

PSS®E VHVDC2 Update

VHVDC2 Model

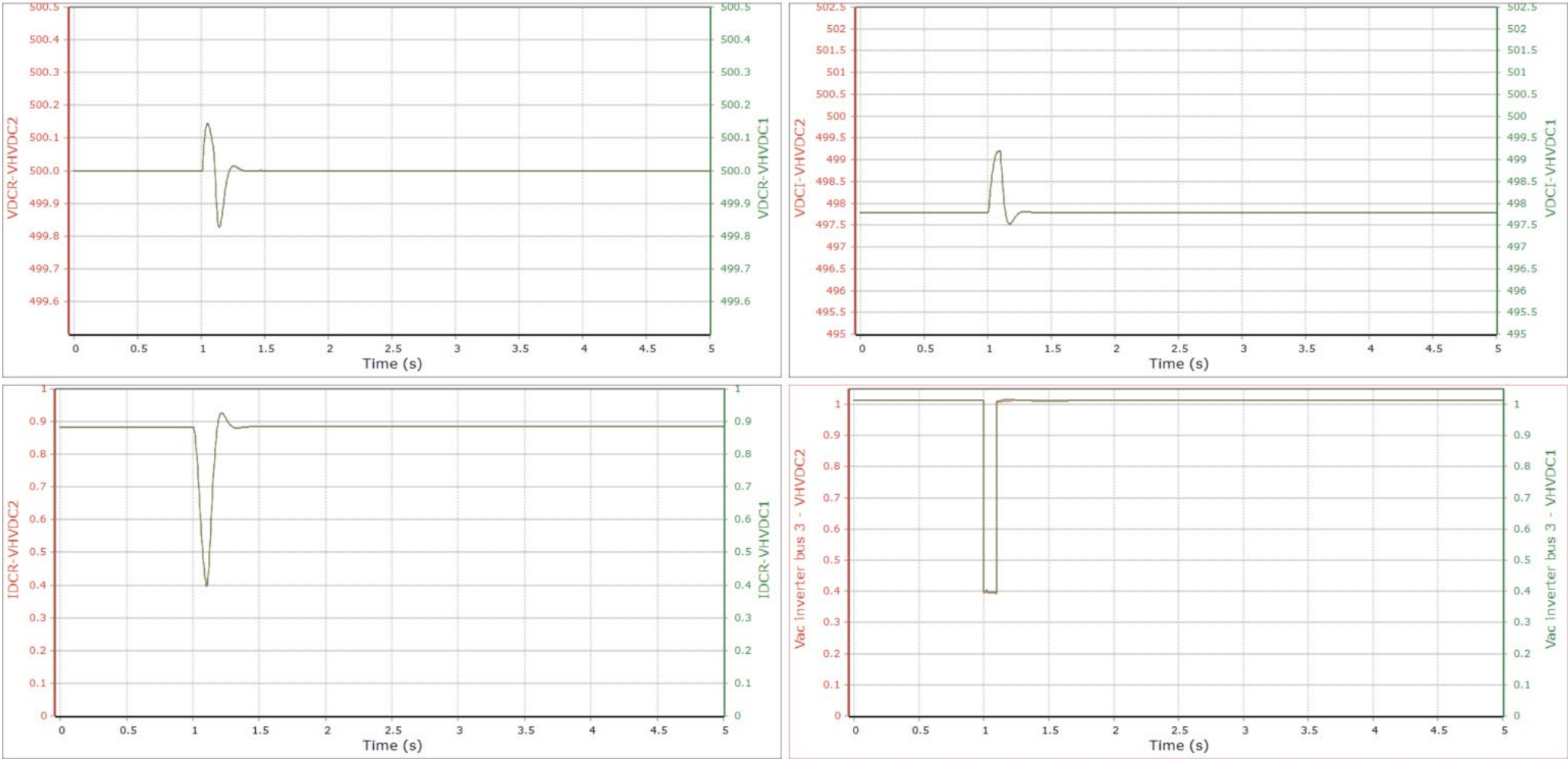
- Latest VHVDC2 Specs provided by WECC: “**PROPOSED CHANGES TO VHVDC1 FOR CREATING VHVDC2 , dated 8/23/2024**”
- Differences between the existing VHVDC1 and the proposed VHVDC2 are as outlined in the VHVDC2 specs document mentioned above
 - New parameter to specify the acMVA base
 - Freezing of states during converter blocking
 - 8 sets of pb-vb curve points (4 sets of pb-vb for rectifier side, and 4 sets for inverter) to allow users to specify the AC converter blocking voltage as a function of dc MW
 - **in my opinion providing 16 extra data points to specify the blocking voltage is an overkill**
 - further, per some OEMs, the converter blocking voltage is not necessarily a function of dc MW
 - ...anyway, we have added that in our model, we can remove it easily if testing shows that these are not needed

PSS®E VHVDC2 Model Test result (using the test system which was used for testing of VHVDC1)

- VHVDC2 model can be parametrically made equivalent to the VHVDC1 model by setting the model constants appropriately
- ran one of the tests to compare VHVDC1 results (which were obtained earlier) against the VHVDC2 results
 - Test involved applying a fault of duration 100 ms, with a fault impedance of $X = 0.0001$ pu at inverter bus 4



PSS®E VHVDC2 Model Test result (using the test system which was used for testing of VHVDC1) – comparison of VHVDC1 versus VHVDC2 test results



PSS®E VHVDC2 Model

- PSS®E VHVDC2 model is available in 36.2 (we found a bug in 36.2, which will be fixed in 36.2.1)
- Note that the PSS®E model is, as of now, not yet exposed to users, but we will expose it as soon as we are officially done testing it and the model is approved by WECC
 - users can however use PSS®E 36.2.1 to test it without the need for a dll.
 - Model documentation will be in PSS®E manuals after the model is officially available

Thank you!

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