Review - Continued Results from a Field Campaign of Wake Steering Applied at a Commercial Wind Farm: Part 2

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Summary

This paper is well written with substantial contributions. Specifically, it is of value to provide full scale tests that prove gains from using wind farm control. Publication is therefore suggested after minor revision.

Specific comments

1. P7 Figure 5 caption. "Colored bands are used to indicate where a yaw offset is achieved intentionally (light blue) and unintentionally (orange)."
    - The notion of intentionally versus unintentionally is a bit confusing.
    - When the active yaw controller yaws the turbine it is intended other wise the controller would have been designed to do something else?
    - However, the measured combination of yaw, wind direction and speed is not at the ideal (steady state) values. This is of course not what is preferred/intended but just a consequence of actuator dynamics, limits, uncertainty etc. which are standard in any control task?
    - Why call it unintended when there is a deviation between measured yaw and ideal yaw and the ideal is zero yaw but intended when there is an error but the ideal yaw is positive?
2. P9 "Specifically, the TI is selected to provide a close match between the baseline wake losses in FLORIS to those measured in the field." Isn't it strange to use the TI to math wake losses? Shouldn't you use the field measure TI and then perhaps adjust wake parameters to match wake losses? (Now I see that the explanation is partly in the next sentence.)

3. P10 "secondary steering (see Fleming et al. (2018b))" Please explain what that is?

4. P 13 "The optimal gain (the expected gain if desired offset is always achieved) is higher than the realized gain."

    - Will there be power gain results for the combination of the controlled turbine and the one in wake? (I will probably know when I have finished the paper)
    - The problem of lower power gains compared to ideal static calculations do to the dynamics has been pointed to long back Knudsen et al. [2015]

5. Figure 7 "this represents the ratio of energy produced by T3 with respect to unwaked reference turbines."

    - If the controller were toggle on/of e.g. every 5 minutes you could compare with the same turbine in order not to risk differences between locations.

6. P21 "We find this to be a very exciting result, as we believe that there are still more opportunities for improved performance for the next generation of wind farm controllers to approach higher percentages of the static optimum."

    - As pointed out before we can not expect to reach the static optimum Knudsen et al. [2015].

7. P21 "Obtaining better knowledge of the inflow conditions will also improve performance".

    - A candidate method for this is model based state estimation as discussed in Doekemeijer et al. [2018].

References

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