Reviewer comments to „Development and validation of a hybrid data-driven model-based wake steering controller and its application at a utility-scale wind plant" by Peter Bachant et al.

The study describes the design of a wake steering controller that is deployed at a subset of turbines in a commercial wind farm. The focus is firstly on the processing of input data for the applied flow model. Secondly on the improvement of the model performance and its validation. The study is well structured and describes the design step by step in a transparent way. This is scientifically useful, as there is no standardized methodology of how to use wake models (time scales, input data) for wind farm control purposes.

Comments on the content:

The authors rely on a novel approach, that does not need pre-generated LUTs for the control strategy. Has the performance of this approach be compared to a „conventional" LUT-based control? The question arises because field-tests and experiments have shown that also the conventional yaw schedules, albeit not capturing all possible input conditions combinations, are able to produce power gains. Is the performance of the novel method better?

Line 230: It would be good to clarify here that the GPS signal of the edge devices signal follows he yaw position of the turbines and not the wind vane signal (I am assuming), which is not exactly the same thing.

Section 2.5 While it is very useful that the authors are transparent with the design, the bullet lists in this section get a bit extensive. Maybe the bullet points would be better allocated in a table.

Section 2.4.5 Did the authors access the behaviour of TI for different times of the day or under different stabilities? E.g. binning for day/night regimes could be a way to understand the variability in this variable.

The authors chose a quite short time scale of 1 min for many environmental variables. It seems not entirely clear to me what role time delays play in this study. Are they accounted for in the model or model input? At 8 m/s the flow needs 160s to propagate 13 rotor diameters. Does e.g the power of upstream and downstream turbines show higher correlation after a time delay? Could this be also a reason of the discrepancy mentioned in line 550?

Other Comments:

Line 498 „to to"