

How can industrial park achieve low-carbon development?

At the production level, controlling the production structure of EIMIs reduces the energy demand. Industrial Park A will gradually achieve low-carbon development using clean energy as a substitute for fossil fuels. Table 7. Fossil energy consumption of Industrial Park A in different scenarios: tce. Table 8.

Can P2G technology save energy in industrial park?

Therefore, this study aims to realize the comprehensive utilization of P2G technology, demand response, and carbon capture and storage means, optimize the operation of the energy system in the industrial park, and achieve the win-win research goals of saving energy, reducing carbon emissions, and gaining economic benefits.

What is a low-carbon integrated energy system?

A low-carbon integrated energy system refers to a multi-energy system that actively or passively reduces carbon emissions through various methods, including integrating carbon capture technologies, increasing the proportion of non-carbon energies, and flexibly utilizing resources across the energy supply, grid, load, and storage sectors.

What is the low-carbon development model for industrial parks?

The low-carbon development model for industrial parks developed in this study consists of four main modules, namely, "Analysis of current situation," "Trend extrapolation," "Optimization," and "Uncertainty analysis." Finally, policy recommendations were provided based on scenario comparisons.

What is a park-level low-carbon integrated energy collaborative plan?

In the context of a park-level low-carbon integrated energy collaborative plan, the energy supply and demand characteristics of the park should be analyzed, and carbon quantification methods should be used to consider various zero-carbon measures.

Can industrial parks accommodate high shares of renewables?

The proposed approach successfully coordinates the economic and environmental performance of the integrated energy system. This study provides an effective scheduling strategy for industrial parks to accommodate high shares of renewables while meeting hydrogen needs and carbon reduction targets. 1.

Introduction

Park integrated energy system (PIES) is considered as crucial support for achieving energy conservation, emissions reduction and energy structures transformation, since it enables the coupled utilization of multiple ...

5 ???· Industrial decarbonization is a global challenge requiring collective efforts, with the chemical

industry, as a significant emitter, bearing substantial responsibility. The introduction ...

The integrated energy system at the park level, renowned for its diverse energy complementarity and environmentally friendly attributes, serves as a crucial ...

To address the increasing hydrogen demand and carbon emissions of industrial parks, this paper proposes an integrated energy system dispatch strategy considering multi ...

The Industrial Decarbonisation Research and Innovation Centre (IDRIC) brings together academics from across the UK to conduct high-impact multidisciplinary research in support of ...

ducing carbon emissions in the industrial park, this paper introduces a low-carbon integrated en-ergy system that incorporates distributed renewable and clean energy sources. Mathematical mod-els are formulated for the source-grid-load-storage components of this low-carbon integrated en-ergy system.

This article proposed a framework containing energy, economic and environmental analysis methods coupled with an optimal model and discussed the roadmap to ...

Key words: Low carbon industrial park, CO₂ emissions, STIRPAT model Highlights: China's national low-carbon industrial parks pilot program is analyzed. ... heat integration and carbon capture, utilization and storage (CCUS), and renewable energy in industrial parks. Another popular approach is to discuss the carbon accounting and carbon

A zero-carbon industrial park carbon-neutral model (Fig. 1) has been proposed in [24]: firstly, control carbon sources by reducing energy consumption and emissions, optimizing ...

To tackle the dual challenges of balancing energy supply and demand while reducing carbon emissions in the industrial park, this paper introduces a low-carbon integrated energy system that ...

This model adopts power-to-gas technology to produce green hydrogen, replacing a portion of gray hydrogen and incorporates a carbon capture system to effectively ...

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