JANUARY 2024

CHINA ENERGY POLICY

NEWSLETTER

China Energy Transformation Programme

1. China energy transition updates

The Chinese government releases 2018 national carbon emissions data

At the end of December 2023, China submitted the *Fourth National Communication on Climate Change* (CHN: 中华人民共和国气候变化第四次国家信息通报) and the *Third Biennial Update Report on Climate Change* (CHN: 中华人民共和国气候变化第三次两年更新报) to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC).[1] The first report includes the data on greenhouse gas emission (GHG) inventories in 2017, climate change impacts and adaption, mitigation policies and actions, the needs of finance, technology and capacity building, and the information on climate change research and climate system observations. The second report reviews the data of GHG inventories in 2018, China's major mitigation policies and actions up to 2020, with quantitative analyses of their emission reduction effects. It also carries out the back-calculations of the national GHG inventory for the NDCs' base year 2005. In 2018, China's total CO_2 emissions (excluding LULUCF) were 10.896 billion tons of CO_2 equivalent ($BtCO_{2e}$), of which 9.426 $BtCO_{2e}$ were from energy activities, accounting for 86.5%. The China Energy Transition (CET) programme summarises the total national CO_2 and CH_4 emissions data, as well as the total CO_2 and CH_4 emissions data from energy activities released by the Chinese government since 2009.

1994-2018 Total national CO_2 emissions and total CO_2 emissions from energy activities in China

(BtCO2e)	1994	2005	2010	2012	2014	2017	2018
Total CO_2 emissions (excl. LULUCF)	3.07	5.98	8.71	9.89	10.28	10.69	10.90
Total CO_2 emissions (incl. LULUCF)	2.67	5.55	7.68	9.32	9.12	9.35	9.56
Total CO_2 emissions from energy activities	2.80	5.40	7.62	8.69	8.93	9.27	9.43

Note: LULUCF refers to land use, land-use change and forestry. Source: The Chinese government, accessed in January 2024

[1] "中华人民共和国气候变化第四次国家信息通报," State Council, 30 December 2023, accessed at https://www.gov.cn/lianbo/bumen/202312/P020231230296808058475.pdf; "中华人民共和国气候变化第三次两年更新报告," State Council, 30 December 2023, accessed at https://www.gov.cn/govweb/lianbo/bumen/202312/P020231230296808873994.pdf.

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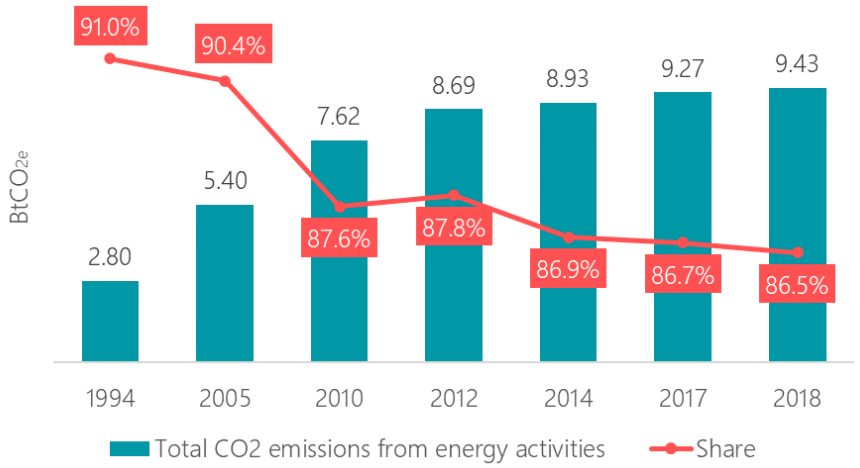
1994-2018 Total CO_2 emissions from energy activities and its proportion in total national CO_2 emissions (excluding LULUCF)



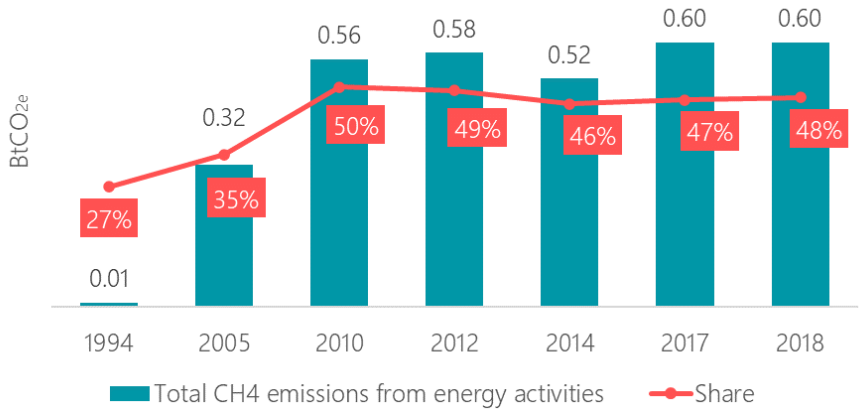
Source: The Chinese government, accessed in January 2024

1994-2018 Total national CH_4 emissions and total CH_4 emissions from energy activities in China

($BtCO_{2e}$)	1994	2005	2010	2012	2014	2017	2018
Total CH_4 emissions (excl. LULUCF)	0.03	0.93	1.13	1.17	1.13	1.28	1.26
Total CH_4 emissions (incl. LULUCF)		0.93	1.16	1.17	1.16	1.36	1.35
Total CH_4 emissions from energy activities	0.01	0.32	0.56	0.58	0.52	0.60	0.60

Note: LULUCF refers to land use, land-use change and forestry. Source: The Chinese government, accessed in January 2024

1994-2018 Total CH_4 emissions from energy activities and its proportion in total national CH_4 emissions (excluding LULUCF)



Source: The Chinese government, accessed in January 2024

The State Council releases the third air quality improvement action plan

In November 2023, the State Council released the *Action Plan for Continuous Improvement of Air Quality* (CHN: 空气质量持续改善行动计划).[2] This is the third action plan released by the Chinese government to improve air quality, following the *Action Plan for Air Pollution Prevention and Control (2013-2017)* (CHN: 大气污染防治行动计划) and the *Three-Year Action Plan to Win the War to Defend Blue Skies (2018-2020)* (CHN: 打赢蓝天保卫战三年行动计划). The new *Action Plan* proposes that by 2025, the $PM_{2.5}$ concentration in cities across the country at the prefecture level and above will drop by 10% compared with 2020, and the ratio of days with severe pollution will be controlled within 1%; the total emissions of nitrogen oxides and VOCs will each drop by more than 10% compared with 2020. The $PM_{2.5}$ concentration in the Beijing-Tianjin-Hebei and surrounding areas and the Fenwei Plain to drop by 20% and 15%, respectively. The $PM_{2.5}$ concentration in the Yangtze River Delta region will generally reach the standard, to be controlled within 32 mg/m^3 in Beijing.

The first two *Action Plans* focused on pollution prevention and control. As the emission reduction potential of traditional treatment methods is gradually narrowing, the new *Action Plan* emphasises exploring the synergy between pollution prevention and economic development. That is, while optimising the prevention and control of air pollution, it promotes the green and high-quality development of the local economy. To this end, the new *Action Plan* puts forward the concept of precise pollution control.[3]

- Key pollutants: $PM_{2.5}$ is still the primary pollutant affecting China's air quality and public health. The current average concentration of $PM_{2.5}$ in China is 5.8 times the WHO guidance value. The new *Action Plan* clarifies that the *14th Five-Year Plan* period (2021-2025) will focus on reducing $PM_{2.5}$ and heavy pollution weather. It is proposed for the first time to vigorously promote the reduction of nitrogen oxides and volatile organic compounds (VOCs) and make clear the total emission limits. The previous *Action Plan* mainly focused on reducing sulfur dioxide and nitrogen oxide emissions.
- Key industries: Focusing on the optimisation and transition of industry, energy, and transportation structures, such as nitrogen oxide emissions in thermal power, steel, coking, cement, motor vehicles, and non-road transportation (accounting for 80% of total nitrogen oxide emissions); VOCs emissions in industrial painting, petrochemicals, construction, coatings, motor vehicles, and oil product storage and transportation (accounting for 70% of total VOCs emissions).
- Key seasons: Affected by the heating season, pollutant emission intensity in autumn and winter is significantly higher than in summer. In 2022, more than 95% of days with heavy $PM_{2.5}$ pollution occurred in autumn and winter in China. The new *Action Plan* emphasises continuing to promote clean heating in the northern regions and improving the response mechanism for heavy-pollution weather.
- Key areas: Beijing-Tianjin-Hebei and surrounding areas, the Yangtze River Delta, and the Fenwei Plain have always been key areas for air pollution prevention and control. The new *Action Plan* further optimises the coverage areas, including parts of Shandong and Henan with higher $PM_{2.5}$ concentrations, and excluding some areas of Zhejiang and Anhui with better air quality, aiming to improve the accuracy of air pollution prevention and control, and reduce the impact on the economy and society.

[2] "国务院关于印发《空气质量持续改善行动计划》的通知, 国发〔2023〕24号, " State Council, 7 December 2023, accessed at https://www.gov.cn/zhengce/zhengceku/202312/content_6919001.htm.
[3] "专家解读 | 全面落实精准、科学、依法治污要求，推动空气质量持续改善," Ministry of Ecology and Environment, 24 December, accessed at https://www.mee.gov.cn/zcwj/zcjd/202312/t20231224_1059769.shtml; "《空气质量持续改善行动计划》释放出哪些信号？," Ministry of Ecology and Environment, accessed at https://www.thepaper.cn/newsDetail_forward_25627420.

NDRC releases the results of the mid-term evaluation of the *14th Five-Year Plan for Economic and Social Development*

On December 26, 2023, the National Development and Reform Commission (NDRC) released the mid-term evaluation report of the *14th Five-Year Plan (2021-2025) for National Economic and Social Development of the People's Republic of China (2021-2025) and the Outline of Long-term Vision Goals for 2035* (CHN: 中华人民共和国国民经济和社会发展第十四个五年规划（2021-2025）和2035年远景目标纲要).[4] Among the four main goals in the energy field, comprehensive energy production capacity (i.e. coal, natural gas and oil) has been achieved ahead of schedule; the three indicators of reduction in energy consumption per unit of GDP, reduction of CO_2 emissions per unit of GDP, and the ratio of days with good air quality in cities at the prefecture level and above are lagging behind expectations.

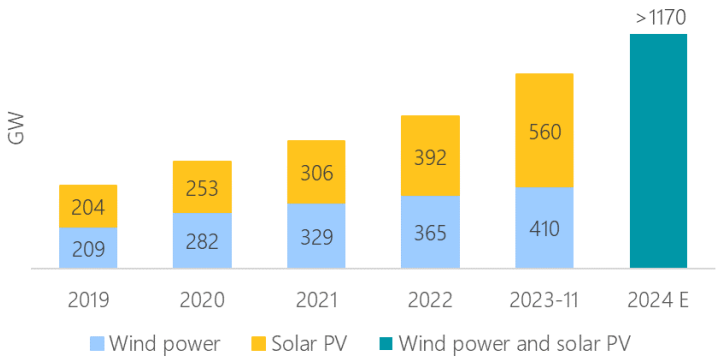
According to the *Report*, China's current total amount of pollutants and carbon emissions is still high, and the growth rate of energy consumption and CO_2 emissions is significantly faster than that during the *13th Five-Year Plan* (2016-2020) period. For some time to come, China's total energy consumption will still maintain rigid growth, and coal will still play an important role in ensuring energy supply. Therefore, it will take a process to fundamentally change the situation in which the industrial structure is skewed towards coal, the energy structure is skewed towards coal, and resource utilisation efficiency is low-rise.

Given the three lagging indicators, the government will further improve energy consumption and carbon emission intensity management and control policies, resolutely curb the blind launch of energy-intensive, emission-intensive, and low-technical level projects, strictly and reasonably control the total coal consumption, and vigorously promote energy conservation and carbon reduction in key areas, to transform and accelerate the implementation of emission reduction projects for major pollutants.

NEA releases newly installed capacity target of wind power and solar PV in 2024

China's total installed renewable energy capacity is expected to reach over 1,450 GW in 2023, accounting for more than 50% of the total installed power generation capacity and historically surpassing thermal power. The combined installed capacity of wind power and solar PV exceeded 1,000 GW and continued to account for the majority of newly installed power capacity, of which the scale of household solar PV exceeds 100 GW. In 2023, renewable energy power generation reached 3,000 TWh, accounting for 1/3 of the total electricity consumption, and the proportion of wind power and solar PV exceeded 15%. In 2024, China will accelerate the transition to green and low-carbon energy, with about 200 GW of newly installed wind power and solar PV capacity and about 5 GW of newly installed nuclear power capacity. [5]

2019-2024E Total wind power and solar PV power generation capacity



Source: National Energy Administration (NEA), accessed in January 2024

[4] "《中华人民共和国国民经济和社会发展第十四个五年规划和2035年远景目标纲要》实施中期评估报告——2023年12月26日在第十四届全国人民代表大会常务委员会第七次会议上", National Development and Reform Commission, 26 December 2023, accessed at https://www.ndrc.gov.cn/fzggw/wld/zsj/zyhd/202312/t20231227_1362958.html.

[5] "2024年全国能源工作会议在京召开," National Energy Administration, 22 December 2023, accessed at https://www.gov.cn/govweb/lianbo/bumen/202312/content_6921816.htm; "一图读懂：2024年全国能源工作会议," National Energy Administration, 21 December 2023, accessed at https://www.nea.gov.cn/2023-12/21/c_1310756635.htm.

NDRC proposes 2030 development targets for V2G specifically

Vehicle-to-grid (V2G) mainly includes smart charging, orderly charging and two-way charging and discharging of new energy vehicles (NEV). They can participate in application scenarios such as peak shaving and valley filling, virtual power plants (VPP), and aggregation transactions. In 2020, the State Council proposed strengthening the energy interaction between NEV and the power grid; in June 2023, it further requires the promotion of smart charging infrastructure and V2G pilot demonstrations. This new policy is China's first top-level guiding document for V2G specifically. It clarifies the development goals and critical tasks of V2G industry, aiming to fully stimulate the potential as a flexible resource of NEV and improve distribution grid connection capabilities, to support the large-scale development of NEVs and construction of a new-type power system. [6]

The *Document* points out that by 2025, China will initially establish a standard system of V2G technologies, and fully implement a charging time-of-use pricing mechanism. At this stage, the V2G industry will vigorously carry out pilot demonstrations, striving to ensure that more than 60% of the annual charging electricity and more than 80% of the charging electricity at private charging piles in the pilot cities is concentrated during valley periods, and the energy storage potential of EV will be verified. By 2030, China's V2G will be applied on a large scale, smart charging and orderly charging will be fully promoted, and the market mechanism will be more complete. NEV strives to provide tens of giga-watts of two-way flexible capabilities for the power system.

In terms of improving the market mechanism, the government encourages exploration of implementation paths for charging and swapping facilities to participate in spot power markets, green certificate transactions, and carbon markets through aggregators; encourages two-way charging and discharging facilities, storage-charging/PV-storage-charging integration stations, battery swapping stations, to participate in spot power market pilots through aggregators.[7]

China's first spot power market officially operates

On December 22, 2023, the Shanxi provincial spot power market started official operation. This is the first spot power market in China that is actually operational. The Shanxi spot power market is one of the first eight spot power market pilots identified by the Chinese government in 2017. Since its launch in 2018, Shanxi has successively carried out single-day, half-month, full-month, and bi-monthly settlement trial operations. It launched a continuous settlement trial operation in April 2021. After 32 months of constant trial operation, the Shanxi spot power market met the conditions for transitioning from trial operation to formal operation after evaluation by the China Electricity Power Planning and Engineering Institute (EPPEI). [8]

International recognition of green certificate made progress

In December 2023, the National Energy Administration (NEA) announced that the RE100 organisation has recognised China's Green Electricity Certificate (GEC). RE100 is a global initiative promoting corporate commitments to use 100% renewable energy in their operations. In the context of the EU Carbon Border Adjustment Mechanism (CBAM) and the global green supply chain, more enterprises are joining RE100 and aim to obtain renewable energy power through green certificate transactions or other means. RE100's recognition of China's GEC will effectively promote the continued increase in CGE trading activity. In addition, NEA has also made it clear that it will not issue green certificates for pumped hydro, nuclear power, and natural gas power generation for the time being.[9]

[6] "国家发展改革委、国家能源局有关负责同志就 《关于加强新能源汽车与电网融合互动的实施意见》答记者问," National Development and Reform Commission, 5 January 2024, accessed at https://gbdy.ndrc.gov.cn/gbdyzcjd/202401/t20240105_1363123.html.
[7] "国家发展改革委等部门关于加强新能源汽车与电网融合互动的实施意见, 发改能源〔2023〕1721号," National Development and Reform Commission, National Energy Administration, Ministry of Industry and Information Technology, State Administration for Market Regulation, 4 January 2024, accessed at https://www.ndrc.gov.cn/xxgk/zcfb/tz/202401/t20240104_1363096_ext.html.
[8] "山西电力现货市场正式运行," Xinhua News Agency, 23 December 2023, accessed at https://baijiahao.baidu.com/s?id=1786117383940712208&wfr=spider&for=pc.
[9] "对十四届全国人大一次会议第7024号建议的答复, 国能建新能〔2023〕191号," National Energy Administration, 30 August 2023, accessed at https://zfxxgk.nea.gov.cn/2023-08/30/c_1310752049.htm.

2. Policy monitoring

2023-12-27

http://www.czguangfu.org/PolicyLaws/10563.html

NEA announces list of new-type energy storage pilot projects

Notice on Publicising New-type Energy Storage Pilots and Demonstrations

The *14th Five-Year Plan of New Type of Energy Storage Development Implementation* (CHN: "十四五"新型储能发展实施方案) released in 2022 proposes to carry out pilot and demonstration projects for new-type energy storage facilities. In June 2023, the NEA took the lead in launching project selection and announced a list of 56 pilot projects in December. This batch project covers many technical routes, such as compressed air energy storage, flywheel energy storage, gravity energy storage, all-vanadium redox flow battery, and carbon dioxide energy storage.

2023-12-26

https://www.miit.gov.cn/zwgk/zcwj/wjfb/tz/art/2023/art_3c718652a49b4c0dbf8f2079567cb742.html

MIIT releases 2030 green development plan for the shipbuilding industry

Notice on Issuing the Action Plan for Green Development of the Shipbuilding Industry (2024-2030), MIIT United Heavy Assembly [2023] No.254

The decarbonisation transition of the shipping industry is also an important part of the energy transition. China plans to initially establish a green development system, carbon footprint management system, and green supply chain system for the shipbuilding industry by 2025, and the international market share of green power ships such as LNG and methanol will exceed 50%; by 2030, a green development system for the shipbuilding industry will be basically established. In the future, China will optimise and upgrade LNG-powered ships for large ocean-going ships, accelerate the research and development of methane and ammonia-powered ships, and explore the development of ships with new types of power, such as fuel cells.

2023-12-07

https://news.bjx.com.cn/html/20231212/1349261.shtml

NDRC announces the requirements to sign mid-to long-term power contracts in 2024

Notice on Performing Well the Task of Signing and Fulfillment of the Mid-to-long-term Power Contracts in 2024, NDRC Operation [2023] No. 1662

For coal power generators, the total amount of electricity transactions under the mid-to-long-term contracts ("the *Contract*") in 2024, including yearly, quarterly, monthly and intra-month contracts, should be no less than 90% of its total on-grid electricity in 2023, of which the yearly contracts should be no less than 80% of 2023's total on-grid electricity. For non-rural and household consumers, the total amount of electricity transactions under the *Contract* should be no less than 90% of their total electricity consumption in 2023, of which the yearly contracts should be no less than 80% of 2023's total electricity consumption. The number of peak-price periods and valley-price periods under the *Contract* can be increased as needed.

Specifically for new energy generators, the government encourages signing yearly and multi-year contracts with consumers; the transaction price should involve two parts - the price of electricity and the price of green certificates. To facilitate inter-provincial new energy consumption, the first batch of large-scale wind power and solar PV bases will sign the *Contract*, and they are encouraged to bind with local flexible power sources.

2023-11-29

https://www.ndrc.gov.cn/xxgk/zcfb/tz/202312/t20231219_1362772.html

NDRC releases action plan for green development of boilers

Notice on Issuing the Action Plan for the Green, Low-Carbon, and High-Quality Development of Boilers, NDRC Environment Resources [2023] No. 1638

China's current annual energy consumption of boilers is 2,000 Mtce, and carbon emissions account for 40% of the country's total, being the energy-consuming equipment with the largest energy consumption and emissions in China. The *Document* requires the elimination of inefficient industrial boilers that have been operating for more than 15 years and small power plant boilers; encourages the installation of carbon capture, utilisation, and storage (CCUS) systems for boilers in operating power plants; all newly built coal-fired boilers should meet ultra-low emission requirements; further restrict to install small coal-fired boilers in cities at county level and above and key air pollution prevention and control areas; it is prohibited to build or expand decentralised coal-fired heating boilers within the coverage of district heating regions.

By 2025, the average operating thermal efficiency of industrial boilers and power plant boilers will increase by five percentage points and 0.5 percentage points, respectively, compared with 2021, and coal-fired boilers will fully complete ultra-low emission retrofit. By 2030, the operating thermal efficiency of industrial boilers will be further improved, and positive progress will be made in the energy-saving and flexibility retrofit of existing coal-fired boilers.

2023-11-28

https://www.gov.cn/zhengce/zhengceku/202312/content_6918527.htm

NDRC clarifies inter-provincial natural gas pipeline transportation prices by region for the first time

Notice on Approving Inter-Provincial Natural Gas Pipeline Transportation Prices, NDRC Pricing [2023] No. 1628

The *Action Plan for Deepening the Reform of the Price Mechanism during the 14th Five-Year Plan Period* (CHN: "十四五"时期深化价格机制改革行动方案) released by the NDRC in May 2021 emphasised the need to improve the pricing mechanism for natural gas pipeline transportation.[10] In July of the same year, the NDRC promulgated the *Measures for the Administration of Natural Gas Pipeline Transportation Prices (Interim)* (CHN: 天然气管道运输价格管理办法（暂行）), which merged the country's 15 natural gas pipeline transportation price zones into four, namely northwest, southwest, northeast, and central-eastern zones.[11]

This time, the price released by the NDRC is the first inter-provincial natural gas pipeline transportation price approved by the four regions. It establishes a relatively unified natural gas pipeline transportation pricing framework, which is conducive to the interconnection of pipeline facilities and promotes competition in the natural gas market. Among them, the price in the northwest is 0.1262 RMB/1,000 m^3·km, the southwest is 0.3411 RMB/1,000 m^3·km, the northeast is 0.1828 RMB/1,000 m^3·km, and the central and eastern parts are 0.2783 RMB/1,000 m^3·km. This policy has been implemented on January 1, 2024.

[10] "国家发展改革委关于"十四五"时期深化价格机制改革行动方案的通知, 发改价格〔2021〕689号," National Development and Reform Commission, 25 May 2021, accessed at https://www.ndrc.gov.cn/xwdt/tzgg/202105/t20210525_1280786_ext.html.

[11] "国家发展改革委关于印发《天然气管道运输价格管理办法（暂行）》和《天然气管道运输定价成本监审办法（暂行）》的通知, 发改价格规〔2021〕818号," 7 June 2021, accessed at https://www.ndrc.gov.cn/xxgk/zcfb/ghxwj/202106/t20210609_1282912.html.

2023-11-28

https://www.gov.cn/zhengce/zhengceku/202312/content_6918763.htm

NDRC announces list of the first batch of carbon peak pilots

Notice on Issuing the First Batch of Carbon Peaking Pilot List, NDRC General Office Environment Resources [2023] No. 942

In November 2023, the Chinese government announced it would select 100 typical cities and parks nationwide for carbon peak pilots. Recently, the NDRC identified 25 cities including Zhangjiakou, and 10 parks including Shanxi Changzhi High-tech Industrial Development Zone, as the first batch of carbon peak pilot projects. In the next step, each pilot will plan key tasks and reform measures and promote the planning and construction of engineering projects.

2023-11-13

https://www.gov.cn/zhengce/zhengceku/202311/content_6917087.htm

NDRC requires the establishment of a product carbon footprint management system

Opinions on Accelerating the Establishment of Product Carbon Footprint Management System, NDRC Environment Resources [2023] No. 1529

Product carbon footprint is a type of carbon emission accounting. It generally refers to the total carbon emissions generated by product throughout raw material processing, transportation, production, and sales. Carbon footprint is an important indicator to measure the green and low-carbon levels of production enterprises and products. As some countries gradually establish carbon footprint accounting, evaluation, and certification systems for critical products, more and more multinational enterprises are incorporating product carbon footprints into sustainable supply chain requirements.[12]

By 2025, the Chinese government plans to introduce about 50 national-level critical product carbon footprint accounting rules and standards, increasing to about 200 by 2030. The document deploys five key tasks, including formulating product carbon footprint accounting rules and standards, building a background database, establishing a carbon label certification system, enriching carbon footprint application scenarios, and promoting international mutual recognition. By 2030, the first three tasks will be basically completed.

2023-10-29

https://zfxxgk.nea.gov.cn/2023-10/29/c_1310750573.htm

NEA optimises renewable energy data statistics system

Notice on Issuing the Statistical Survey System for Renewable Energy Utilisation, NEA New Energy Development [2023] No. 74

Data is an important foundation for promoting renewable energy development. This document aims to guide renewable energy projects nationwide to submit various statistical data more truly, accurately, and completely. The system mainly includes the operational status of grid-connected wind power, solar PV, and biomass power projects, the utilisation of biomass briquette fuel, the status of wind power and biomass power equipment, and the development and utilisation of geothermal energy. Monthly reports shall be submitted to the New Energy Department of the NEA in electronic form, and annual reports shall be submitted in paper and electronic forms.

[12] "国家发展改革委有关负责同志就《关于加快建立产品碳足迹管理体系的意见》答记者问," National Development and Reform Commission, 25 November 2023, accessed at https://www.gov.cn/zhengce/202311/content_6917129.htm.