

Review of Manuscript Submitted to Wind Energy Science

Subject: Second round of review based on the revised paper

Title: A Reference Open-Source Controller for Fixed and Floating Offshore Wind Turbines

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The revised manuscript under this second round of review is in general well written and has addressed most of the comments proposed during the first round of the review. Therefore, my recommendation is to accept the paper with minor revisions. Few additional comments to further increase the quality of the paper are listed below:

- Line 17: As stated in the revised manuscript, the proposed open-source controller reduces the maximum thrust by over 10%. It also reduces the maximum platform pitch angle by approximately 20% when using the platform feedback routine instead of a more traditional low-bandwidth controller. These numbers are shown to convince the reader of the merit of the implemented algorithms, and I agree they look promising. However, I am missing a comparative analysis of the wind turbine power output and in particular the annual energy production. If a reduction in the turbine thrust happens at the same time with a reduction of the annual energy production, then it is questionable if the proposed change has a positive overall impact. I suggest that the authors consider adding a simple calculation to evaluate the annual energy production for a given site of their choice and compare the results. If a reduction in the maximum thrust happens at the same time with an increase of annual energy production or at least the same annual energy production, then the authors can fairly conclude that the proposed open-source controller is effective and better than the existing controllers.
- It would be nice if the authors could provide a detailed view of the changes to the wind turbine loading for different DLCs, and at critical locations such as blade root, high and low speed shafts, and tower top and bottom.
- Section 2.1 and conclusion: The controller design process of industrial wind turbines is more detailed than the simplified design process explained in this paper. I suggest that the authors clearly explain that their approach is suitable for an automated design of mainly region 2 and 3 based on fundamental control design principles available in the public literature. Having statements like line 606 (“*The controller structure is similar to many controllers that are seen on industry turbines that function in the field.*”) is not realistic and does not add any value to the paper. Real wind turbines operating in the field are more sophisticated in structure and algorithm than the proposed controller, and what is known to the public research community.