

Review of the manuscript WES-2024-168 “A scaling methodology for the Hybrid-Lambda Rotor -Characterization and validation in wind tunnel experiments”, by Daniel Ribnitzky, Vlaho Petrovic and Martin Kuhn.

The paper aims to develop a scaling methodology for the Hybrid-Lambda Rotor and validate it through wind tunnel experiments. The Hybrid-Lambda Rotor is designed to increase power output in light winds and limit loads on long, slender rotor blades in strong winds. The rotor concept is scaled to a wind tunnel size (1.8 meters in diameter) and tested under controlled inflow conditions. The experiments involve measuring axial induction in the rotor plane and characterizing the wake using a Laser-Doppler-Anemometer and a hot-wire rig. The results show that the rotor's low-induction design reduces load overshoots in gust events and reveals unique flow patterns, such as increased radial flow components and reduced wake deficits. The study provides valuable insights into the aerodynamic performance of the Hybrid-Lambda Rotor and its potential benefits for offshore wind turbines. The experimental data supports the effectiveness of the rotor design in both light and strong wind conditions, making it a promising concept for future wind energy applications. The manuscript is well-written, and the arguments are well presented. I do not have any major comments regarding the manuscript. Please find some specific comments below:

Page 7, Line 170: First, we ... in the wind tunnel. Could you please also show the angle of attack redistribution for $7.5 \rightarrow 6.7$ and $7.5 \rightarrow 6$ in a plot. In addition, please report the wind speeds for LW to SW transitions for both TSR shifts.

Page 8, line 188: This is the...steady-state assumption. Could you please justify the load level of 10.6 Nm for root bending moment or add a reference?

Page 20, line 430: the Measurements show... outer 30%. Can you please elaborate more on discrepancy between the measurements and the simulation at the outer 30%. Is the tip loss factor affecting outer 30% in the simulations?

Page 25, figure 14: Please check the caption, both left and right, and (a) and (b) are used for the subfigures.

Page 26, figure 16: Please make the caption clearer for indicating top and bottom panels of the subfigures (a) and (b).