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Economic Development Strategies and Path Optimization for New Energy in the Power Sector from the Perspective of "Dual Carbon" Goals

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Abstract: Faced with the triple constraints of ensuring energy security, pursuing a green transition, and maintaining economic viability, the steady development of the new energy economy is not only a key pathway for the power sector to achieve its "dual carbon" goals, but also a strategic choice for power companies to break through development bottlenecks and enhance their core competitiveness. However, power enterprises currently face numerous challenges in the process of developing the new energy economy, including the dilemma of absorbing increased renewable energy without corresponding profit growth and grid integration difficulties; the separation of energy storage dispatch rights from revenue rights; technical bottlenecks and system security risks; and persistently falling electricity prices coupled with structural deficiencies. To address these issues, this paper proposes six major strategies: smart distribution grids, restructuring energy storage business models, overcoming key technological bottlenecks, optimizing market mechanisms, implementing consumption responsibilities, and integrated and convergent development. These strategies aim to promote the efficient and sustainable development of the new energy economy within the power sector. This research provides theoretical support and practical guidance for power enterprises to overcome development challenges and achieve green, high-quality development against the backdrop of low-carbon transformation.

Keywords: "Dual Carbon" Goals; Power Enterprises; New Energy Economy; Low-Carbon Transition; Business Model

1. Introduction

The electricity sector is one of the main contributors to global energy consumption and CO_2emissions. According to the International Energy Agency (IEA), CO_2emissions from the global electricity sector are reached approximately 13.9 billion tons in 2025, accounting for more than 40% of total energy-related CO_2 emissions worldwide. In China, CO_2emissions from the electricity sector account for about 42% of CO_2emissions from the energy sector, making it the largest source of CO_2emissions in the country. With the establishment of China's "dual carbon" goals, the electricity sector faces profound changes.

In recent years, a series of policy documents have been issued at the national level, outlining a clear institutional framework for the transition to a low-carbon economy in the electricity sector. In 2024, the "Notice on Deepening the Reform of Feed-in Tariffs for Renewable Energy Power Generation and Promoting the High-Quality Development of Renewable Energy" was issued, marking the beginning of an era of full competition for renewable energy in the electricity market. This notice explicitly requires that, in principle, all electricity generated by renewable energy projects be supplied to the electricity market, with feed-in tariffs determined by market mechanisms. The 2025 "Action Plan for Accelerating the Introduction of a New Electricity System" places greater emphasis on key issues such as the smartification of distribution grids, the integration of power generation, transmission grids, loads, and energy storage, and the commercial operation of energy storage. Against this policy and industrial context, how to effectively coordinate and balance the three core constraints of ensuring supply security, advancing green transition, and improving economic efficiency has emerged as a critical and pressing practical challenge that power companies must tackle in their strategic development.

At the academic level, the international research community has focused predominantly on four strands: first, system flexibility [1] and mechanisms for renewable energy integration [2]; second, transformation pathways for thermal power [3] and multi-energy complementation systems [4]; third, electricity market design [5], investigating how multi-market coordination affects revenue security for renewable energy generators; and fourth, coordination mechanisms between electricity and carbon markets [6], exploring the effective transmission of carbon price signals to guide electricity sector investment and operation.

However, existing research still needs to be further developed in terms of key mechanisms, including balancing dispatch and revenue rights, resolving the commercial challenges facing energy storage, and establishing a diversified value-based electricity pricing system. In particular, during the implementation of policies, practical issues such as the failure of new energy to generate additional profits despite increased capacity, insufficient distribution grid capacity, and the disconnect between energy storage dispatch and revenue have not yet been adequately addressed.

Based on this, this paper will, under the dual perspectives of policy orientation and theoretical research, conduct an in-depth analysis of the integration challenges, institutional contradictions, and technical bottlenecks faced by Chinese power enterprises in the pursuit of the “dual carbon” goals. It will systematically propose strategic pathways for the development of the new energy economy and, through typical case studies, provide actionable practical references for the industry’s green transformation.

2. Current State of Energy Consumption and Carbon Emissions in the Power Sector

Carbon emissions from the power sector account for approximately 42% of total carbon emissions from energy-related activities, making it the largest source of carbon emissions in the country. Carbon emissions in the power sector mainly stem from three stages: power generation, transmission and distribution, and end-use electricity consumption. During the power generation phase, the combustion of fossil fuels at coal-fired and gas-fired power plants is the primary source of carbon emissions, with coal-fired power generation accounting for the vast majority of these emissions; In the transmission and distribution stage, although direct emissions are relatively low, energy losses from line losses indirectly raise the carbon footprint on the generation side. At the electricity consumption stage, the amount of electricity consumed by end-use sectors such as industry, buildings, and transportation determines the amount of electricity that power generators must supply, as well as the corresponding carbon dioxide emissions.

In addition, carbon dioxide emissions from the electricity sector also depend on factors such as the availability of energy resources, hourly fluctuations in electricity supply and demand, and weather conditions. For example, in North China and Northwest China, where coal resources are abundant, coal-fired power plants account for a high proportion of the power generation mix, resulting in a higher carbon emission intensity per unit of electricity generated; whereas in Southwest China, which is rich in hydropower resources, the high share of clean energy leads to a significant reduction in carbon emission intensity. During seasonal peak electricity demand periods, such as when cooling demand increases in summer and heating demand rises in winter, the surge in electricity load often requires more thermal power units to generate peak-load electricity, leading to a temporary increase in carbon emissions.

3. Major Challenges Facing Electric Power Enterprises in the Development of the New Energy Economy

3.1 The Challenge of Absorbing Increased Generation without Increasing Profits and the Difficulties of Grid Connection

In recent years, occurrences of negative electricity prices and power curtailment have become increasingly frequent in electricity markets worldwide [7]. Taking Shandong Province as an example, China’s first instance of negative prices in an electricity spot market appeared in Shandong in 2019, with a clearing price of–RMB 0.04 per kWh. In 2023, the Shandong electricity spot market recorded negative prices for 21 consecutive hours, and during the 2024 May Day holiday, negative prices persisted for 22 consecutive hours. At the same time, power rationing policies have directly led to a decline in the number of available operating hours for power generation companies, preventing them from feeding their full output into the grid; as a result, the substantial fixed-asset investments made earlier cannot be effectively recouped through electricity sales. Consequently, it has become challenging for generators to adequately recover their large upfront fixed-asset investments through electricity sales.

There are three primary causes for the renewed prevalence of wind and solar power curtailment. First, it is an inevitable outcome of the rapid expansion of installed renewable capacity in recent years. During the period of the "14th Five-Year Plan," the cumulative installed capacity of wind and solar power plants nationwide exceeded 1.8 billion kilowatts, surpassing coal-fired power generation and becoming the largest source of energy. Second, the impact of the nationwide market introduction of new energy sources. Due to the combined requirements of market restructuring and ensuring grid safety, certain projects already in operation in the new energy sector could not be incorporated into the tariff structure or power supply volumes envisaged by the relevant mechanism. Third, the difficulties associated with the slowdown in economic growth. In 2025, the average operating hours for power generation facilities with a capacity of 6,000 kW or more nationwide fell to 3,119 hours, a decrease of 312 hours compared to the previous year.

Problems related to grid connection, caused by insufficient distribution network capacity, are also becoming increasingly apparent. While projects involving "self-consumption and the feed-in of surplus electricity from decentralized renewable energy sources" are rapidly increasing, the capacity of the distribution grid optimized by Smart Grid technologies, as well as coordination mechanisms between the power grid and microgrids, remain a challenge [8]. Delays in the construction of the main grid, distribution networks, and interprovincial transmission lines have led to a "mismatch between generation and grid infrastructure." As a result, renewable energy hubs are completed but unable to transmit or absorb the electricity they generate, creating a "last-mile" bottleneck in grid integration.

3.2 Separation of Energy Storage Dispatch Authority and Revenue Rights

Currently, in many regions, power grids treat energy storage systems paired with renewable energy projects as either standalone storage or grid-side storage for centralized dispatch. Control over the charging and discharging of energy storage systems is highly centralized within the power grid, preventing power generation companies from independently determining the optimal operating strategy for energy storage based on real-time electricity price signals, their own curtailment situations, or output forecasts. This has led to the awkward situation of "building but not using"—where some energy storage projects are constructed solely to meet policy requirements but have low actual utilization rates—or "being used for others' purposes," where energy storage resources are centrally dispatched by the system, yet their value is not fully reflected back to the investors.

In some provinces, new energy power generation projects and their co-located energy storage are even required to connect to two different dispatching systems, and are managed and assessed as two independent entities, further severing the organic linkage between power sources and energy storage. This mechanism, which separates dispatch rights from ownership, and cost-bearing from revenue acquisition, largely prevents energy storage from effectively serving the core needs of the investing entities, leading to a breakdown in the economic logic of investment.

In addition, the lack of a sound pricing mechanism for ancillary services such as frequency regulation and peak shaving [9] means that the value of rapid regulation provided by energy storage is not fully reflected in the returns. The difficulty in obtaining a reasonable return on the multifaceted value of energy storage has dampened companies' enthusiasm for investment.

3.3 Technical Bottlenecks and System Security Risks

The current core technological bottlenecks are primarily evident in three areas. First, key low-carbon technologies still require breakthroughs, such as carbon capture (CCUS) technology in the low-carbon retrofitting of coal-fired power plants, This technology currently faces challenges including high energy consumption, high costs, and the need to verify the long-term safety of carbon storage, and has been identified as one of the top ten engineering challenges [10]. At the same time, the first batch of large-scale wind and solar power units is about to reach the end of their operational life, yet a comprehensive system of efficient and cost-effective green recycling and reuse technologies has not yet been established. Another issue is the system's limited flexibility. The high volatility of renewable energy sources requires thermal power plants to perform deep peak-shaving and rapid load adjustments, but this leads to increased equipment wear and reduced efficiency, posing "uncharted territory"-level challenges for materials and control systems. Finally, there is a lack of precision in carbon management. The absence of carbon emission tracing technologies with high spatiotemporal resolution makes it difficult to accurately calculate the carbon footprint of "every kilowatt-hour" of electricity, hindering the international recognition of product carbon labels.

System safety risks, such as power system stability, have emerged alongside these developments and are equally significant. As the share of renewable energy increases and a large number of power electronic devices are connected to the grid, system inertia and immunity to disturbances decrease, making the system prone to sub-synchronous and super-synchronous oscillations as well as voltage stability issues. In particular, at the sending end of ultra-high-voltage DC transmission lines, a fault could result in the large-scale disconnection of renewable energy sources from the grid. The acceleration of digital transformation has also expanded the attack surface, placing higher demands on the security of dispatch systems and the vast array of grid-connected equipment.

3.4 Persistently Falling Electricity Prices and Structural Flaws

Since the issuance of the "Notice on Deepening Market-Oriented Reform of Feed-in Tariffs for New Energy and Promoting High-Quality Development of New Energy," the clearing prices for new energy sources participating in market-based transactions have generally been lower than the benchmark coal-fired electricity price, and have fluctuated sharply. In provinces such as Hubei, Liaoning, Jiangxi, Guangdong, and Qinghai, the mechanism-based electricity prices for photovoltaic power have fallen by 20% compared to the benchmark coal-fired electricity price; in Gansu and Heilongjiang, the decline has been 30%; and in Shandong, the drop has reached as much as 43%. In provinces with high photovoltaic (PV) penetration rates, electricity prices during peak generation periods have repeatedly hit new lows. In 2025, during the peak PV output period from 11:00 a.m. to 4:00 p.m. in provinces such as Shanxi and Guangxi, the average spot market price was generally below 0.1 yuan per kilowatt-hour. The overall decline in revenue is primarily due to the fact that the decrease in electricity and production sales prices outweighed the increase in revenue resulting from improved production efficiency driven by technological innovations and cost reductions.

Structural flaws in the electricity pricing mechanism have also exacerbated the profitability challenges facing the power sector. Photovoltaic (PV) power generation is characterized by high initial investment and low operating costs, with initial investment accounting for over 90% of total costs and operating costs accounting for less than 10%; in contrast, initial investment for coal-fired power accounts for less than 30% of total costs, but fuel costs account for a high proportion and are highly volatile. This mechanism places PV at a disadvantage in the competitive power market. At the same time, the carbon reduction value of PV power generation has not been fully quantified or reflected in the current green certificate trading and carbon market systems, and the green premium has not been effectively passed on through the electricity pricing mechanism.

4. Analysis of New Energy Development Strategies for Electric Power Enterprises in the Context of the "Dual Carbon" Goals

4.1 Smart Distribution Networks: Ensuring Uninterrupted Power Delivery over the Last Mile

To address the conflict between the rapid development of distributed renewable energy and the insufficient capacity of distribution grids, we must strengthen the development of power grid and energy storage systems, accelerate the construction of ultra-high-voltage transmission lines connecting different provinces and regions as well as the upgrading of distribution grids, expand the scale of energy transmission to other regions, enhance cross-regional resource allocation capabilities, alleviate the pressure on renewable energy consumption in regions with abundant renewable resources, and effectively resolve the challenges of renewable energy integration and system stability.

Launch a plan to modernize distribution grids, enhance the grid's capacity to accommodate distributed energy and its resilience, and address shortcomings in "last-mile" areas such as smart metering and control. At the same time, use "zero-carbon industrial parks" as a catalyst to promote the deep integration of new energy with industry, encourage innovative models such as "direct connection of green power" and "integration of generation, grid, load, and storage," build a new grid platform that coordinates main, distribution, and microgrids, and promote the coordinated development of smart microgrids and the main grid.

4.2 Integrating Dispatch Authority and Revenue Rights to Reshape the Energy Storage Business Model

Strengthen the organic linkage between energy storage dispatch rights and revenue entitlements. Promote business model innovation for shared energy storage and establish a revenue-sharing mechanism based on contribution levels. Drawing on the experience of the Distributed New Energy Shared Energy Storage Cooperation Alliance at the distribution substation level, the proportional allocation of energy storage value and investment returns can be realized through indicators such as stability contribution and deviation regulation contribution. Meanwhile, the ancillary service pricing mechanism should be refined to fully reflect the value of energy storage's fast regulation capability in frequency regulation and peak-shaving revenues. By exploring a coordinated "source-grid-load-storage" dispatch mechanism, power generation enterprises can be granted certain autonomous dispatch rights over energy storage, allowing them to optimize operational strategies in response to electricity price signals. Furthermore, energy storage should be encouraged to fully participate in the medium- and long-term electricity market, the spot market, and the ancillary service market, so as to further diversify and broaden its revenue streams.

4.3 Overcoming Technical Bottlenecks and Strengthening the Foundation of System Security

Faced with the significant challenge of restructuring grid stability posed by the high penetration of renewable energy, it is essential to strengthen grid-forming technology innovation, leverage the active support capabilities of power electronic equipment, and develop intelligent forecasting platforms for renewable energy across multiple temporal and spatial scales to enhance the power grid's ability to detect and anticipate fluctuations in renewable energy. We must establish a "resilient, trustworthy, and effectively coordinated" cybersecurity defense system and strengthen layered defense mechanisms. At the same time, we must overcome key technological bottlenecks in the transition to a low-carbon economy, accelerate the commercial application of carbon capture technologies, and develop a technical framework for the decommissioning, recycling, and reuse of wind and solar power generation units. We must also promote the deep integration of artificial intelligence with the power system and utilize tools such as the "Yudian" simulation large-scale model to enhance system analysis and control capabilities.

4.4 Optimize Market Mechanisms and Establish a Diversified Value-Based Electricity Pricing System

To break the current deadlock where increased renewable energy generation does not translate into increased profits, it is essential to improve the electricity volume and pricing mechanism based on variable-cost competition. First, during the market transition period, revenue protection mechanisms should be refined by establishing a benchmark for renewable energy generation that incorporates reasonable costs and green value, thereby preventing disorderly price declines from undermining the industry chain. At the operational level, enterprises should deepen direct green power procurement and long-term contractual partnerships, actively participate in green certificate trading, carbon market transactions, and CCER development, and fully integrate into spot, medium- and long-term, and ancillary service markets. By fully leveraging electricity pricing policies to diversify revenue streams, they can enhance the economic benefits of renewable energy projects.

Enterprises should also accelerate business transformation and upgrading, extend from traditional electricity sales to comprehensive energy services, provide integrated solutions for green electricity, energy storage, energy conservation and carbon management, expand the scope of electricity substitution, rely on the carbon asset management system to carry out carbon accounting, carbon consulting and carbon financial services, and explore the value of green assets. At the same time, we will leverage digital and smart technologies to reduce costs and improve efficiency; we will use artificial intelligence (IA) to enhance the accuracy of production forecasts and the smart management of wind and solar power plants, and we will roll out digital operations and maintenance methods to reduce operating costs. Furthermore, we will strengthen coordination across the entire industrial chain to engage in the joint development of core technologies, and we will actively promote collaboration with green financial products such as green loans, carbon bonds, and REITs to reduce financing costs and firmly support the sustainable development of the new energy economy.

4.5 Fulfill Consumption Responsibilities and Expand the Application of Green Electricity

For traditional coal-fired power, comprehensively advance the coordinated transformation of energy conservation and carbon reduction, heating, and flexibility, and promote the transition of coal-fired power to a balancing power source. Address revenue shortfalls by participating in capacity markets and ancillary services, while simultaneously conducting pilot applications of low-carbon technologies to reduce carbon emissions from traditional power sources.

Streamline the mechanism for assigning green power consumption responsibilities, extend the assessment of consumption responsibility weights to energy-consuming industries, gradually expand the scope of entities responsible for consumption to include large industrial and commercial users, and establish a robust compliance oversight mechanism to ensure a baseline level of green power consumption. Set minimum green power consumption targets for each industry and raise them annually; establish "benchmark values" and "incentive values," and provide incentives such as financing and tax breaks to enterprises that exceed their targets. Promote the gradual shift in renewable energy consumption assessments from a single utilization rate indicator to a comprehensive evaluation system, and establish a full-cycle monitoring and early warning mechanism covering "planning—construction—grid connection—consumption." At the same time, innovate green power application models, create exemplary scenarios in areas such as zero-carbon industrial parks and green transportation, and aggregate distributed resources through virtual power plants to participate in market-based transactions.

4.6 Promote Integrated and Convergent Development to Create a Second Growth Curve

Guided by the "dual carbon" goals, the key to driving economic growth for power companies lies in developing new business models and promoting the multidimensional, integrated development of new energy sources alongside the integrated and convergent development of multiple industries. On the one hand, companies should leverage regional resource endowments to accelerate the development of large-scale centralized wind and solar power bases and offshore wind clusters, while simultaneously advancing the multi-site development of distributed solar, mining-area solar, and rural renewable energy. By optimizing the power generation mix through multi-energy complementary models—such as wind-solar-thermal-storage and wind-solar-hydro-storage—they can provide a stable and green power foundation for emerging business models. Building on this foundation, we will actively promote the deep integration of "generation, transmission, consumption, and storage," explore direct connection models between computing centers and renewable energy sources, and resolve the dual challenges of green power consumption and computing energy consumption; we will innovate virtual power plant (VPP) operational models, extensively aggregate resources such as distributed solar power, energy storage, and adjustable loads, routinely participate in demand response and power market transactions, and enhance system flexibility and economic benefits. At the same time, we will proactively plan green hydrogen projects across the entire industrial chain, integrating all stages of "production, storage, transmission, refueling, and consumption" in the process of "generating green hydrogen from green electricity for industrial use." We will jointly develop low-carbon technologies such as solar thermal power generation and CCUS (carbon capture and utilization), and in the future, transition from isolated power generation systems to integrated energy service systems that span multiple sectors. This will ensure energy security while creating new drivers of economic growth.

5. Case Studies

5.1 Smart Distribution Networks Bridge the "Last Mile"

The Yunnan Zhaotong Power Supply Bureau of the Southern Power Grid actively promotes the intelligent transformation and upgrading of the distribution grid. Through the commissioning of the "edge OCS2.0" system, the first of the Southern Power Grid to undertake the main modulation function of the distribution network, it has effectively opened up the "last kilometer" of new energy consumption. In the "Cloud Edge Integration" intelligent distribution network project of Zhaotong, Yunnan, the system adopts an intelligent monitoring platform based on the cloud edge integration architecture, deeply integrates containerization, distributed storage and cloud technology, and builds an intelligent scheduling system with elastic capacity expansion. The system can not only realize second-level failover and automatic recovery when the equipment is abnormal, to ensure zero interruption of monitoring services, but also break through the restrictions of traditional architecture, and support distributed photovoltaics, charging piles and other massive new energy entities plug-and-play and fast access. After the project was put into operation, Zhaotong Power Supply Bureau further built a new operation and maintenance system with human-machine collaboration, introduced distribution network energized operation robots, and transferred operators from high altitude to ground safety areas. Labor costs were reduced by 40% and operation efficiency was improved by 50%, realizing the transformation of distribution network power supply from manual to intelligent. The implementation of these projects has not only significantly improved the efficiency of power grid operation and the reliability of power supply, but also built a solid technical foundation for the high-quality development of the new energy industry.

5.2 Technological Innovation Strengthens the Foundation of System Security

Southern Power Grid Guizhou Grid Company actively layouts the field of network-based energy storage technology. By investing in the construction of the first network-based energy storage demonstration project in Guizhou Province, it has successfully filled the gap in the application of network-based energy storage technology in the province. In the Zhenlong energy storage power station project in Zhenfeng County, Qianxinan Prefecture, Guizhou, the project adopts grid-based energy storage technology with active support ability. Unlike the traditional network-based new energy power plants that can only passively follow the power grid, the grid-based energy storage power station can achieve independent stability of voltage and frequency adjustment without relying on external signals. At the moment when the network fluctuates, take the initiative to exert force and suppress the fluctuation. The total installed capacity of the project is 200 MWh, which is equivalent to a large charging treasure. It can store or release 200,000 kWh per hour, which can meet the daily electricity needs of nearly 100,000 families at the same time. After commissioning, the power station can achieve an average annual charging energy storage of 43.86 GWh and discharge power supply of 37.39 GWh, which significantly enhances the local new energy consumption capacity. The implementation of these projects not only provides solid technical support for the construction of Guizhou's new power system, but also provides important technical reference for the subsequent promotion and application of network-type current transformers in photovoltaic inverters, reactive voltage regulation devices and other fields.

5.3 Innovative Business Models Unlock Diverse Revenue Streams

Quzhou Xin'an Energy Co., Ltd. actively laid out the new energy storage field. By investing in the construction of Quzhou's first independent large-scale shared energy storage power station on the grid side, it has successfully explored the business innovation model of shared energy storage. In the "Smart Green Power" shared energy storage demonstration project in Quzhou, Zhejiang Province, the project breaks the limitations of traditional single-user-side energy storage and is positioned as a public regulation resource for the whole regional power grid. The energy storage power station can not only become an energy reservoir when the electricity consumption is low, but also efficiently store excess electricity generated by clean energy sources such as wind power and photovoltaics. Quantity, avoid energy waste; Quickly release stored electricity to the power grid at the peak of electricity consumption, provide flexible and reliable peak FM services, and effectively solve the pain points of unbalanced power supply during summer and winter. The total investment of the project is 170 million yuan, and the construction scale is 80MW/160MWh. After commissioning, it is expected that the annual dispatching power will reach 48 million kWh, with an annual revenue of more than 10 million yuan, which can reduce carbon dioxide emissions by about 20,700 tons per year. This project achieves a simultaneous leap in ecological, economic, and social benefits, providing valuable practical experience for the high-quality development of the new energy storage industry.

6. Conclusion

The "dual carbon" goals present an opportunity for the power industry to reinvent itself, while also demanding systemic changes to corporate development models. Faced with multiple challenges—including difficulties in integrating renewable energy, institutional conflicts, technical bottlenecks, and declining profits—electricity companies must work in concert to optimize their power generation mix, upgrade grid intelligence, innovate business models, improve market mechanisms, and promote cross-industry integration, improving market mechanisms, and promoting cross-industry integration. This analysis demonstrates that by enhancing the smart capacity of distribution grids, restructuring energy storage operation mechanisms to unify dispatch authority with revenue rights, overcoming bottlenecks in grid-forming technologies and key low-carbon technologies, and refining an electricity pricing system that reflects diverse values—while actively promoting the development of new business models such as zero-carbon industrial parks, green hydrogen, and the synergy between computing and power—power companies can transform green constraints into new competitive advantages. Practical examples such as the "cloud-grid integration" smart distribution network in Zhaotong, Yunnan; the grid-integrated energy storage project in Zhenlong, Guizhou; and the "Smart Green Power" shared energy storage initiative in Quzhou fully demonstrate that the dual-engine approach of technological innovation and model transformation is an effective path to overcoming current challenges and achieving a win-win outcome that balances ecological and economic benefits. Looking ahead, the green transformation of the power sector faces a long and arduous journey. Only by adhering to a systemic approach and balancing security of supply with low-carbon development can we ensure steady and sustained progress in building a new power system, thereby providing robust and reliable green momentum for high-quality economic and social development.

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