

Transition representation used to model the PV inverters dispatch problem as a MDP as in [19]. Notice that  $\mathbf{S}^{\text{PV}}_{i,t} = \mathbf{S}^{\text{PV}}_{i,t-1} + \mathbf{1}$  is the result of the distribution system ...

optimal power flow (OPF), photovoltaic systems, sparsity, voltage regulation. I. INTRODUCTION THE PROLIFERATION of residential-scale photovoltaic (PV) systems has highlighted unique ...

Recently, we proposed an optimal inverter dispatch (OID) framework [11] where the subset of critical PV-inverters that most strongly impact network performance objectives are identified ...

fact, smart inverters can also curtail solar PV systems' active power generation to regulate feeder voltage [17], [18]. An optimization-based centralized approach is developed to determine both ...

A systematic method for determining the active- and reactive-power set points for PV inverters in residential systems is proposed in this paper, with the objective of optimizing the operation of ...

The general overall structure of a MG consists of DG units, energy storage system (ESS), local loads, and supervisory controller (SC). Figure 1 shows an example for a MG structure, which ...

the active- and reactive-power set points for PV inverters in residential systems is proposed in this paper, with the objective of optimizing the operation of the distribution feeder and ensuring ...

Active power of PV/load  $P_{ij,t}$ , Reactive power of PV/CBs/load  $Q_{ij,t}$ , Active/reactive power flow of branch  $ij$   $P_{ij,t}$ ,  $Q_{ij,t}$ , Status of OLTC and  $k$ th capacitor at CB tap  $c_{k,t}$ , Maximum operation ...

THE proliferation of residential-scale photovoltaic (PV) systems has highlighted unique challenges and concerns in the operation and control of low-voltage distribution networks. Secondary ...

An alternative is to prevent new customers from installing solar PV systems, but this is against the common goal of increasing renewable energy generation. This paper demonstrates that solar ...

energy may affect the selection of the critical PV inverters and also the final optimal objective value. In order to address this issue, a two-stage robust centralized-optimal dispatch model is ...

A systematic and unified optimal inverter dispatch (OID) framework is proposed in this paper, with the goal of facilitating high PV penetration in existing distribution networks. The OID task ...

seconds, to fine-tuning PV inverters with droop controllers, and in minutes, and hours to coordinate on-load tap changers and capacitor banks (CBs) and, PV inverters, respectively. ...

2. Optimal Dispatch of PV Inverters The optimal dispatch problem of PV inverters in unbalanced distribution networks can be modeled using the NLP formulation given by (1)-(13). The ...

However, the intermittent nature of solar PV energy may affect the selection of the critical PV inverters and also the final optimal objective value. In order to address this issue, a two-stage ...

Section4presents the optimal dispatch problem of PV inverters as an MDPs and the proposed RL approach, while Section5presents the simulation results used to validate the proposed ...

This document offers a comprehensive analysis of the relationship between the grid and PV systems, beginning with the relationship between the circuit and PV cell, which ...

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