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Interactive comment on "Using wind speed from a blade-mounted flow sensor for power and load assessment on modern wind turbines" *by* Mads M. Pedersen et al.

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Thank you very much for the detailed review, comments and corrections.

We fully acknowledge that the method in the present form cannot be used for power curve certification. The potential of the method is to compare the relative pitot based power and load curve between different periods to investigate e.g. aerodynamic modifications or detect performance issues, e.g. due to leading edge roughness. It can however also be used to compare the performance of a turbine at in a complex inflow case, e.g. a complex site or a wind farm where almost all other type of measurements of the inflow are not possible. In addition measurements from the sensor can be used as

input for control of individual pitch or active trailing edge flap to optimize power and/or reduce loads or noise (Larsen et al., 2005; Barlas et al., 2012; Kragh and Hansen, 2012; Kragh et al., 2012). We will add this to the revised manuscript A method to compensate for the presence of the turbine using an aerodynamic model is utilized and briefly described in (Pedersen et al., 2015), but it requires detailed knowledge about the aerodynamic properties of the blades, several assumptions and compromises, and it adds additional uncertainty. The idea was therefore to investigate the application of blade mounted flow sensors without this step. We will clarify this in the revised paper

It is correct that the error in figure 12 (a) is almost similar from 10 to 18 m/s, but the contribution from blade torsion is very limited as the blade is rather stiff in the torsional direction (the maximum torsion angle in the simulations is around 0.2deg). Most of the error originates from small scale turbulence induced deflections of the blade. This contribution increases with the variation of the wind and peaks at the higher wind speeds. This part of the error is reduced when averaging over one revolution, see difference between figure 12 (a) and figure 13 (a). A smaller part of the error is caused by the thrust induced static deflection of the blades. This contribution peaks around rated wind speed. It is compensated by subtracting the mean error, see difference between figure 13 (a) and figure 15 (a) where almost only the error peak around 12 m/s is affected. We will stress this in the revised manuscript

Thank you for pointing out grammatical errors, misspellings and awkward sentences. We have implemented these corrections in our working document.

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