Medium voltage microgrid application demonstration

Are microgrids a viable solution for integrating distributed energy resources?
Microgrids offer a viable solutionfor integrating Distributed Energy Resources (DERs),including in particular variable and unpredictable renewable energy sources,low-voltage and medium-voltage into distribution networks.
What is a microgrid & how does it work?
Most of the existing microgrids are related to isolated or grid-connected systems. In particular, isolated microgrids can offer a reliable energy supply in small remote areas where the development or the expansion of power grids turns out to be technically and/or economically unfeasible.
How to improve microgrid power quality?
As can be noted, depending on the microgrid size, one can choose to use decentralized controllers rather than centralized ones, and to implement control methods aimed at improving the microgrid power quality rather than that aimed at flattening the voltage profile.
What is microgrid metering system?
The metering system is constituted by remote I/O modulesand meters capable to carry out from devices belonging to the Layer 0 all information required to monitor the operating state of the microgrid (i.e. voltage,frequency,power factor,active and reactive powers for each microgrid components and their status).

The two demonstration cases were selected for the design of microgrid systems and business models. They both rely on integrating a high share of renewable energy sources in medium and low voltage ...

Executive summary The world"s energy systems are undergoing a revolution with the mass uptake of carbon-neutral energy sources and increasing use of electricity-based energy to ...

The first medium-voltage microgrid demonstration project in Brazil, with the participation of Chinese partners, was officially put into operation on November 21 local time, marking a new ...

His current research interests include control of power converters, medium voltage converters, power converter for grid applications, modular multi-level converters, and microgrid control.

The key enabler for flexible DERs and ASMG is a power converter based power conditioning system (PCS) as the interface between DERs/microgrids and the medium voltage (MV) ...

This article focuses on the development of a model predictive control (MPC) for a modular multilevel converter (MMC)-based medium voltage microgrid. The developed MPC is aimed to ...

Abstract--This paper presents the application of a new design of a multiport, modular, medium-voltage power electronics hub (M3PE-HUB) in a microgrid setting. The M3PE-HUB system ...

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POWER ELECTRONIC CONVERTERS FOR MEDIUM VOLTAGE APPLICATIONS Smart SiC Converters for Grid Support High voltage SiC devices will enable transformerless MV ...

Abstract--The validation of GFM control strategies through simulation and hardware demonstration is important before their large-scale deployments in the real grid. Considering the ...

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