

China Carbon Neutrality Tracker Newsletter



The bi-monthly China Carbon Neutrality Tracker (CCNT) newsletter provides information on the key climate actions being taken by China's state and non-state actors as it pushes forward in its dual-carbon goals, including new research driving carbon neutrality.

TOP NEWS: Highlights of climate progress across China

In Focus: China's Energy Law

SUBNATIONAL UPDATES: Subnational and city-level official statistics, policies and actions related to China's dual-carbon goals

PERSPECTIVES: New reports and insights from the field

Top News

China will impose stronger regulation and supervision on coal mine gas to better control methane emissions.

The Ministry of Ecology and Environment issued the [Emission Standards for Coalbed Methane \(Coal Mine Gas\)](#). The *Standards* are the **first revision** of the Emission Standards for Coalbed Methane (Coal Mine Gas) (Provisional) (GB 21522—2008), originally issued in 2008. This revision enhances requirements for coalbed methane extraction, emission control, monitoring, implementation and supervision. In addition to the 2008 standards, which prohibit the discharge of high concentration gas ($\geq 30\%$), the new *Standards* also prohibit the discharge of **low concentration gas** with methane concentration of 8% or higher, and an extraction purity of 10 cubic meters per minute or more.

It is [estimated](#) that the *Standards* can reduce methane emissions by about 50 million tons of CO₂ equivalent per year after implementation. [Wu Hongjie](#), Secretary-General of the China Carbon Neutrality Forum, believes that coal mine methane with a concentration of less than 8% has substantial emission reduction potential. If included in China's Certified Emission Reduction (CCER) mechanism in the future, it could significantly boost emission reductions through the country's voluntary carbon market. Recently, the Ministry of Ecology and Environment, together with other departments, issued the [Methodology for Greenhouse Gas Voluntary Emission Reduction Projects: Utilization of Coal Mine Gas and Ventilation Air Methane with Methane Concentration Below 8% \(CCER—10—001—V01\)](#), which aims to advance reductions in low-concentration methane emissions.

China is accelerating the adoption of low-carbon hydrogen in industrial sectors such as metallurgy, micro grid, and transportation.

The Ministry of Industry and Information Technology, together with the National Development and Reform Commission and the National Energy Administration, issued the [Implementation Plan for Clean and Low-Carbon Hydrogen Applications in the Industrial Sector](#), which aims to promote progress in developing hydrogen application equipment and promoting related technologies by 2027. Clean and low-carbon hydrogen will be widely adopted in industries such as metallurgy, synthetic ammonia, synthetic methanol, and refining. Pilot projects will also be launched in areas like industrial green microgrids, shipping, aviation, and rail transport, helping to create a range of commercial hydrogen energy application models in transportation, power generation, and energy storage.

[Jing Chunmei](#), researcher at the China Center for International Economic Exchanges (CCIEE), points out that China is the world's largest consumer and producer of hydrogen, with an output of over 35 million tons. Most of the hydrogen used is for industrial purposes, primarily produced as "grey hydrogen" from coal and natural gas. According to estimates from the China Hydrogen Alliance, under a 2060 carbon neutrality scenario,

China's annual hydrogen demand could reach around 130 million tons, accounting for roughly 20% of the country's total energy consumption. Of this, the industrial sector will require approximately 77.94 million tons, still making up about 60% of the total demand. This highlights the industrial sector as the largest potential market for clean, low-carbon hydrogen. As proposed by the *Implementation Plan*, which aims to boost the use of clean hydrogen in industries like metallurgy, chemicals, and refining, these sectors are expected to see significant improvements in their green and low-carbon performance.

To expedite the establishment of a new power system and enhance the utilization and regulation of new energy, China is endorsing the development of new business entities like distributed photovoltaics and virtual power plants.

The National Energy Administration issued the [*Guiding Opinions on Supporting the Innovative Development of New Business Entities in the Power Sector*](#). The *Opinions* clarify the definition and eligibility criteria for new business entities and propose related requirements for improving dispatch and operational management. They encourage equal participation in the electricity market, optimization of market registration, refinement of market trading mechanisms, and accurate measurement and settlement. They also outline several supporting measures.

“New business entities are often smaller in scale and face a range of challenges when participating in the market. As a result, they don't have the same market standing as traditional businesses. In some cases, they also don't carry the same social responsibilities,” said [Han Xue](#), expert at the Development Research Center of the State Council. For example, distributed photovoltaics are not obligated to participate in peak-shaving or cost-sharing. The *Guiding Opinions* help to clarify the market position of these new entities. This not only helps to unify industry perspectives but also plays a key role in creating a power market that balances rights and responsibilities while maximizing resource efficiency.

In Focus: Twenty Years for China's Energy Law

From first draft to final publication, it took almost twenty years to finalize China's Energy Law, filling a critical gap in the country's top-level energy legislation. In this issue, CCNT highlights key aspects of the law, offering expert perspectives on how it may shape the future of China's energy transition.

Why did it take so long?

The [Energy Law of the People's Republic of China](#) (the *Energy Law*) was adopted on November 8, 2024, and came into effect on January 1, 2025. Previously, sector-specific laws such as the *Electricity Law*, *Coal Law*, and *Renewable Energy Law* had been enacted, but no comprehensive law covered the entire energy sector.

The need for the *Energy Law* arose from the challenge of balancing climate change, environmental protection, and economic development while addressing the energy trilemma between energy ecology, equity, and security. [Fu Jingjing](#), law professor at Southwest Petroleum University argues that the *Energy Law*, by highlighting the green transition of energy with appropriate incentives and constraints, supports the economic development of the energy market, ensures energy security, and gives a legislative solution to the trilemma, particularly with its provisions on energy reserves.

After years of careful deliberation, the *Energy Law* marks a significant step forward in China's effort to develop a [clean, low-carbon, safe, and efficient new energy system](#), providing a clear legal definition of energy and laying the groundwork for future energy system development.

What merits attention?

Prioritizing Renewable Energy: The *Energy Law* explicitly states, "Support the prioritization of renewable energy development, promote the clean and efficient use of fossil fuels, encourage the gradual and orderly transition from fossil energy to non-fossil sources, and increase the share of non-fossil energy consumption."

- [Guo Haitao](#), Expert at China University of Petroleum (Beijing), believes the law's clear prioritization of renewable energy over fossil fuels signals a significant boost for new energy sources, which will effectively accelerate their development.
- [Chen Xinghua](#), Associate Professor at North China University of Technology, emphasized that the *Energy Law* formalizes China's key support measures for renewable energy, such as mandatory quotas and green power certificate trading systems.

Hydrogen Energy Included in the Energy Definition: The *Energy Law* defines energy as "various resources that provide useful energy either directly or through conversion, including coal, oil, natural gas, nuclear energy, hydropower, wind, solar, biomass, geothermal, ocean energy, as well as electricity, heat, and hydrogen." This inclusion means hydrogen energy will no longer be treated merely as a [hazardous chemical](#), but will be recognized as a legitimate energy source.

Many experts in the hydrogen energy field view this as a positive step for the industry's growth.

- [Jing Chunmei](#), expert at CCIEE explained that hydrogen energy was initially excluded from earlier drafts of the *Energy Law*. However, following strong industry feedback during the public consultation phase, the legislative bodies incorporated these suggestions and made revisions.
- [Yang Qiang](#), General Manager of Yuntao Hydrogen Energy, noted that the lack of top-level legislative support for the hydrogen energy industry in the early stages put pressure on local governments to drive its development. With the *Energy Law* now in place, the hydrogen sector has a stable outlook, which will encourage greater investment and support the growth and maturity of the industry.
- [An article published by Yicai](#) highlighted that the *Energy Law*'s recognition of hydrogen energy as a legitimate energy source will enable the creation of a comprehensive regulatory framework to address long-standing governance gaps. The law also sets clear requirements for energy planning, ensuring that hydrogen will play a key role in national, sector-specific, and regional energy development plans, promoting its orderly growth.

Shifting Focus—From Controlling Energy Consumption to Controlling Carbon Emissions: The *Energy Law* outlines the transition from controlling total energy consumption and intensity to focusing on controlling total carbon emissions and intensity, which will also be a [key priority](#) of work during the 15th Five-Year Plan period. By embedding this goal in the *Energy Law*, China has strengthened its legal commitment to carbon reduction.

- [Wang Xiuqiang](#), Deputy Editor-in-Chief of *Energy* magazine believes that a legal shift from energy consumption control to carbon emissions control meets the energy needs of economic growth, while also driving a nationwide clean and low-carbon transition centered around carbon emissions.
- [State Grid Corporation of China](#) stated that the shift to carbon emissions control requires businesses to develop carbon management systems and establish carbon-related business frameworks. This will help build the national carbon emissions accounting system and support the coordinated development of the electricity market with carbon trading, energy usage rights, and green certificate markets.

What comes next?

With the introduction of the *Energy Law*, experts expect further alignment between sector-specific laws and the *Energy Law* soon. Additionally, as the *Energy Law* lays out key principles, more detailed rules and action plans are still to be developed. [Xiao Guoxing](#), Professor at East China University of Political Science and Law, emphasizes that energy issues are not just industrial or sectoral concerns, but are central to national security. As such, the design of the *Energy Law* must be approached from a strategic, national perspective.

Subnational Updates

Five provinces have issued plans, guidelines, or notices to promote local carbon footprint management systems and carbon labeling certification.

Following the national goals proposed in the [Implementation Plan for the Establishment of a Carbon Footprint Management System](#) to establish a preliminary carbon footprint management system by 2027 and build a product carbon footprint factor database with wide coverage, high data quality, and strong international influence by 2030, [Hubei Province](#), [Shanxi Province](#), and [Shandong Province](#) all highlighted key industries and products in their *Plans* and *Notices* based on their regional priorities:

[Shanxi Province](#) states that:

- Priority will be given to critical products such as **electricity, coal, natural gas, steel, cement, lithium batteries, new energy vehicles, and photovoltaic products**, all of which align with national priorities.
- Key tasks include accelerating the establishment of a carbon footprint management system, fostering a framework for carbon footprint initiatives with multi-stakeholder participation, encouraging key industries and products to engage in carbon footprint management, and strengthening the capacity for product carbon footprint assessments.

[Hubei Province](#) aims to achieve the following:

- **By 2027**, key product carbon footprint accounting rules and standards will be introduced, focusing on competitive provincial industries such as **phosphorus chemicals, batteries, paper and paper products, and agricultural products**.
- **By 2030**, establish a comprehensive product carbon footprint management standard system and fully develop a public service platform for product carbon footprints.

[Shandong Province](#) focuses on developing carbon footprint trials at city and industry levels. It will:

- Conduct trials on the **iron and steel, tire, and textile industries** to carry out carbon footprint data research, prepare carbon footprint accounting reports, and form carbon footprint factors. Trials at the **city, product, and other levels** will also be conducted.
- Establish a provincial-level database of carbon footprint factors and pilot initiatives to certify **product carbon labels** and support **data quality measurement**.
- Explore applications of carbon footprints in various scenarios, implement tiered management, enhance information disclosure, and conduct statistical monitoring of green trade levels.

[Guangdong Province](#) pays attention to the synergy within the Greater Bay Area to advance the pilot construction of carbon footprint certification for products and outlines that:

- **By 2027**, approximately **30 demonstration examples** for key product carbon footprint labeling will be completed, and the carbon labels will be **mutually recognized across Guangdong, Hong Kong, and Macau**.
- **By 2030**, product carbon footprint accounting rules, standards, and carbon labels will be internationally recognized, completing carbon footprint accounting and labeling applications for around **100 key products**. A comprehensive carbon footprint management and service system will be established for the Greater Bay Area.

Jiangsu Province, building on [its previous policy](#) in March, issued *Opinions* to deepen the construction of carbon labeling certification:

- **By 2025**, it will develop and implement around **30 key product carbon footprint accounting rules and certification rules**, apply **more than 150 carbon labeling certifications**, and establish a preliminary product carbon labeling certification system and long-term operational mechanism.
- **By 2030**, the experience from pilot projects will be summarized and promoted. Around **100 key product carbon footprint accounting standards and certification rules** will be developed and implemented, **more than 500 carbon label certification applications** will be completed, and the product carbon labeling certification system and long-term operational mechanism will be largely established.

Two provincial regions make moves to accelerate the establishment of a dual-control system for carbon emissions.

In line with the goals proposed in the [national work plan](#) published in August, **Shanxi Province** and **Ningxia Hui Autonomous Region** issued their implementation plans, both of which highlight some of the key industries and sectors to focus on for actions, showing local proactivity in achieving dual carbon goals.

Shanxi Province, the [country's largest coal-producing region](#), will explore zero-carbon and near-zero-carbon coal mines pilot projects in traditional carbon-intensive industries. It also proposes that:

- **By 2025**, it will establish and improve a carbon emission statistics and accounting system and implement the national standards for carbon emission accounting and product carbon footprints.
- **Starting in 2026**, it will **fully implement a dual-control system for carbon emissions**, prioritizing intensity control while supplementing it with total volume control, to ensure the carbon peak target is achieved.
- After peaking carbon emissions, the focus will shift to a dual-control system emphasizing **total volume control**, supplemented by intensity control, to ensure a steady decline in total carbon emissions.

Ningxia Hui Autonomous Region proposes that:

- Starting with the 15th Five-Year Plan, carbon emission metrics will be incorporated into the Autonomous Region's Outline for National Economic and Social Development as well as sectoral plans. Carbon intensity will become a binding

indicator for national economic and social development, while energy intensity will no longer be used as a binding indicator.

- For the 16th Five-Year Plan period and beyond, **a rigid cap-and-control mechanism for total carbon emissions will be established**, with full-process management of the five-year planning period and annual carbon emission budgets.

Two provinces issued specific policies to guide new businesses, such as distributed photovoltaics and virtual power plants, to participate in the electricity market.

Following a series of national policies on deepening electricity market-oriented reform, [Guangdong Province](#) and [Hebei Province](#) ([Northern Grid region](#) and [Southern Grid region](#)) both issued *Plans* to encourage new enterprises to participate in the electricity trading market, with different focuses.

[Guangdong Province](#) issued the *Implementation Plan for Virtual Power Plants' Participation in Electricity Market Transactions*, providing detailed regulations on registration management, trading mechanisms, eligibility criteria, and transaction types for virtual power plants.

“Following the release of the *Plan*, virtual power plants can now not only participate in demand response but also submit bids and engage fully in electricity market transactions. They can also offer value-added services such as energy savings to aggregated users. This creates a win-win scenario for both users and the system, as well as for technology and business models, boosting sustainability,” said [Huang Youpeng](#), Deputy Manager at the Guangdong Provincial Electric Power Load Management Center.

According to [People's Daily](#), Guangdong Power Grid will next focus on accelerating the integration of distributed renewable energy and user-side energy storage into virtual power plants. It will also streamline processes for qualification reviews, system integration, and capacity verification to ensure smooth participation of virtual power plants in market transactions, while managing the load and overseeing the virtual power plant sector.

[Hebei Province](#) issued two *Work Plans* to guide the distributed photovoltaic to participate in the electricity market in [Northern grid](#) and [Southern grid](#) regions. Both plans follow the principle of “pilot before generalization,” aiming to include different types of photovoltaics step by step. The plans propose that, initially, **20% of the grid-connected electricity** will participate in the green electricity market.

Notably, the [Work Plan for the Southern Grid Region](#) proposes **full participation** of renewable energy in market transactions **by 2030**. According to the industry media [Energy Observer](#), this is the **first** provincial work plan for guiding the distributed PV into the market, clarifying the transaction process, and officially opening the prelude to distributed PV participation in market transactions. Practitioners suggested that with full consideration of the different statuses of distributed photovoltaic development in different areas, provincial policies are needed to clarify the specific path of distributed photovoltaic into the market.

Shenzhen issued the first city-level methane emission control plan, taking action to deal with the methane emissions across different sectors.

[*Action Plan for Methane Emission Control in Shenzhen City*](#) states that:

- **By 2025, all eligible municipal solid waste landfills** in Shenzhen will implement **methane collection and treatment systems**, and the resource utilization rate of municipal solid waste will reach **no less than 85%**. Methane emissions from **the transportation sector** will be reduced by **more than 10%**. The comprehensive utilization rate of **livestock and poultry manure** will **reach 80%**, and citywide methane emissions will be effectively controlled.
- **By 2030**, the comprehensive utilization rate of livestock and poultry manure will increase to 85%, methane emissions from the transportation sector will decrease by more than 20%, and citywide methane emissions will continue to decline and eventually stabilize.

Shanghai aims to promote green transition of international shipping fuels by combining internal and external resources, improving services, and building support systems.

[*Work Plan for Promoting the Green Transition of International Shipping Fuel in Shanghai*](#) proposes that it will:

- Establish a green shipping fuel supply system by 2030, integrating both internal and external resources.
- The LNG bunkering capacity in the bonded area of Shanghai Port is projected to reach **one million cubic meters** (in liquid form), with bunkering capacities for **green methanol** and **green ammonia** reaching **one million tons**.
- The goal is to achieve a **domestic green fuel supply** capacity of **300,000 tons** and an **external supply** capacity of **one million tons by 2030**.

Perspectives

[*Unloading Coal Exposure: Where are We and What can Chinese Banks Do?*](#) (World Resources Institute)

- This paper discusses the progress, practices, and action framework employed by banks to reduce and eliminate coal exposure. It introduces a three-step framework designed to guide banks in establishing procedures that can also be applied to other fossil fuels.
- The paper recommends that Chinese banks strategically manage global coal relationships and collaborate internationally. By detailed planning and sustained efforts, Chinese banks can gain a competitive edge from coal exit.

[*Techno-Economic Feasibility Analysis of Zero-Emission Trucks in Urban and Regional Delivery Use Cases: A Case Study of Guangdong Province, China*](#) (World Resources Institute)

- This study examines the techno-economic feasibility of zero-emission trucks (ZETs) in Guangdong Province from 2022 to 2030 across 14 use cases. It considers operational feasibility, purchase cost gaps between ZETs and diesel trucks, and total cost of ownership parity years relative to diesel trucks.
- The results indicate that policy incentives, operational optimization, technology improvements, and financing mechanisms are critical for the future uptake of ZETs in Chinese cities. To accelerate ZET adoption, both private and public entities play important roles.

[*The Ultra-low Emission Campaign on Heavy Industries in China*](#) (The International Council on Clean Transportation)

- This policy update publication analyzes China's ultra-low emission (ULE) campaign, which targets high-emitting sectors, including the steel, cement, and coking industries. Under the ULE, regulated industries are to transport 80% of goods by clean transport modes (e.g., railway, waterway, belt conveyor), and zero-emission or China VI trucks should be adopted to compensate for any gaps in implementing clean transport modes. These efforts are expected to drive increased demand for electric freight trucks and the ULE is expected to expand to other industries in the coming years.

[Research on Flexibility Resources and Improvement Strategies for Guangdong's New Power System](#) (Natural Resources Defense Council)

- This report, supported by NRDC and prepared by the Dual-Carbon Industry Cooperation Branch of the China Energy Research Society, examines the challenges and opportunities Guangdong faces in building a new energy system. It also assesses the current state and role of flexible adjustment resources. Based on these insights, the report outlines a phased development roadmap for enhancing the system's flexibility and adaptability.

[High-Quality Development Pathway for the New Power System in Jiangsu under the Dual Carbon Goals](#) (Natural Resources Defense Council)

- Supported by NRDC, the Jiangsu Provincial Society of Macroeconomics released a report on Jiangsu's new energy system. The report reviews progress in institutional and mechanism development, explores the potential types and scales of demand-side flexible resources in the province, summarizes the achievements and challenges in Jiangsu's renewable energy development, and outlines a roadmap for the high-quality development of Jiangsu's new energy system.

[Promote Optimization of Clean Hydrogen Standards and International Alignment: Maximizing the Climate Benefits of Hydrogen](#) (Environmental Defense Fund)

- This report provides an overview of clean hydrogen standards implemented across various countries and regions, including China, the United States, the European Union, the United Kingdom, and Japan.
- Based on the research, the report offers insights and recommendations for relevant stakeholders in China, including establishing comprehensive standard and certification system for hydrogen-based renewable fuels with key criteria, strengthening international collaboration, and promoting the development and application of advanced technologies, such as direct air capture and bioenergy carbon capture.

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.

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