

Interactive comment on “Numerical Analyses and Optimizations on the Flow in the Nacelle Region of a Wind Turbine” by Pascal Weihing et al.

Anonymous Referee #2

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The manuscript is a numerical study of the flow dynamic of a wind turbine rotor, focusing on the root region. A very detailed view of the complex flow induced in this region is presented. Aerodynamic losses related to the vortex system and to flow separation could be important. The authors presented 3 strategies related to the nacelle in order to increase the aerodynamic efficiency in the root region. The paper is generally clear, well written and well structured. My comments: 1. In the introduction, it would be useful to mention other techniques that can be used to improve aerodynamic efficiency in the root region with flatback airfoil, such as flow control devices (splitter, cavity, flap...), and to show how the authors' solutions can stand out. 2. With no validation of the model and without a grid independency study, how can you be sure about the results accuracy? 3. Are there any manufacturing constraints for the proposed solutions to

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increase aerodynamic efficiency? 4. The proposed nacelle modifications and their impacts locally, on the root flow have been shown in detail. However, it would be interesting to quantify the impact of these solutions on a global parameter performance, such as the total power produced of the turbine.

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