of the paper.

Attached, you shall find a detailed response to each of your comments, along with an updated version of the manuscript reflecting these improvements.

Thank you once again for your thorough review and constructive suggestions.

Best regards,

Tahir Malik

Associate editor decision: Publish subject to minor revisions (review by editor), 02 Dec 2024

Thanks to the authors for addressing the referees' comments and contributing to the journal of Wind Energy Science.

Additional private note (visible to authors and reviewers only):
Please go through the manuscript for possible errors or typos (e.g., line 519, "improve" may be missed before "performance"). Below are a few other specific comments:

line 519, "improve" may be missed before "performance"

- Corrected
- The paper has been revised throughout to catch typos and text errors and it is hoped that none have slipped.

Abstract: please briefly explain "Cohen's d" for audience not familiar with the metric.

- Updated abstract:
"Refined simulations using various virtual sensors quantified the effect size of sensor reading under different turbulence levels and blade states, employing Cohen's d - a dimensionless metric measuring the standardised difference between two means."

Introduction: lines 35-39, please elaborate on sensor pair a bit e.g. by giving an example.

- Amended text:
"In contrast to methodologies that generalise sensor pair applications across different original equipment manufacturer (OEM) turbine models, this work emphasises the deliberate selection of a controller-specific sensor pair. For instance, using power as a function of generator speed or power as a function of wind speed indiscriminately across turbines can overlook critical differences in turbine dynamics and control strategies. This strategy underscores the importance of finding the most suitable sensor pairings for each turbine and associated controller philosophy."

Methodology: line 131, please explain how 0.1 m/s increments were chosen.

- Amended text:
"In contrast to the previous work, where simulations were run at 1 m/s increments, the current study employs a higher fidelity approach. To focus on the turbine's power ramp-up phase (where erosion effects are most likely to manifest) and to ensure that the binning and averaging process of the data did not obscure subtle dynamics, individual cases were run in 0.1 m/s increments between 6.5 and 14 m/s. This increment achieves a balance between fine-scale accuracy and computational efficiency."