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Interactive comment on "Multi-element ducts for ducted wind turbines: A numerical study" *by* Vinit V. Dighe et al.

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Thank you for your valuable comments, appreciate it. The following are the responses to your comments:

1. The Reynolds number (based on the duct nozzle diameter) covered in Igra's experiments (late 1970's) ranged between 5×10^4 < Re < 3×10^5. For the numerical study (as for panel and RANS iterations), Re $\approx 3.5 \times 10^5$; the value is based on the geometry currently being tested in the wind tunnel experiments.

2. The augmentation factor (for Model B) denoted by r in the paper increases with the increase in yaw angle α; this is rightly interpreted by you. The augmentation factor r for different values of α depends on the shape of the duct and the mutual interaction

of the duct and the rotor. The preliminary results highlight the advantage of DWT configuration in urban flows, where the presence of infrastructure/buildings disturbs the flow uniformity resulting in reduced wind speed. A detailed study on characterization of the aerodynamic performance for DWT in yawed flow was beyond the scope of the current article; this is one of the ongoing work and will be published soon. Comparing the experimental data (Model B) with the numerical results (Figure 5) shows a good validation for augmentation factor r; deviation $\leq$ 4%. The deviation might be due to three-dimensional effects not accounted in the two dimensional simulations.

3. The numerical study exhibit an optimal configuration for the given geometrical parameters (shape and orientation) of the multi-element duct-AD model. The local maximum, however, will be different for different multi-element geometry and the choice of AD (rotor) loading. The near-optimal region is well captured by both the numerical methods. The panel code (single and multi-element duct configuration) is freely available on contacting the authors.

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