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Application of battery systems to electric power networks

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Abstract

To realize sustainable growth, renewables integration is becoming a key technology for the Electric Power Control. However, it is no good to connect simply lots of renewables to the grid. It may degrade power quality, or it could even cause instability problems. Application of battery systems to electric power networks (power grid) comes to the front for this issue. Recently some practical operations are coming to be available.

This presentation will focus on battery application to power system control, in terms of local approach and system approach.

As a local approach, Advanced PV system, which is the combination of PV and energy storage, is presented. This has several functions such as fluctuation reduction of renewables, time shift operation and some other power system contributions.

Then, some cases of battery systems applied to power grid are presented.

This includes some applications to power system control such as artificial governor characteristics, LFC and Voltage control etc. Power grid and electro-mobility is also presented a little bit considering Vehicle for Grid (V4G).