

DEVELOPMENT, VERIFICATION AND APPLICATION OF A BATTERY INVERTER MODEL FOR THE NETWORK ANALYSIS TOOL *POWERFACTORY*

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ABSTRACT

Battery inverters with adequate controls offer the fundamental possibility to form low-voltage grids, especially island- or micro-grids, which comprise distributed energy resources and renewable energies. A parallel operation of grid-forming inverters is possible with a droop-based control concept.

A suitable model to describe the battery inverter is developed and implemented in the simulation environment of *PowerFactory* from DIGSILENT, which is one professional network analysis tool for investigations of distribution networks. This simulation model is verified against laboratory measurements. The dynamics of island-grids, which are established by distributed battery inverters, are studied in an application with respect to the connection of an asynchronous motor and load sharing between battery inverters.