

For the multi-objective scheduling problem of smart microgrids, a collaborative optimization framework based on deep reinforcement learning (DRL) and digital twins is proposed to ...

As DG technology continues to mature, the cost of new energy generation continues to decline, and energy storage devices become increasingly sophisticated, the potential for DG ...

In this study, the following dispatch strategies were used: (i) load following, (ii) cycle charging, (iii) generator order, and (iv) combination dispatch. The CO₂ emissions, net present cost (NPC), and ...

Local communities generating their own power could become 90% energy self-sufficient, with potential to be fully self-reliant in the future, according to a Dutch study.

Renewables-based microgrids and peer-to-peer (P2P) energy trading can boost energy security as they are self-sufficient and run independent of large grids.

Dutch cyclists rode down the world's first bike path made entirely of discarded plastic this week, in a move aimed at reducing the millions of tonnes wasted every year.

Microgrids can step in when the main electricity grid fails. And as they can be powered by renewables, they are a sustainable and affordable option, too.

This was accomplished by proposing a novel two-stage robust optimization dispatch model that consists of an upper-level robust dispatching model for the multi-microgrid system and a lower ...

Battery energy storage systems can address the challenge of intermittent renewable energy. But innovative financial models are needed to encourage deployment.

Pacific small island states, contributing only 0.03% of global emissions, are leading with ambitious renewable energy projects and net-zero goals by 2050.

Based on the aforementioned research, this paper constructs a microgrid power dispatch model that includes wind energy, solar energy, gas, diesel generation, and energy storage units.

Abstract: This paper presents an improved deep reinforcement learning (DRL) algorithm for solving the optimal dispatch of microgrids under uncertainties.

In order to maximize the utilization of renewable energy, enhance its utilization efficiency, and reduce the carbon emission of power supply, this paper first proposes a real-time collaborative ...

Tennessee's Chattanooga Metropolitan Airport recently became the first U.S. airport powered by 100 percent solar energy. Started in 2010, the \$10 million microgrid project includes a ...

Additionally, we develop a two-stage stochastic programming extension of an existing microgrid design and dispatch optimization model to obtain uncertainty-informed and climate-resilient ...

The need for energy security, along with reliable, affordable, low-carbon power, has never been greater. AI is helping to meet rising demand and support this goal.

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