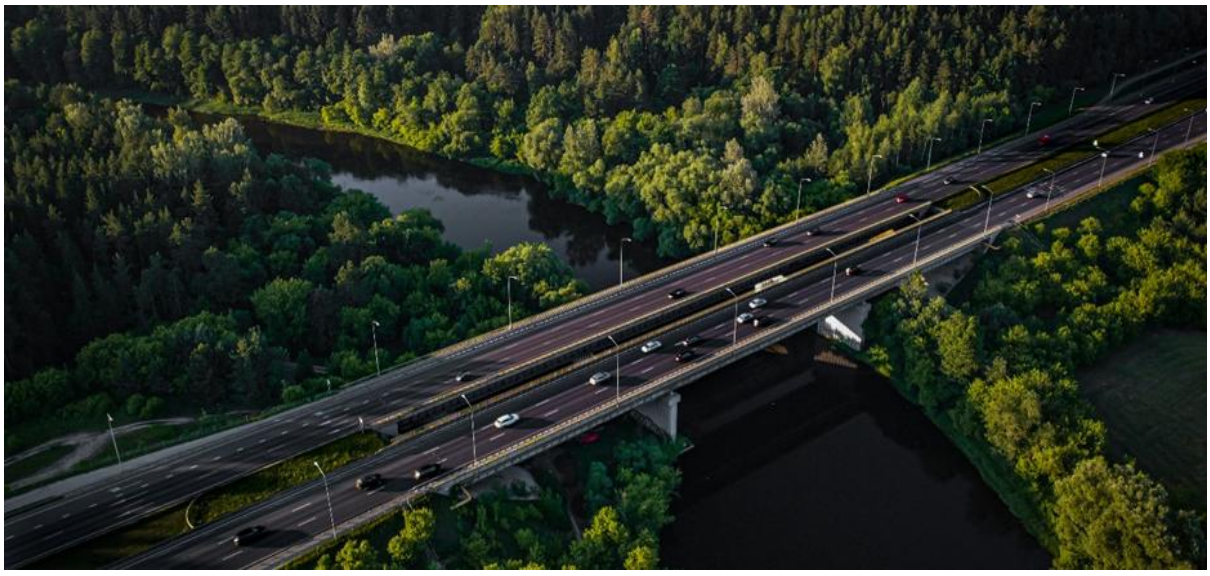
China Carbon Neutrality Tracker Newsletter



The bimonthly *China Carbon Neutrality Tracker (CCNT)* newsletter offers the latest updates on climate actions across both national and subnational levels in China. It highlights key developments, including policy progress, new regulations, pilot programs, and local innovations that support the country's climate goals.

TOP NEWS:

- China promotes the full-chain advancement of hydrogen energy through cross-sectoral actions.
- China kicks off a new round of promotion for new energy vehicles in rural areas.

IN FOCUS:

- China initiates Green Power Direct Connection as an innovative solution to grid constraints and corporate decarbonization needs.

SUBNATIONAL UPDATES:

- China's subnational carbon footprint system building shows progress.

Top News

Decoding Policy – Expert Views on New Policies

China promotes the full-chain advancement of hydrogen energy through cross-sectoral actions.

The *Notice for Hydrogen Energy Pilot Projects in the Energy Sector*, launched by the National Energy Administration, outlines a plan to explore different pathways for developing the hydrogen energy industry and advancing the entire hydrogen value chain.

Through project-based and region-based pilot programs, it aims to accelerate the deployment of cutting-edge hydrogen technologies and equipment, the high-standard construction of support infrastructure, the improvement of integrated utilization efficiency, and the orderly, regulated development of the industry. The work will focus on four key areas—hydrogen **production, storage and transportation, application**, and common **support systems**—covering a total of eleven pilot directions.

According to the *China Hydrogen Energy Development Report (2025)* released in April, China launched 35 new renewable hydrogen projects in 2024, increasing annual production capacity by approximately 48,000 tons—a year-on-year increase of about 62%. China now accounts for roughly 51% of the world's total operational capacity for such projects. These projects primarily support transportation, industry, heating, power generation, energy storage, and research.

Power utilities are driving forward hydrogen production and utilization. A 100-kilowatt electric-hydrogen hybrid DC system, developed by State Grid Jiangsu Electric Power Research Institute, can store excess renewable energy as hydrogen and convert it back to electricity when needed. According to Yuan Xiaodong, the institute's senior technical director, the next step is "expanding to large-scale applications like industrial parks and microgrids, while exploring viable business models for hydrogen in grid peak-shaving and long-duration storage."

China kicks off a new round of promotion for new energy vehicles in rural areas.

The NDRC, together with the National Energy Administration, issued the *Notice for Promoting New Energy Vehicles in Rural Areas in 2025*. The *Notice* encourages the adoption of new energy vehicles through activities such as exhibitions and test drives. Enterprises providing after-sales maintenance services, battery charging and swapping services, as well as financial services such as insurance and credit, will be encouraged to expand into rural areas.

Efforts will also be made to promote the **application of vehicle-to-grid (V2G) technology** in rural areas. A suite of policies will accompany the rollout, including reductions in vehicle purchase tax and vessel tax, trade-in programs for old vehicles, and improvements to charging and swapping infrastructure at the county level.

Zhu Junyu, research director at the Advanced Manufacturing Research Center of CCID Research Institute (MIIT), noted that with relatively low vehicle ownership in rural China, there's significant potential for electrification, especially among price-sensitive consumers seeking affordable mini EVs. This year's campaign includes 124 models, such as dual-purpose pickup trucks and light trucks designed for both personal and business use in rural areas, offering more options across income levels.

China is enhancing the market-based allocation of resources and environmental factors.

The *Opinions on Improving the Market-Based Allocation System for Resources and Environmental Factors*, issued by the General Office of the CPC Central Committee and the State Council, set the following goals for 2027:

- Trading systems for **carbon emission rights** and **water use rights** will be improved.
- A well-functioning **pollutant discharge rights** trading system will be established.
- Market-based mechanisms for **energy conservation** will be further refined.
- The trading market for resources and environmental factors will become more dynamic, with a more robust **price formation mechanism**.

The document outlines four key tasks: improving the quota allocation system for resources and environmental factors, optimizing the scope of their trading, refining the trading systems, and enhancing the foundational capacities for such trading activities.

Prior to the release of the *Opinions*, China had already initiated pilot programs for tradable permits covering pollution discharge, water use, carbon emissions, and energy consumption at national or provincial levels. These efforts aimed to address the tension between economic growth and constraints on resources, the environment, and climate. However, as researchers from the Energy Research Institute of the National Development and Reform Commission (NDRC) have noted, these programs remain experimental, with varying scopes, levels of market maturity, and operational efficiency.

Liu Huixin, Executive Director of International Institute of Green Finance, Central University of Finance and Economics (IIGF), argues that the new *Opinions* address three critical challenges in China's resource and environmental market reforms: clarifying the roles of markets and government, improving coordination across different mechanisms, and defining the respective responsibilities of national and local systems.

Policy Snapshot – Policy Highlights at a Glance

China promotes green and low-carbon standards for industrial and information technology sectors.

The General Office of the Ministry of Industry and Information Technology issued the *Implementation Plan for Advancing Green and Low-Carbon Standardization in the Industrial and Information Technology Sectors*. The Plan sets goals as follows:

- By 2027, formulate or revise over 100 green and low-carbon development standards.
- By 2030, strengthen the foundation for green and low-carbon standardization in the industrial and information technology sectors. Standardization will play a prominent role in supporting green and low-carbon industrial development.

The Plan emphasizes accelerating the development of urgently needed standards for **product carbon footprint accounting** and comprehensive **resource utilization**, innovating standards in areas such as the **new energy industry chain**, **key technologies breakthroughs**, and **digital-green synergy**, as well as upgrading standards related to industrial **energy conservation, water efficiency, and green manufacturing.**

China strengthens its national standards system to address climate change.

The National Standards Development Plan for Climate Change Response, published by the Ministry of Ecology and Environment and other departments, outlines the establishment of a three-tiered standard system, consisting of three primary subsystems: **foundational capacity support** standards, **climate change mitigation** standards, and **climate change adaptation** standards. These are further divided into 15 secondary categories and 45 tertiary categories.

In Focus: Green Power Direct Connection

As renewable energy capacity expands, grid integration has grown more challenging. Meanwhile, companies face mounting pressure to decarbonize—from China's "Dual Carbon" targets to international policies like the EU's Carbon Border Adjustment Mechanism (CBAM). In response, China released the Notice for the Orderly Development of Green Power Direct Connection, drawing on pilot programs in Inner Mongolia and Xinjiang.

Green Power Direct Connection: A Triple-Win Solution

According to the National Energy Administration spokesperson, the *Notice for the Orderly Development of Green Power Direct Connection* aims to: boost local renewable energy utilization, increase consumer access to green power, and reduce electricity costs. The *Notice*:

- Defines green power direct connection as the delivery of renewable electricity (wind, solar, biomass, etc.) directly to a single electricity user via dedicated lines without connecting to the public grid, enabling clear physical traceability.
- Emphasizes source-load matching: at least 60% of the project's total power generation shall be used on-site. The electricity generated by this project should make up 30% of its total electricity consumption by 2025 and 35% by 2030.

Solving the Green Power Integration Puzzle

As China's renewable energy capacity surges, grid integration challenges are mounting. Data reveals wind and solar utilization rates dropped to 93.2% and 94% respectively in early 2023—a 2.7 percentage point decline year-on-year.

Wu Junhong, Deputy Director of the Distribution and Retail Electricity Research Center at the China Energy Research Society, noted: *"This innovative 'generation-to-user' mechanism bypasses traditional grid constraints. This approach helps ease curtailment issues and improves renewable energy utilization by directly linking generation with end-users."*

Some regions have already piloted direct green power supply models. For example, Inner Mongolia recently launched its first green power direct supply computing center project. Once fully operational, the facilities are expected to generate 760 GWh annually, entirely consumed by the data center's additional load. This is projected to save 210,000 tons of standard coal and reduce 640,000 tons of CO_2 emissions per year.

Addressing Corporate Green Transition Needs

International green trade policies like CBAM have compelled export-oriented enterprises to confront dual challenges: mandatory lifecycle carbon emissions reporting and decarbonization pressures.

An analysis by *The Beijing News* pointed out that the green power direct connection enables real-time blockchain tracking of green electricity from generation to end-users, creating tamper-proof green electricity consumption records and providing hard evidence for export enterprises in carbon accounting.

"Traditional renewable energy procurement often fails to provide verifiable power source documentation due to grid intermixing," stated Peng Peng, Secretary-General of the China New Energy Power Investment Alliance. "This leaves Chinese manufacturers at a disadvantage in international carbon accounting." While RE100 has granted unconditional recognition to China's green energy certificate (GEC), disputes over carbon accounting methodologies remain a critical barrier for Chinese exports. The direct green power direct connection model emerges as a game-changing solution to this predicament.

Reducing Electricity Cost

From local practices, Xinjiang Qingsong Cement (Group) Co., Ltd., a major electricity consumer in the region, has seen a reduction of approximately 0.05 yuan per kilowatt-hour after participating in a green power direct supply pilot program with Southern Xinjiang Energy (Group) Co., Ltd. This has lowered electricity costs by 300 to 400 yuan per ton of product.

The Landing Effect Is Yet to Be Verified

The actual landing effect of green power direct connection remains uncertain, mainly its effectiveness in enhancing enterprises' competitiveness in international trade.

According to an article in *Yicai*, the strongest impetus for green power direct connection comes from meeting the export challenges of the European Union, which currently recognizes only two ways of calculating the carbon footprint of electricity: the country's average electricity consumption mix and direct power connection.

Zheng Ying, researcher of the China Carbon Neutrality Forum, noted that when many domestic enterprises have tried to satisfy the carbon footprint requirements through green power direct connection and other means, the EU may also pull new policy tools to safeguard the security of its own supply chain. In addition, many experts have pointed out that the profitability of green power direct connection remains unclear to enterprises.

The second lies in calculating the cost of direct green power connection.

An article in *Energy Observer* pointed out that lower electricity prices in the pilot projects are mainly due to exemptions from transmission, distribution, and policy-related fees.

Wang Shaomin, researcher at the Energy Research Institute of China Huaneng Group, analyzed that green power direct connection projects, as a new energy production and consumption integration development model, should fairly and reasonably bear the social responsibility (including policy cross-subsidies, governmental funds and surcharges, etc.) and the system responsibility (transmission and distribution fees, system operation fees). The economy of small systems with the same reliability is lower than that of large systems, so users must improve their economic efficiency by scaling down the capacity of the access project and aligning the load to respond to the demand for green power.

What's Next for Green Power Direct Connection?

Despite facing numerous uncertainties, green power direct connection remains a positive role in advancing renewable energy development.

Zhang Chao, Chief Economist at the Financial and Audit Research Institute of the State Grid Energy Research Institute, believes that as green power direct connection becomes clearer and market standards are established, more intermediary service providers—such as virtual power plants, integrated energy services, carbon management services, and green finance institutions—will emerge, injecting new vitality into the future energy and power market.

Moving forward, pricing policies should evolve toward ensuring "fair cost-sharing and equitable market participation" for such projects. According to *China Electric Power News*, the formulation of pricing mechanisms for local renewable energy consumption is underway, with the core principle being "equitable cost-sharing."

Subnational Updates

Decoding Policy – Expert Views on New Policies

China's subnational carbon footprint system building shows progress.

Following the national *Notice on Initiating the Pilot Program for Carbon Footprint Labeling and Certification of Products* in August 2024 and the implementation rules published in March 2025, Xinjiang Province and Beijing Municipality issued their *Work Plans* regarding carbon footprint labeling and certification. Xinjiang highlights **photovoltaics, steel, textiles, electrolytic aluminum, and cement** as some of the key sectors, while Beijing emphasized **computer products**.

In addition, Sichuan, Ningxia, Gansu, and Shanxi launched plans for establishing local carbon footprint management systems. As China issued its national plan on carbon footprint management in June 2024, so far, **17** provinces have officially published relevant policies, either on management or labeling and certification. Additionally, two provincial regions, Zhejiang and Chongqing, have issued drafts for comment.

Figure 1: Status of Carbon Footprint Related Policies in China (as of 15th July)

Researchers from the Institute of Energy, Environment and Economy of Tsinghua University pointed out that although many industries and local governments have introduced multiple product carbon footprint accounting standards, the lack of coordination and continuity among them hinders the development of a systematic and complete methodological framework.

In terms of product categories, existing accounting standards primarily focus on personal consumer goods or industrial manufactured products, while lacking standards for basic energy products such as coal, petroleum, natural gas, and electricity, which are necessary for calculating these products' carbon footprints.

The researchers suggest prioritizing key products and taking a systematic approach to advancing the product carbon footprint accounting standards system.

Policy Snapshot – Policy Highlights at a Glance

Several cities launch sectoral policies to advance "Dual Carbon" goals at the subnational level.

Foshan (Guangdong Province), Fuzhou (Fujian Province), and Yangquan (Shanxi Province) issued carbon peaking implementation plans on the urban and rural development sector, industrial sector, and energy sector:

- Foshan set goals for 2025 and 2030 regarding the **resource utilization** of municipal solid waste, **rooftop photovoltaic coverage**, **renewable energy substitution** of urban buildings and star-rated **green buildings**.
- Fuzhou focuses on increasing the share of production of **short-process steel** and the total number of **green and low-carbon factories**. It also addresses major industrial **solid waste** and reduces the CO_2 emission intensity of **automobiles**.
- Yangquan aims for new and clean energy to make up 37% of its **installed power capacity** by 2025 and over 50% by 2030. The share of non-fossil energy in total **energy consumption** is projected to reach 12% by 2025 and 18% by 2030.

Two provinces advance the market-oriented reform of the pricing system for new energy.

In line with national policy issued in February, both Inner Mongolia (East and West) and Xinjiang Province have rolled out plans to advance market-oriented pricing reforms for new energy. The two provinces propose that all grid-connected electricity generated by new energy projects be fully integrated into the electricity market, with prices determined through market transactions. Additionally, Inner Mongolia encourages **distributed solar and wind power** to participate in market trading.

Fujian Province sets a medium- and long-term plan to develop the hydrogen industry.

The *Medium- and Long-Term Plan for Innovative Development of the Hydrogen Energy Industry (2025–2035) in Fujian Province* outlines a two-phase roadmap for the development of the hydrogen energy industry:

From 2025 to 2030, the annual production of fuel cell vehicles, green hydrogen, and hydrogen-based green fuel is expected to reach 6,000 units, 30,000 tons, and 100,000 tons respectively.

From 2030 to 2035, the hydrogen energy industry in Fujian Province is expected to grow rapidly. Annual production capacity will reach 100,000 tons of green hydrogen and 1 million tons of hydrogen-based green fuel. Green hydrogen will account for over 40% of the province's hydrogen supply.

About the Institute for Global Decarbonization Progress (iGDP)

The Institute for Global Decarbonization Progress (iGDP) is a non-profit think tank focusing on green and low-carbon development with offices in China and Europe. Established in Beijing in 2014, iGDP is dedicated to supporting China's green and low-carbon practices, contributing to the global effort to address climate change, and providing decision-makers, investors and local communities with forward-thinking solutions. Through interdisciplinary, systematic, and empirical policy research, iGDP promotes robust energy and climate solutions with high implementation and investment feasibility. iGDP works with its partners to promote a zero emissions future and tell the story of China's green and low-carbon development.

About China Carbon Neutrality Tracker (CCNT)

China Carbon Neutrality Tracker (CCNT) is an online database and interactive platform that tracks China's national and sub-national carbon neutrality actions by collecting and sorting publicly available policy documents with an impact on GHG emissions. It offers an overview and structural classification of China's climate actions and serves as a comprehensive compendium of the specific policies and actions of various government departments and key non-state entities. CCNT includes all policies and actions with a climate impact and classifies them by region and sector. It gathers policy information primarily from authoritative government sources at national, regional, provincial and municipal levels. CCNT currently has national and provincial webpages. The database is continuously updated to include new provincial and city-level actions, and CCNT regularly issues short policy briefings.

For the latest national and subnational carbon neutrality actions, please visit the CCNT database at https://ccnt.igdp.cn.

If you have any suggestions or feedback, please email us at ccnt@igdp.cn.

Issue Authors: Li Siyin, Zhu Tongxin, Han Di
Copy Editors: Heather Xu, Chen Meian
Team: Hu Min