

ATP Simulations of the Dynamic Behaviour of Grid-Coupled Distributed Power Systems Including Storage Units

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Abstract

Renewable energies are a rapidly growing field of suppliers in the energy grid. Besides plenty of advantages, there are also problems, especially the high fluctuations of electrical energy. These fluctuations may cause e.g. long and short time voltage dips or harmonics in the grid, they affect the power quality or do harm to other equipments. To find solutions to avoid these bad effects, simulations of the dynamic behaviour of the sources and of the loads are necessary.

The paper shows the methods to investigate the behaviour of different energy sources (e.g. wind generator, PV-plant or fuel cell) in the low voltage grid, and which type of energy storage is the optimal solution to hold the power quality and to improve the energy management.