

Interactive comment on “Blind test comparison of the performance and wake flow between two in-line wind turbines exposed to different atmospheric inflow conditions” by Jan Bartl and Lars Sætran

Jan Bartl and Lars Sætran

jan.bartl@ntnu.no

Received and published: 26 October 2016

We thank the referee for his/her critical and appropriate comments. We were asked to answer all referee comments, while a revised manuscript should not be prepared at this stage yet. In the following, we will therefore engage with all the comments and propose improvements for the final manuscript.

Major Comment RC3-1:

- The introduction starts out with describing the importance of wake modeling, an

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overview of existing models and an introduction to CFD methods, which is well structured. Next, an overview of full-scale and wind tunnel experiments is given and the first three blind tests are described. Here, I think it is important to a) show how this blind test differs from the first ones and b) close the loop from the blind tests to CFD methods in the end. In other words, strengthening the importance of validation between CFD and experiments, knowledge of code performance and suitable datasets would improve the introduction.

The authors' reply to RC3-1:

The authors agree that the introduction ends somewhat abruptly without specifically mentioning the increased complexity in the present blind test. A couple of lines describing the differences in this blind test will be added. Furthermore, it will be attempted to close the loop by stressing the importance for validation of CFD codes and thus strengthening the importance of such comparative methods.

Minor Comment RC3-2:

- Sections 2.1.2 and 2.1.3 have the same title. This should be taken care of.

The authors' reply to RC3-2:

A mistake happened when editing the text into the WESD template. It should be “2.1.3 Inflow conditions”. That will be taken care of.

Minor Comment RC3-3:

- P.7, l. 31: the last sentence of the page is confusing to me, please reformulate.

The authors' reply to RC3-3:

The authors agree that this is a rather short and thus confusing formulation. Will be reformulated and better explained.

Minor Comment RC3-4:

- P.11, l.13: if a sentence ends with an equation, I think you should include a period

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(throughout the manuscript).

The authors' reply to RC3-4:

We assume the referee is referring to punctuation marks as in this case a full stop at the end of the equation. That will be fixed in the final version.

Minor Comment RC3-5:

- Fig. 6: As in Fig 5, I think one legend is enough, so you do not have to place the legend in Fig. 6(b) over the graph.

The authors' reply to RC3-5:

The authors agree that one legend is enough, especially as it is hiding some data in this case (Fig. 6(b)). Will be removed, consistent with following graphs.

Minor Comment RC3-6:

- P.14, l.14: 'seem' instead of 'seems'

The authors' reply to RC3-6:

That will be corrected.

Minor Comment RC3-7:

- Fig. 7/8: I think one can make it clearer that each row corresponds to one distance (and which). It does say it in the caption; however, I think this can be presented more intuitively.

The authors' reply to RC3-7:

The authors agree. We consider labelling the plots with the separation distance, in order to be read more intuitively.

Minor Comment RC3-8:

- p. 15 l.19: Referencing the respective figure when you start writing about the thrust

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would help the reader here

The authors' reply to RC3-8:

A reference to the respective figure will be included.

Minor Comment RC3-9:

- Same as above in l. 25

The authors' reply to RC3-9:

A reference to the respective figure will be included.

Minor Comment RC3-10:

- You are inconsistent regarding British/American spelling in some cases, for example characteri(s/z)e, p.4, l.16 versus p.16 l.10. Please be consistent throughout the manuscript.

The authors' reply to RC3-10:

The final version will be proofread with special attention to BE / AE spelling.

Minor Comment RC3-11:

- P.16. l.2: so the wake measurements at 8.4D are influenced by the second turbine. Later in the manuscript, p. 17 l. 2, you mentioned additional

The authors' reply to RC3-11:

Unfortunately, this referee's comment seems to be incomplete. We assume the referee refers to the sentence p.17 l.10, where an additional reduction in velocity due to the presence of the turbine is mentioned. This reduction of about 5 per cent in average is already included in the final data. The authors agree however that it could be stated more clearly. The referred sentence might be somewhat confusing and a clearer formulation will be found for the final manuscript.

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