

Wind Energ. Sci. Discuss., referee comment RC1  
<https://doi.org/10.5194/wes-2021-74-RC1>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## Comment on wes-2021-74

Anonymous Referee #1

---

Referee comment on "Land-based wind turbines with flexible rail-transportable blades – Part 2: 3D finite element design optimization of the rotor blades" by Ernesto Camarena et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-74-RC1>, 2021

---

This is not the easiest paper to review because of the large amount of information contained. In my opinion, the paper is very well written, the analysis provided is highly valuable for the wind energy community and the contribution is original.

However, although I know the field, I am not expert in structural design of wind turbine blades. This is why, first I recommend the editor to incorporate to the review process experts in the field of blade structural design analysis and its optimization, who really will provide a more specific sound advice on the acceptance of the paper.

Considering my background, I think I can contribute with some general comments that could clarify some points of the study for the wind energy community.

- The authors propose a detailed FEM analysis of different structural design options. It is not clear if their designs, that on the other hand lead to very flexible blades, can present deformation of the blade sections shapes that could affect the performance of the airfoils. A comment on this aspect could be convenient, because if this is the case, then a simple Blade Element Momentum approach (such as the one implemented OpenFast) will not be enough for determining the aerodynamic loads.
- One general doubt is if there is any verification of the impact of the different blade designs on the power production of a wind turbine using the different blade options. Again a comment on this aspect could be convenient.
- Commenting on how the different blades (different structural designs) will interact with the rest the wind turbine, or at least a comment clarifying that this aspect is relevant and will be treated in future research, would be convenient.
- In general, some comments should be included on the necessity of checking the influence of the different proposed design options on the aeroelastic behaviour of whole wind turbine and in particular the interaction with the tower dynamics and the implications related to the control of the wind turbine.

