

## PIENAAR ENERGY (PTY) LTD

# The first offshore smart microgrid



IP65/IP55 OUTDOOR CABINET

ALUMINUM

OUTDOOR ENERGY STORAGE CABINET

OUTDOOR EQUIPMENT CABINET



## Overview

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**Project structure** The Dongao Island megawatt-level independent smart microgrid project was China's first megawatt-level microgrid system with complementary wind, solar, diesel, and energy storage, and was also China's first commercial-run island smart microgrid system. Pratas Island, also known as the Dongsha Island, in the north of the South China Sea, is located 850 kilometers (530 miles) southwest of Taipei, Taiwan. A key challenge in such models is accurately accounting for battery degradation costs. To address this, the REMO. To achieve this objective, the offshore oil and gas industry has embraced innovative energy systems, including microgrids that seamlessly integrate renewable energy sources like floating wind turbines. A microgrid modeling approach that optimizes the mix of renewable sources and energy storage systems for future scenarios. **Conclusion** This work introduced an integrated energy management system for an offshore microgrid comprising three petroleum platforms, a floating wind farm, and a setup for green hydrogen production and storage.

## The first offshore smart microgrid

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### Multi-objective optimal scheduling of islands considering offshore

We propose a power supply model for offshore islands considering hydrogen production from offshore wind power. The proposed model minimizes operational and carbon emission costs ...

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## The first offshore island smart microgrid

This paper covers the basic design and simulation study performed on the smart micro grid in UAE's offshore island called Al Futaisi island. The capacity of all distributed energy resources



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### Towards a low-carbon future for offshore oil and gas industry: A smart

This study presents a comprehensive investigation into an integrated energy management system for an offshore microgrid, encompassing three platforms and a floating wind ...

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## A robust planning model for offshore microgrid considering tidal power

In this paper, a two-stage robust planning model for offshore microgrid incorporated with modeling of tidal power generation and seawater desalination units is proposed.

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## Optimal Microgrid Sizing of Offshore Renewable Energy Sources ...

This paper introduces a Renewable Energy Microgrid Optimizer (REMO), a model that determines the optimal mix of renewable generation resources integrated into an offshore renewable energy ...

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## Smart Grid Integration for Offshore Oil Platforms

Integrating smart grid technology with renewable energy sources like floating wind turbines could significantly reduce these emissions and enhance the sustainability of offshore oil and gas operations.

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## Will Water-Powered Microgrids Work in the Real World? , NLR



Deploying early-stage marine energy technologies on remote, islanded microgrids is fraught with risk for communities and developers. Mitigating such risk is the focus of the first webinar ...

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## Towards a low-carbon future for offshore oil and gas industry: A ...

Decarbonizing offshore oil and gas fields is crucial in the global fight against climate change. To achieve this objective, the offshore oil and gas industry has embraced innovative energy



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**200kWh  
Battery Cluster**

## Enhancing Islanded Power Systems: Microgrid Modeling and

A microgrid modeling approach that optimizes the mix of renewable sources and energy storage systems for future scenarios considering strategic time horizons (2030, 2040, and 2050) was ...

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## China s offshore microgrid

Project structure The Dongao Island megawatt-level independent smart microgrid project was China's first megawatt-level microgrid system with complementary wind, solar, diesel, and energy storage, ...

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