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Grid restoration with future power plant structures

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Abstract;

In case of a blackout of the power grid, every system operator has an individual restoration concept. Nowadays these restoration concepts do not actively consider the influence of distributed generation (DG). From a transmission system operator's (TSO) point of view DG should even be avoided during the grid restoration altogether. Due to the rapid increase of new DG installation and at the same time a decrease of conventional power production, DG has become more and more important in grid operation. Especially in the state of grid restoration it is getting necessary to use the ability of DG to support the frequency, power and voltage control as well as the inertia of the grid.

The project NETZ:KRAFT[1] develops new restoration concepts for future power system structures with the active use of DG. Therefore NETZ:KRAFT pursuing two main approaches: 1. Upgrading existing restoration concepts with an active contribution of DG and 2. the establishment of supply islands to shorten downtime by using DG. NETZ:KRAFT is supported by the federal Ministry for Economic Affairs and Energy. To investigate the integration of DG into grid restoration, we do real time simulation of different restoration scenarios on the DUtrain Training Simulator[2]. We will show which specification can be used in order to support the grid restoration with the active use of DG.

Reference:

[1] <http://forschung-stromnetze.info/en/projects/grid-restoration-with-future-power-plant-structures/>

[2] <http://dutrain.de>