

Interactive comment on “Assessment of Wind Turbine Component Loads Under Yaw-Offset Conditions” by Rick Damiani et al.

Rick Damiani et al.

rick.damiani@nrel.gov

Received and published: 25 October 2017

We thank you the reviewer for taking the time to review the paper and to suggest further references.

Below are the replies to specific comments:

1. The issue of certification for turbines expected to run off axis is an interesting one. First of all, however, we must assess the change of loads and our ability to understand and model them when running with yaw misalignments. In the future, for type certification, some assumptions will have to be made if running off axis is part of the normal control strategy (percentage of time running under certain offsets, just like how we make assumptions about running waked). Eventually a full analysis will have to

[Printer-friendly version](#)

[Discussion paper](#)



be done on each individual turbine in the plant as part of the site suitability analysis when the actual conditions and plant layout are known (this could be part of the project certification, which is now more typical for offshore projects). Impact on components is far too specific as it depends on how critical those components those are in fatigue. It would be fun work, but out of our scope as we do not have the design information of the GE 1.5 rotor blades, also the conclusion we would reach on that blade would not readily translate to other turbines. Then how it impacts the testing is once again a layer removed as there is no prescribed method on how to get from the design spectrum to a test spectrum. And again even with increased loads the components could be within the design margins and thus the testing would still be valid and would not need to be redone.

With that said, future studies should gather more data across multiple turbine configurations to provide guidance in that sense. We have included a paragraph in the Conclusions to reflect this thought. We have also incorporated two new references (Thomsen 1999 and Ekelund 2000) in the introduction based on the list provided by the reviewer.

2. Figure 1 was revised to improve understanding of the yaw sign convention adopted in this study. 3. Two references added, Huang 2012 and Bakshi and Sandborn 2016. 4. No typo was found. Printing issue? 5. We have augmented the axis labels in Figure 6 to emphasize these are normalized quantities. 6. See 1.

In the Attachment is the new manuscript.

Please also note the supplement to this comment:

<https://www.wind-energ-sci-discuss.net/wes-2017-38/wes-2017-38-AC3-supplement.pdf>

Interactive comment on Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2017-38>, 2017.

Printer-friendly version

Discussion paper

