Wind Energ. Sci. Discuss.,
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# *Interactive comment on* "Wind farms providing secondary frequency regulation: Evaluating the performance of model-based receding horizon control" *by* Carl R. Shapiro et al.

**Anonymous Referee #2**

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The paper presents interesting results regarding the ability of wind farms to provide secondary frequency regulation while minimizing the amount of energy not produced. Some points that would improve, in my opinion, the paper:

1. The presented wind farm control approach is likely to be computationally too expensive for the use in real wind farms. It would be useful to also discuss how the control approach could be applied to real wind farms. 2. The introduction could be shortened by moving some of the content to a methodology chapter. 3. Switching chapter 2 and 3 would improve the flow of the paper. 4. The use of thrust coefficient as input to a wind turbine controller is not realistic. 5. Please provide more details regarding the



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Discussion paper

rated power of the wind turbines, their rated wind speed and the mean wind speed considered in the simulations. 6. Please mention the frequency of the control with regards to the discussion on p. 13 line 13ff 7. Instead of showing the performance of the static model-based controller for all cases it would be useful to focus on a single cases and include figures on rotor effective wind speed at a column of turbines. 8. The impact of the paper would be improved by a comparison of the performance of the controllers to a standard PI(D) control approach. 9. In chapter 7 please use a quantitative assessment of the controller instead of qualitative statements. It is mentioned that the controller reduces turbulence driven power fluctuations. It would be necessary to justify this state by comparing the controller against a PI(D) control approach. 10. Please also include the total available wind farm power in the figures. This would also facilitate the discussion on page 16 line 8ff.

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