WIND ENERGY SCIENCE DISCUSSIONS

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Interactive comment

Interactive comment on "Validation of a lookup-table approach to modeling turbine fatigue loads in wind farms under active wake control" *by* Hector Mendez Reyes et al.

Anonymous Referee #2

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The paper makes several important contributions to the wind farm control and wake redirection literature with respect to understanding load impacts. The paper includes very useful analysis and validation, and the proposed LUT-based method for understanding load impacts is compellingly presented and analyzed. Introduction is well written and connection to the literature is good, the paper well explains the contributions of the paper. Believe will be a very useful paper for the field.

Some technical comments follow:

Main general comment:

Could you explain a little on the selection of loads analyzed, is there consensus opinion

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Discussion paper

that this particular set of loads well covers/correlates all loads? For example, one might expect yaw bearing loads to be particularly impacted by offsetting wake, but is this essentially included in the tower top load? 1-2 paragraphs on why the included loads were selected, and if all excluded loads can be expected to behave similarly would be much appreciated.

Small technical comments

Page 5: You remove offsets at above rated wind speeds where AWC will not operate, but I believe AWC could well operate effectively up to wind speeds where downstream turbines are rated, which would be above-rated for upstream by 1-2 m/s, was this accounted for?

Fig 2: Would be helpful to also include what is the normalization in the caption

Page 9: "but the impact of wakes on the loads are much more pronounced", I believe you, but can this be inferred from Fig 3?

Fig 4: Is this somehow inverted on the y-axis with respect to fig 3? I understood the discussion in the text on the location of the nadir, but I was confused on the inversion

Fig 8: Is raw data 10-minute bins? The agreement is nice

Interactive comment on Wind Energ. Sci. Discuss., https://doi.org/10.5194/wes-2019-34, 2019.