

Can a bidirectional DC-AC converter topology achieve composite transmission in microgrids?

In this paper, a bidirectional DC-AC converter topology is proposed to achieve the composite transmission of power and signals in microgrids. Since the transmitted signals are modulated by power switches of converters and integrated into the currents, the cost of signal couplers can be saved and the circuit structure can be simplified.

Should communication-based control methods be used in MG?

As mentioned, communication-based control methods can provide a global-/sub-optimal solution that cannot be achieved by communication-free control methods (decentralized methods). However, employing communication infrastructure in an MG can cause some serious challenges, such as a high establishment cost, low reliability, high complexity, etc.

Can a non-centralized droop-based control system improve power sharing in isolated dcmg?

In [1], P. Ghalebani and M. Niasati presented a non-centralized droop-based control method with an LBcom system for achieving a more accurate power sharing and also a decreased voltage deviation in isolated DCMGs.

What are the advantages of MGS in a smart grid?

In total, to realize a smart grid, the integration of MGs into a power system is regarded as one of the essential technologies providing advantages such as enhanced stability, increased efficiency, higher RES integration, a continuous supply of loads in islanded mode, and so forth, compared to conventional distribution systems.

How should MGS be integrated into the power grid?

To take advantage of MGs, their integration into the power grid should be performed based on proper and robust engineering to avoid possible adverse effects on the power grid, such as power quality, control, reliability, and problems.

Can LBcom be used in control methods of MGS?

There are several challenges and open problems in using LBcom in control methods of MGs that should be investigated and solved by introducing efficient control algorithms, especially in the tertiary control layer and also the entire hierarchical control structure.

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The purpose of this project is to develop a new communication solution for microgrid in the Energy laboratory (Sulkowski laboratory) at UiT - The Arctic University of Norway (Campus Narvik). ...

The effective operation of distributed energy sources relies significantly on the communication systems employed in microgrids. This article explores the fundamental communication requirements, structures, and ...

4 ???&#0183; A microgrid constitutes an integral component of the modern smart grid. Microgrid (MG) integrates several distributed energy sources and loads that behave with the grid as a single ...

Using microgrids has several benefits such as improvement in efficiency and reliability of the power system, reduction in load congestion [2], increase in power generation ...

Reducing the dependence of microgrid upon the communication system and realizing the efficient control of multiple distributed generation of the microgrid are problems that need to be solved...

Real-message exchanges are captured with and without these security features to validate secure operation of standard communication solution. ... Future work may focus on investigating the performance of the proposed ...

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