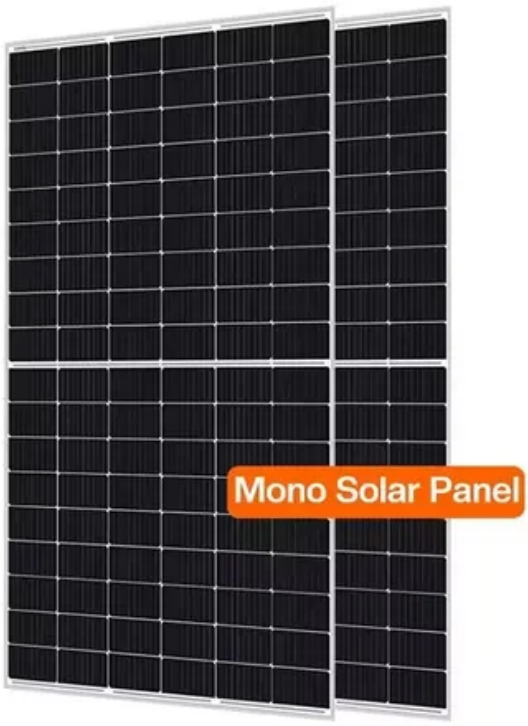
PIENAAR ENERGY (PTY) LTD

Smart Microgrid Application Technology Paper



Overview

This review critically examines the integration of Artificial Intelligence (AI) and Deep Reinforcement Learning (DRL) into smart microgrid platforms, focusing on their role in optimizing sustainable energy management. The transition to sustainable and intelligent energy systems has intensified the development of smart microgrids, which offer decentralized, resilient, and efficient power solutions. Microgrids (MGs) provide a promising solution by enabling localized control over energy. This special issue belongs to the section “ Energy Science and Technology “. Additionally, they reduce the load on the utility grid.

Smart Microgrid Application Technology Paper

(PDF) AI-Driven Microgrids: A Review of Enabling

The paper also discusses microgrids' structural and functional design and highlights the need for interdisciplinary collaboration between power system engineers, data scientists, and control

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Microgrid and Smart Grid: Latest Advances and Prospect

This Special Issue invites contributions from researchers, industry experts, and policymakers that explore the latest developments, breakthroughs, and future directions in microgrid and smart grid ...

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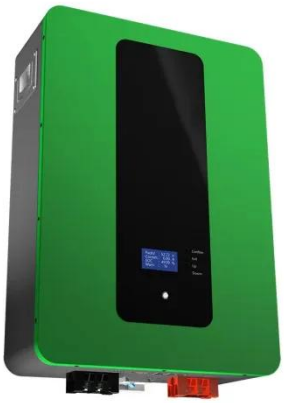

A comprehensive review of microgrid challenges in

Microgrid technology integration at the load level has been the main focus of recent research in the field of microgrids. The conventional power grids are now obsolete since it is difficult ...

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Microgrids: A review of technologies, key drivers, and outstanding

While this paper focuses on microgrids in areas with existing centralized electrical grids, it is important to remember that they also present many advantages to rural and remote communities in ...

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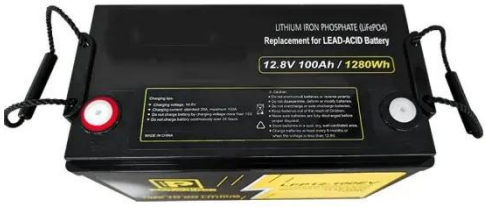

(PDF) Advancements in Microgrid Technologies: Insights from ...

This paper explores recent advancements in microgrid technologies, emphasizing renewable energy integration, fault tolerance, and control optimization.

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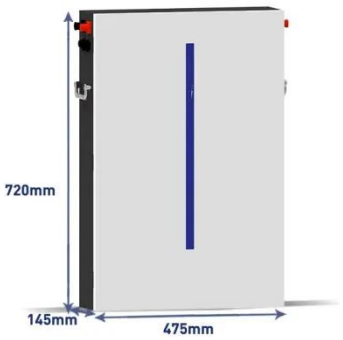
A Reinforcement Learning Approach for Optimal Control in ...

Microgrids (MGs) provide a promising solution by enabling localized control over energy generation, storage, and distribution. This paper presents a novel reinforcement learning (RL)-based ...



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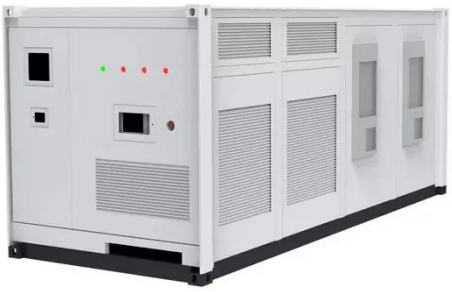
Review of Smart Microgrid Platform Integrating AI and Deep



This paper synthesizes recent advancements and applications of DRL algorithms such as Deep Q-Networks (DQN), Deep Deterministic Policy Gradient (DDPG), and Proximal Policy Optimization ...

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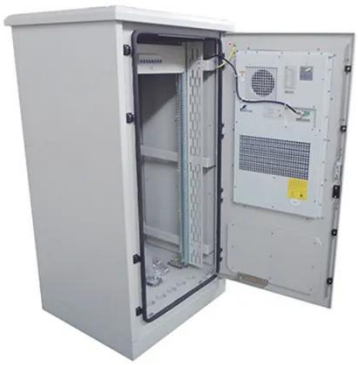
Advancements and Challenges in Microgrid Technology: A ...

This paper presents a systematic literature review encompassing recent advancements in MG technology. It delves into MG architecture, diverse control objectives, associated ...



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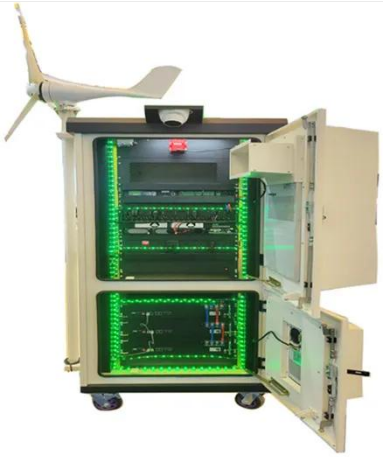

A Comprehensive Review of Microgrid Technologies and Applications

As our reliance on traditional power grids continues to increase, the risk of blackouts and energy shortages becomes more imminent. However, a microgrid system,

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Microgrids: A review, outstanding issues and future trends

A microgrid, regarded as one of the cornerstones of the future smart grid, uses distributed generations and information technology to create a widely distributed automated energy delivery ...

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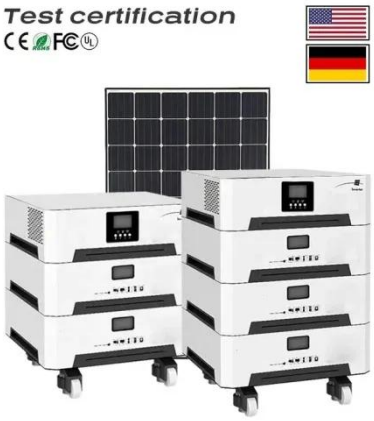

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