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Interactive comment on "Trailed vorticity modeling for aeroelastic wind turbine simulations in stand still" *by* Georg R. Pirrung et al.

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The paper presents a near wake (trailed vorticity) engineering model for the aerodynamic analysis of slowly rotating (idling) or parked rotors. It is an extension of a model developed by the authors for rotating rotors. The model can be used in the aeroelastic analysis and assessment of loads of turbines being in idling or standstill mode of operation.

The paper is well written and presents innovative work on a very important research topic. It starts with the presentation of the modifications made to the original model, with sufficient reference to previous developments (by the authors and others). Then some very interesting validation results of the model against NREL phase VI standstill test are presented. The validation results indicate that the model improves considerably

predictions of strip theory (zero induction assumption), that is usually applied in slowly rotating rotors, especially in attached flow and light stall conditions. In deep stall, the agreement with measurements is less good but this is mostly due to the dynamic stall model and not due to the new wake model employed. Overall, even in deep stall, the new model tends to improve results. Finally the authors present an assessment of the effect on predicted loads in IEC DLC 6.2 when the new near wake model is applied compared to the case that the model is switched off. The latter is the common modeling assumption made in all state of the art aeroelastic tools.

It is noted that the assessment of DLC 6.2 loads is new contribution not included in the Torque paper.

Based on the above discussion I recommend publication of the paper after some minor revision is made to the original text.

Proposed changes/modifications are discussed in the accompanying pdf.

A recommendation to the authors is that in 5.3 the edgewise loads could be also checked. Usually, edgewise loads increase faster that flapwise loads when stall induced vibrations take place as the yaw angle increases. In -/+15deg yaw case some mild separation of the flow over the blades is expected (it is seen in the AoA results presented by the authors). Therefore the lower AoA predicted by the NW model will retard stall and probably push high edgewise loads to higher yaw angles. Could that be the case? It would be also interesting to check how big is the effect of the new model on idling speed results (if any).

Please also note the supplement to this comment:
http://www.wind-energ-sci-discuss.net/wes-2017-2/wes-2017-2-RC1-supplement.pdf

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