

Interactive comment on “Ducted wind turbines in yawed flow: A numerical study” by Vinit Dighe et al.

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The authors appreciate the efforts of the reviewer for the valuable comments. The paper has been modified following the reviewer suggestions. Modifications are reported in red in the revised manuscript.

1. **As this was checked experimentally a long time ago, the present paper brings no new results.**

The authors understand the comments of the reviewer. For this reason, the scope of the work has been rewritten to be more clear. The introduction has been expanded to highlight contrasting conclusions found in the literature that justify this study. The most important one is the missing physical explanation behind the different findings reported

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in the literature.

2. Surprisingly, in the results shown in Fig. 6 of the considered submission the DonQi duct experiences a decline in its performance.

The results are consistent with other findings in the literature. For example, looking at the paper of Igra, six out of eight geometries showed insensitivity to yaw, whereas the other two showed a drop in the aerodynamic performance with the yaw angle; the performance drop was observed for the duct-AD models with high duct expansion ratio (>4.5). This point was not very clear in the first submission and has been clarified in the revised manuscript.

3. Until the authors either conduct a three-dimensional flow solution or convince the readers that a two-dimensional flow model can correctly simulate the flow through the considered duct at yaw angles the present results are questionable.

The authors understand the reviewer's concern. For this reason, 3D URANS simulations are added in the numerical validation section when comparing with the results of Igra. Although 3D URANS simulations increase the level of flow description by taking into account the three-dimensional azimuthal effects, the computing cost increases by 4 times while the differences between 2D and 3D results are negligible. This is now clearly shown in the revised manuscript.

Please also note the supplement to this comment:

<https://www.wind-energ-sci-discuss.net/wes-2019-62/wes-2019-62-AC2-supplement.pdf>

Interactive comment on Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2019-62>, 2019.

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