Review of WES 2025-86

The manuscript evaluates the possibility of controlling the induction and wake of an upstream turbine to benefit the power production of a downstream turbine through tip speed ratio control. While the study is interesting and clearly showcases the potential benefits of this strategy, it does not appear to be unaffected from flaws. Firstly, some methodology choices appear questionable and could, in my opinion, lead to errors and biases in the analysis. Secondly, the study is performed without any inflow turbulence, which could significantly affect the results. Finally, the novelty of the study is not fully clear from the introduction, as studies on induction control through TSR adaptation are not unprecedented. Please see more detailed comments in the following:

Changing the operational TSR of the upwind turbine is a way of controlling the induction of the rotor. While authors do acknowledge this, how does this technique compare to "standard" induction control? At the same thrust coefficient, increasing the TSR should result in a decreased tip vortex pitch in the wake with respect to controlling blade pitch, possibly increasing wake instability. I would suggest adding such a discussion in the motivation of the study.

Regarding the motivation: this manuscript is not the first to investigate induction control of wind turbines to reduce wake losses through TSR adaptation. Please motivate the novelty of this study with respect to existing literature more appropriately

If I understand correctly QBlade was used solely to generate figures 1 and 2. Couldn't these be generated also from SOFWA? I understand that it is more practical to use QBlade in an initial phase as it's much less demanding computationally. If you choose to maintain the QBlade data in the manuscript I would at least also include data from the SOFWA simulations in figures 1 and 2.

Very little detail Is reported in the methods section. While the methods mostly seem adequate to me some important details should be clarified:

- Most concerning is inlet placement in the simulations, as it appears to be placed 512 meters upstream the first rotor. This is less than 3D upstream. In my experience this could introduce significant velocity forcing on the rotor, especially at high thrust coefficients, which could alter the results of the study. Where does this choice come from? In this regard, what is the power output of the isolated turbine at it's nominal TSR? How does it compare to QBlade? I would imagine that the same polars and blade definition are used making the two comparable.

- Something doesn't add-up regarding the number stated for the mesh. The caption of figure 3 states that the base grid is 32 meters. L205-215 state that there are 4 refinements each halving the grid size. The smallest cells should therefore be 2 meters not one meter as stated. Indeed, meshing the area shown in figure 3 with 1 meter cells would result in over 100 M elements based on some napkin math, not 21.2 M reported at L214
- Mesh resolution: was a grid sensitivity study performed, is the 2-meter resolution adequate to capture tip-vortex behavior?
- There is an abrupt resolution change at approximately 4D downstream. Most quantities are analyzed at 6D downstream. How does this grid change impact results?
- What velocity sampling algorithm and force distribution method were used?
- In scale-resolving simulations convergence of statistics in time can be an issue, especially when evaluating higher-order statistical moments such at standard deviation (used to compute TKE). Some quantities visually seem unconverged (such as mean velocity @ TSR 6 in Figure 10). This is concerning as the mean should be the first quantity to converge.

Details on how some quantities are post-processed are also sometimes missing. For instance, how was the wake velocity development shown in Figure 4 computed? Is it an are-average? Was a single point taken for the analysis?

On the other hand, quantities are often observed at 2/3 R (such as in Figure 7). Why was this point chosen?

It would be interesting to have an indication of the changes in fatigue and extreme loads resulting from the change in operational strategy. This could allow to better understand the engineering tradeoffs