Active Voltage Control in Distribution Networks including Distributed Generations using Hardware-In-The-Loop Technique

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Abstract

In weak distribution networks, the amount of distributed generation (DG) is often limited by the voltages limits of the network due to the voltage rise effect. As the penetration level of DG increases, active voltage control methods need to be implemented, which can lower the connection costs in many cases and increase the capacity of connectable DG substantially if used instead of the passive approach. In this paper, operation of a modified active voltage control algorithm is applied on a distribution network in a coordinated manner using hardware-in-the-loop technique. Real time simulations are done to test the data transfer and the reliability of execution of the control algorithm.

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