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Stability Assessment of Microgrid with Virtual Synchronous Generator control based Battery Energy storage system

This work examines the efficiency a microgrid for parallel multiple voltage source inverters. One of the inverters is traditional VSI inverter, whilst the other inverter is a VSG based inverter for battery storage. Battery inverter. The stability of a PV-BESS microgrid is a bit more challenging than ordinary microgrid. Rather than finding the ration of the impedances of inverters and terminal impedance, the framework steadiness is surveyed based on a progression of Nyquist graphs each inverter individually after stepwise connecting them to the main grid and passive loads. In this way, the effect of the terminal impedances of Right Half Plane (RHP) zeros on the bases of parallel source-source VSI inverters can be discarded. Nyquist graphs also help to show the relation and effect of terminal impedance and passive components. Nyquist Criterion is used to examine the effect of Voltage controller and current controller in both Islanded and grid-connected conditions. Finally, this work is supported by multiple simulations.

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