

Solar Energy South Africa

Power type microgrid reactive power compensation



Overview

What compensation methods are used in microgrids?

UPFC for combined conventional and DG grid compensation , UPQC for power quality improvement , , Kalman filter in WECS for VAR control, Battery storage along with micro-wind energy generation system (μ WEGS) for voltage support were presented for various compensation methods in microgrids.

What are power quality problems in a microgrid?

Power quality problems in a microgrid are of a large variety such as voltage harmonics, voltage sags, voltage swells, voltage unbalance, current harmonics, reactive power compensation (RPC), current unbalance and circulation of neutral currents, impulse transients, and interruptions .

What is reactive power compensation?

The power system operates on AC system and most of the loads used in our daily life demand reactive power. Thus reactive power or VAR compensation is characterized as the administration of reactive energy to enhance the performance of the AC system. The issue of reactive power compensation is seen from two ways: load and voltage support.

Why does a microgrid need reactive power support?

In islanded operating condition, the microgrid has to maintain the reactive power balance independently due to the absence of an infinite bus. The firmly coupled generation and utilization along with the presence of non-dispatchable intermittent renewable power sources require reactive power support.

How can Smart Grid technology help a microgrid?

They can inject or absorb reactive power, ensuring voltage stability and compensating for imbalances within microgrids. Integrating smart grid technologies and communication systems enables the real-time supervision

and regulation of reactive power assets.

Why does a microgrid have a reactive power balance?

In both the cases, the reactive power that flows through the microgrid has to be effectively controlled and compensated. In islanded operating condition, the microgrid has to maintain the reactive power balance independently due to the absence of an infinite bus.

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Stability analysis and reactive power compensation issue in a microgrid ...

Request PDF , On Nov 15, 2014, Asit Mohanty and others published Stability analysis and reactive power compensation issue in a microgrid with a DFIG based WECS , Find, read and ...

Coordinated control strategy of reactive power compensation ...

As a new type of distribution transformer, the flexible distribution transformer has been proposed for a re-topology and control strategy on the related research side. (2019), a partition ...



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