

Interactive comment on “A Method for Preliminary Rotor Design – Part 2: Wind Turbine Rotor Optimization with Radial Independence” by Kenneth Loenbaek et al.

Anonymous Referee #2

Received and published: 23 November 2020

This paper is the second of a two-part series on Rotor Design. This paper deals with the application of the radial independent actuator disk model (RAID) to maximize power or Annual-Energy-Production for a given thrust and blade-root-flap-moment. The model includes a simple cost function which makes a difference in the solution space. The result is an improvement in performance that is worth the effort of using this model. Defining the optimization as “nested” leading to the overall global optimization. The result is a simplification of the process hopefully without losing needed information. The optimization section is straight forward and presented in a logical fashion with sufficient reference to Part 1 (on page 7 you do have and eq. XX that needs attention). Optimizing each section allows the performance to be tailored to the conditions at each radial

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station. It is interesting as the radius increases how the power distribution changes over the rotor. As pointed out in the paper, a max chord would be desirable as the resulting 27 m chord is not reasonable. The new addition is the cost function which gives a more accurate indication of the rotor performance. This would be a useful tool to use when comparing designs. I would hope that some additional discussion on why one should use this model as compared with current design methods would be included.

Interactive comment on Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2020-99>, 2020.

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