

Interactive comment on “FLOWSTAR-Energy: a high resolution wind farm wake model” by Amy Stidworthy and David Carruthers

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Received and published: 16 November 2016

General comments: This is a well written paper and the results presented are quite convincing in term of power. It is worth publishing once the following comments are treated properly. For example, it is unclear to the reviewer how to get the ‘complete’ flow field in the wakes (for example how to get results from Figs. 9 and 14). Is it my limit of understanding or the way the methodology is described/presented? I have read several times the paper and some of the references and I do not fully understand how the wakes are introduced in the flow using FLOWSTAR. However, as mentioned before, the results are convincing. So I think rewriting the methodology is necessary. Also, equation (7) is presented with no explanation how to get it and/or relevant references. It might be classical information for researchers at CERC but sufficient information should be provided to the readers. Complete information regarding the calculation of

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some parameters in equation (7) are missing. This makes the duplication and/or the verification of the results impossible. I wanted to mention this point but will leave the journal editor dealing with this aspect. In the validation section for the Tjaereborg 60m wind turbine, the results are averaged over the measurement heights (see page 7, line 27) without any discussion/justification. I would be curious to know why it is averaged. Regarding the wind farm results, they are all obtained for off-shore setting. This is not complex surfaces justifying the use of FLOWSTAR. This is clearly mentioned at the end of the abstract and conclusion. I have appreciated to see this clearly stated. Nevertheless, why presenting FLOWSTAR then?

Specific comments:

1. Please remove ‘FLOWSTAR-Energy’ from the title. It is not really necessary.
2. Page 2, lines 26-28: there are errors in referencing.
3. Page 3, line 24: Following 0 ????

Interactive comment on Wind Energ. Sci. Discuss., doi:10.5194/wes-2016-34, 2016.

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