NKOSITHANDILEB SOLAR

10MWh Mobile Energy Storage Container for Emergency Command

Overview

Do mobile energy storage units provide power resilience?

Upon the arrival of mobile energy storage units, these resources collectively provide power support to critical loads in the distribution system. This scenario demonstrates superior resilience recovery capability in the initial stages of power resilience compared to Scenario II.

Can deep reinforcement learning improve emergency mobile energy storage allocation?

Existing methods for emergency mobile energy storage (EMES) allocation often struggle to balance resilience enhancement and economic feasibility under large-scale disasters effectively. To address these challenges, this paper presents an advanced optimization framework for EMES deployment based on multi-agent Deep Reinforcement Learning (DRL).

Do Emes and microgrids provide power support under extreme events?

To assess the resilience and economic benefits of the proposed allocation strategy, this study analyzes the power support provided by different combinations of EMES and microgrids for distribution networks under extreme events. Four scenarios are investigated.

What happens if a microgrid doesn't have mobile energy storage dispatch?

In Scenario I, without mobile energy storage dispatch, the islanded microgrid solely supplies its own loads, resulting in no resilience benefits for load nodes and NEB and AR. Scenario II shows positive AR, however, it still results in negative NEB for some distribution network load nodes. Additionally, the scenario is marked by high costs for C E.

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