

Weak Grid Connection Tuning Considerations of Virtual Synchronous Machine Battery System

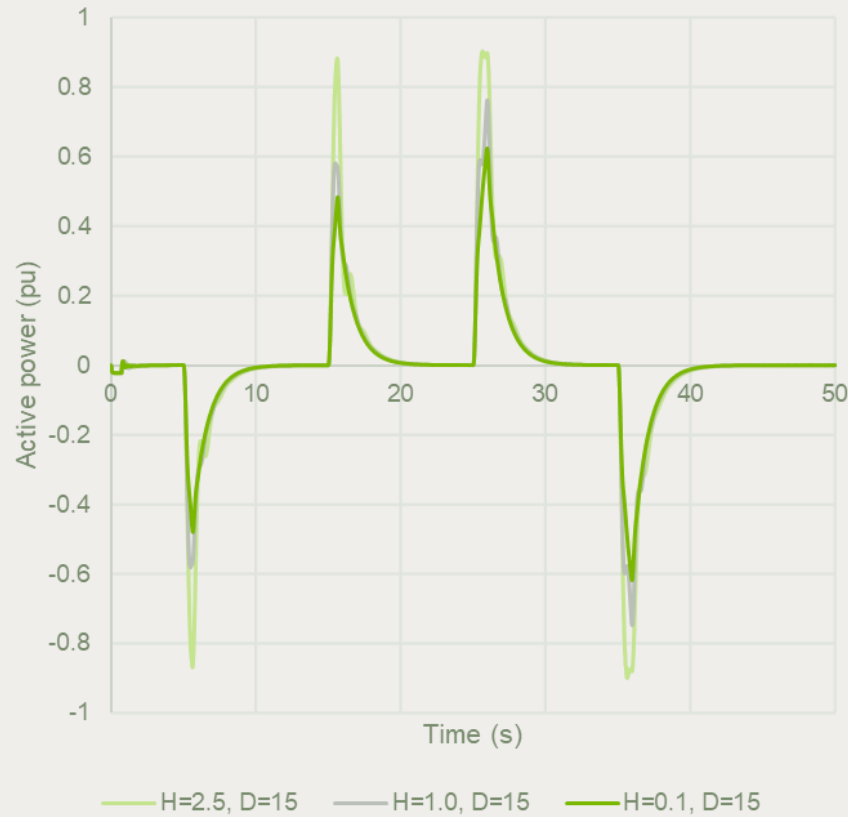
C4 – Power System Technical Performance Preferential Subject 3 – Question 20

What are the key design and control parameters of the battery and associated inverter to optimise the collective provision of system services such as frequency control, inertia, and system strength in a power system planning horizon?

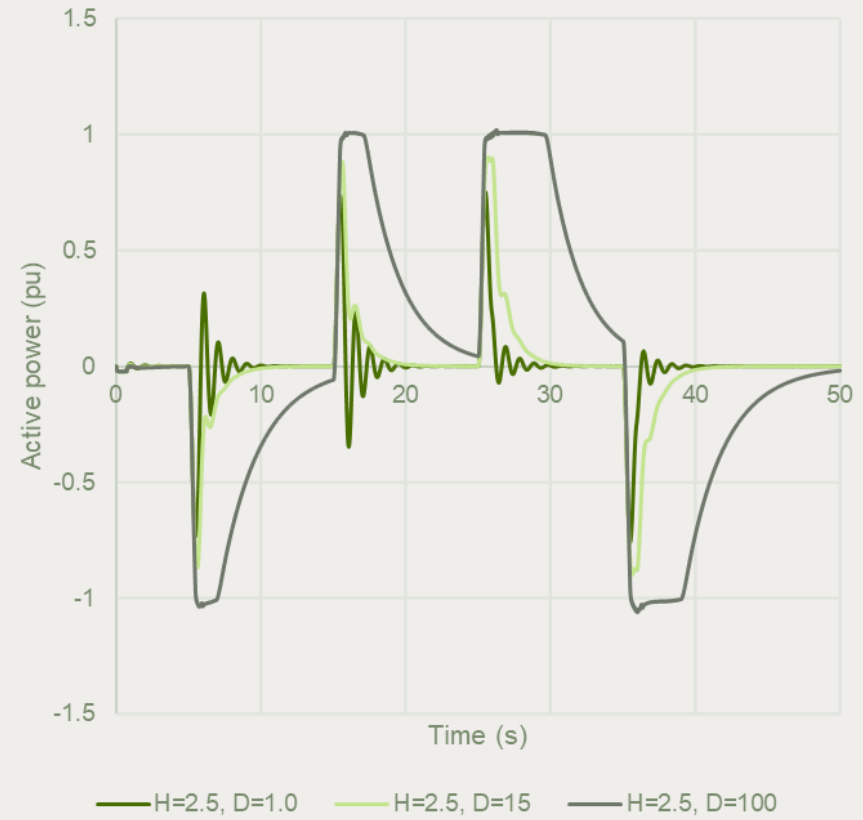
Nathan Crooks – Australia

Impact of inertia and damping constants

Impact of Inertia Constant



Impact of Damping Constant



Group Discussion Meeting

$\pm 2\text{Hz}$ and $\pm 3\text{Hz}$ frequency step change applied to produce figures

Weak grid voltage oscillation damping

- Oscillation injection test of 2 real plants in EMT simulation
- 1 plant recorded susceptibility on the network
- Connection of grid-following inverter damped voltage oscillations
- Tested grid-following both tuned and untuned

