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WESD

Interactive comment

Interactive comment on "A Double Multiple Streamtube model for Vertical Axis Wind Turbines of arbitrary rotor loading" *by* Anis A. Ayati et al.

Anonymous Referee #3

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This is a manuscript on the double multiple streamtube model for horizontal-axis wind turbines. On it, a series of experiments at the high Reynolds number test facility in Princeton show that the recently model proposed by Steiros and Hutmark performs better than the classical Rankine-Froude momentum theory.

Globally, it is an interesting manuscript and the results presented are sound for the wind energy community. Also, the introduction is very well-written and presents an excellent review of state-of-the-art analytical predictive methodologies. I think the paper is suitable for publication on WES. Nevertheless, I have a few minor remarks:

• The experimental set-up section is too short, and some important information is missing. Even if the authors refer to previous works, at least the total blockage and the turbulence intensity of the incoming flow should be reported. Furthermore, as the first

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reviewer commented, the pipe's section is small. Previous works from the group state the blockage ratio in almost 9%, that would imply the flow near the turbine is modified. Have the authors used any blockage correction to the incoming velocity? If not, can they quantify how measurements are affected? At least the induction factor a will be modified.

• It is not clear which value of C_d is used for the conventional model on figs 6 to 9. Is it the Glauert empirical correction?

• Although this is not important, it is not stated if the computing time of 0.7 secs on line 200 corresponds to both methods (conventional and current).

• On figure 2, what does the case $\beta \sim 0$ mean?

• At the end of line 130, there is a typo: 'streamtbues'.

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