

By using appropriate methods, PV inverters can autonomously regulate reactive power output in a distributed manner to improve voltage profile in networks. In this paper, a ...

Centralized photovoltaic (PV) grid-connected inverters (GCIs) based on double-split transformers have been widely used in large-scale desert PV plants. However, due to the large fluctuation ...

Due to increasing installation of photovoltaic (PV) units, reactive power compensation from PV inverters contributes significantly to Volt/Var control (VVC) for active ...

PV smart inverter"s capability in providing reactive power service. In Ref. [26], a decentralized reactive power control method through a linear decision rule has been presented where the ...

Based on the inverter module, the concept of a clustering power system approach was introduced in [22] to provide voltage support in grid. Ref. [23] proposes a voltage zonal ...

Gao et al. (2019) proposed the voltage control strategy of a photovoltaic power station inverter and the calculation method of active/reactive power adjustment of the inverter, which solved the problem of voltage over ...

To simplify the control of photovoltaic (PV) inverters, the ADNs are initially divided into several distributed autonomous sub-networks based on the electrical distance of reactive voltage sensitivity. ... simulations are ...

A hierarchical decentralised voltage control with a comprehensive distributed PV and DN traditional device control strategy based on the optimal network partition is obtained. ...

A novel network partition approach based on a community detection algorithm is presented to realize zonal voltage control in a shorter control response time using the minimum amount of ...

With the integration of highly penetrative distributed photovoltaics into the distribution network, the imbalance between PV generation and load power becomes increasingly apparent, resulting in ...

For a grid-connected PV system, inverters are the crucial part required to convert dc power from solar arrays to ac power transported into the power grid. The control performance and stability of inverters severely affect ...

2 Power plant control design 2.1 PV plant description. Although there is no clear categorisation on PV plants size according to the installed capacity, the ones considered in ...

The penetration of photovoltaics (PVs) has been increasing in active distribution networks (ADN), which leads to severe voltage violation problems. PV inverters can provide fast and flexible ...

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As early as 2009, scholars from the international community emphasized the significant role of photovoltaic inverters in voltage control. They compared two voltage control methods: active power limitation and reactive ...

The optimal combination of photovoltaic set points was determined via a multi-objective optimal power flow problem to improve voltage magnitude and unbalance while minimising network loss and generation cost ...

It consists of multiple PV strings, dc-dc converters and a central grid-connected inverter. In this study, a dc-dc boost converter is used in each PV string and a 3L-NPC ...

chronous machines and provides a detailed design procedure of this control structure for photovoltaic (PV) inverter applications. Additionally, the stability of the connection of the ...

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