Energy Internet and Dual Carbon Targets



Overview

(PDF) Evaluation and Promotion Mechanism of Urban Energy Internet. This paper analyzes the requirements of energy Internet development and the shortcomin.

Key Takeaways

The Energy Internet is a key enabler for achieving the Dual Carbon targets by optimizing energy supply, improving efficiency, and integrating renewable energy into urban and national energy systems.Concept of Energy Internet

The Energy Internet refers to a smart, interconnected energy system that integrates electricity, heat, gas, and renewable energy sources through advanced information and communication technologies. It enables real-time monitoring, demand-response management, and efficient energy distribution, addressing imbalances between energy supply and demand while reducing waste and emissions . By connecting distributed energy resources, storage systems, and consumers, the Energy Internet supports a flexible and resilient energy infrastructure.

Role in Achieving Dual Carbon Targets

China's Dual Carbon targets aim for carbon peaking by 2030 and carbon neutrality by 2060 . The Energy Internet contributes to these goals in several ways:

• Optimizing energy structure: By integrating renewable energy sources such as solar and wind, the Energy Internet reduces reliance on fossil fuels and lowers carbon intensity .

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• Enhancing energy efficiency: Smart grids and real-time energy management reduce unnecessary consumption and improve utilization of clean energy .

• Supporting urban energy transformation: Cities, as major energy consumers and carbon emitters, benefit from Energy Internet systems that coordinate distributed generation, storage, and consumption to achieve local carbon reduction .

• Facilitating policy implementation: The Energy Internet provides data and analytics to guide low-carbon policies, investment decisions, and urban planning, ensuring that carbon peaking and neutrality targets are met efficiently .

Development Mechanisms and Policy Recommendations

To promote Energy Internet development under the Dual Carbon framework, research suggests:

• Establishing evaluation systems to measure urban energy Internet performance, including energy efficiency, carbon reduction, and renewable integration .

• Encouraging technological innovation in smart grids, energy storage, and distributed energy management to accelerate low-carbon transitions .

• Implementing supportive policies such as incentives for renewable energy adoption, carbon pricing, and urban energy planning aligned with carbon targets .

• Promoting public-private partnerships to leverage investment and expertise in building resilient, low-carbon energy networks .

Strategic Implications

The Energy Internet not only addresses energy security and efficiency but also serves as a strategic tool for national carbon reduction. By enabling a coordinated, data-driven approach to energy management, it lays the foundation for sustainable urban development and supports China's broader climate goals . Cities adopting Energy Internet solutions can achieve carbon peaking earlier, optimize energy consumption patterns, and transition toward a carbon-neutral economy by 2060 .

Article Content

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Under the "double carbon" strategy, as the main source of carbon dioxide emissions, the energy industry is the main

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Dual carbon goals call for systematic actions

The policy framework of the 15th Five-Year Plan will continue to adhere to the core vision of the dual carbon goals.

Research on future trends of electricity consumption based on ...

The emergence of novel factors, such as the energy Internet and electricity supply-side reform within the context of

Study of Energy Transition Paths and the Impact of Carbon ...

China has promulgated several policies and adopted various reform measures to achieve a comprehensive energy

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To meet these goals, China needs to build a new energy system and accelerate the green and low-carbon

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