Responses to the interactive comment on "Proposal for Generic Characterization of Electrical Test Benches for AC- and HVDC-Connected Wind Power Plants" by Behnam Nouri et al.

Responses to the referee: Dr. Torben Jersch

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Comments reply by authors:

We are delighted to receive your valuable comments, and elaborate and correct our paper by considering them. We are thankful for your precise considerations and time regarding our paper. The following revision has been prepared according to the comments:

1. Referee's comment: "1. For me there is missing a discussion about the dynamic change of impedances, this occurs often by changing the grids topologies and with special regard during UVRT testing with standard inductive voltage dividers."

Authors response:

We would add this comment to the section "4.1.1 Grid Impedance" as an affecting factor in WT dynamic response. Also, it would be valuable to mention this issue for voltage divider-based test facility in the Introduction.

2. Referee's comment: "2. According to the wind torque emulator chapter: The intended use is emulating the wind turbine behavior combined with HiL simulations of the entire wind turbine, as mentioned it can be done either in torque controlled or speed controlled mode. "The motor drive system is used to simulate wind profiles to the shaft of ET's generator" –this is inaccurate. Further information: Neshati, Mohsen, et al. "Hardware-in-the-loop drive train control for realistic emulation of rotor torque in a full-scale wind turbine nacelle test rig." 2016 European Control Conference (ECC). IEEE, 2016."

Authors response:

Thanks for your precise consideration of the content. We reviewed the suggested reference and use of it in our paper as a reference and correcting the content accordingly, would improve our

grasp on the wind torque part of the test bench. The changes will be illustrated in the final version.

3. Referee's comment: "Specific Comments: Figure 3: Naming the grid connected converters as DC Grid Emulator is very unusual, Active front end (AFE) or active rectifier unit (ARU) would be more common"

Authors response:

The idea of using the word "DC grid emulator" was because there is a potential in the converter-based test benches to be controlled as an HVDC converter. This opportunity would make it possible to perform different grid topology tests. In an HVDC system the utility grid connected converter is responsible for "DC grid regulation". However, still, we can change the name to "active rectifier unit (ARU)".

4. Referee's comment: "Line 151: please correct to Fraunhofer IWES, Fraunhofer Institute for Wind Energy Systems Table 1: IWES CGI rating 15 MVA, Wind emulator rating 10 MW - Wind Emulator rating seems to be the motoring power, therefore the unit should be MW. "

Authors response:

Done

5. Referee's comment: "Line 202-203: the drive system is not capable of providing mechanical loads."

Authors response:

Our perception from "mechanical load" was the same as "mechanical torque". We would remove the incorrect part. Thanks for the comment.

Finally, we would like to appreciate your considerations and detailed comments. We hope to revise the paper as such to include all of your valuable comments.