

The manuscript is clearly written and presents interesting and generally well-documented results. I recommend the manuscript for submission provided that a few minor changes is made as described below.

L7: Please state that you only investigate positive pressure gradients - it is only for $dp/dx > 0$ that you get deeper deficits and wider wakes (the opposite would be true for $dp/dx < 0$)

L13-17: I think this paragraph is not entirely accurate. Strictly, you cannot predict the power output of a wind farm from the wake effect since there are several other effects that govern the power output. However, it is correct to say that it is essential to model wake effects accurately in order to predict wake losses and therefore also the total power output of a wind farm.

L78: The reference "Shamsoddin and Porte-Agel (2018)" seems to appear two times in your reference list (L382-385) so one of them should be removed.

L79: It is not correct to say inviscid since the work you refer to models a turbulent wake and turbulence inherently involves shear stresses.

L113: The parameters A, B, alpha and beta are related via momentum conservation, but you fit them as independent parameters. Why not make the fit while ensuring that they are still related in the right way? Does your approach imply that your wake profile does not fulfill momentum conservation? It would be good to include a sentence about this in the manuscript.

L180: In the work by Neunaber et al. (2021) the reported drag coefficient includes the drag of the tower. In your work, you have no tower so one should expect a lower drag coefficient than what is reported by Neunaber et al. (2021). Have you measured the drag coefficient to confirm that it is indeed what you expect?

L215: increasing is misspelled

L230-: You could consider writing that some of the differences you observe between disc and cylinder is also reflecting that the cylinder is essentially a 2D flow case while the disk is more 3D. Generally, 2D bodies produce deeper wake than 3D bodies.

L240: Why is wake of the cylinder skewed? Is it lack of statistical convergence or is the flow in the tunnel asymmetric?

Caption figure 5 : "Radial velocity profiles" sounds like it is the radial velocity and not the streamwise velocity. What you mean is something like "Radial (or horizontal) profiles of the (streamwise) velocity."

L270-272: You mention that the best fit is obtained at an angle of 3 degrees and that this is not consistent with the best fit in the empty tunnel. You mention several reasons for this, but it could maybe also be due to uncertainties in the thrust/drag coefficient (which is not measured) or what?

L289-L290: You write that "We remark that for this case, given the limitations of the experimental setup, the case where the wake evolves both across the test and the diffuser sections was not considered". However, Figure 1 indicates something different – namely that you did perform tests with the cylinder in the test section. Am I misunderstanding something?

L305-308: To state that there is no Reynolds number effect is not entirely accurate when looking at Figure 7. I would say that there is a low sensitivity to Reynolds number.