AUGUST 2022

CHINA ENERGY POLICY

NEWSLETTER

China Energy Transformation Programme

1. Project activities

CETO 2022 - ERI's flagship publication is released

In June 2022, the Chinese Academy of Macroeconomic Research (ERI of AMR) published the full English version of the *China Energy Transformation Outlook 2022* (CETO 2022) online. CETO 2022 is prepared by ERI of AMR in close cooperation with the Danish Energy Agency (DEA), the Center for Global Energy Policy (CGEP) and the Norwegian Norad, aiming to showcase the sustainable pathways to fulfilling the ambitious climate change targets of China. The report focuses on two different energy system scenarios for energy transformation. The first is the baseline scenario, where China contributes to the global 2-degree goal and achieves carbon neutrality around 2070. The other scenario shows a path to meet the climate targets to peak CO_2 emissions before 2030 and reach carbon neutrality before 2060. Also, the report includes several thematic analyses, including end-use sector transformation, power sector transformation, power market reforming, power-to-X, carbon pricing, and status and prospects of CCUS in China. Key results for the two scenarios:

- Continued economic growth can be supported while achieving carbon neutrality
- Energy efficiency improvement is a key pillar to driving down the overall energy demand
- Electrification transforms the demand side
- Renewable energy satisfies the bulk of the energy demand
- Power-to-X, carbon sequestration and carbon sinks are necessary to achieve the final steps toward carbon neutrality

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Danish Energy Agency | Norad Norwegian Agency for Development Cooperation | CET 中国能源转型项目 CHINA ENERGY TRANSFORMATION PROGRAM | COLUMBIA | SIPA Center on Global Energy Policy | 中国宏观经济研究院 能源研究所 Energy Research Institute of Chinese Academy of Macroeconomic Research

2. China energy transition updates

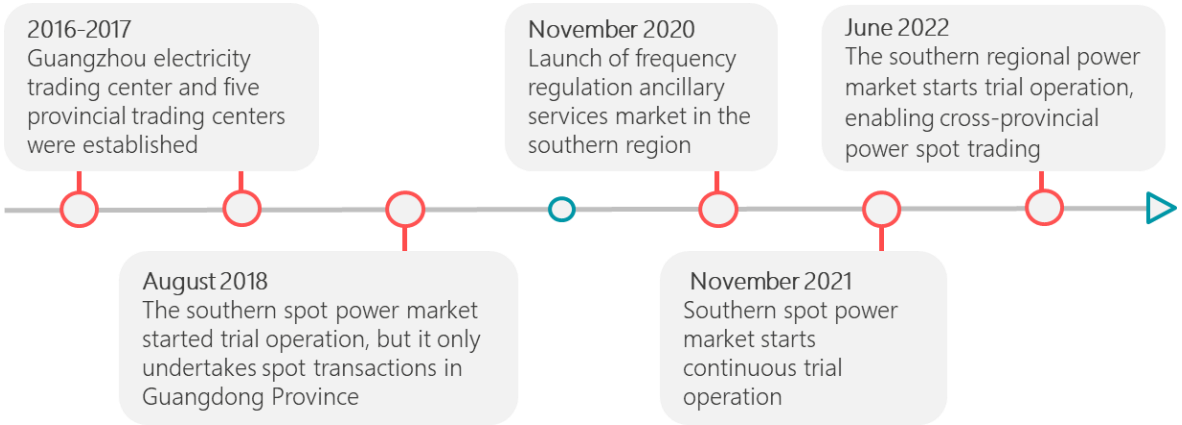
National Climate Change Adaptation Strategy 2035 released

17 ministries and commissions including the Ministry of Ecology and Environment (MEE) jointly issued the *National Strategy for Adaptation to Climate Change 2035*. Compared with the first edition released in 2013, this edition of strategy places special emphasis on strengthening climate change monitoring, early warning and risk management. By 2025, major progress will be made in the modernization of climate-related disaster prevention and control systems and capabilities; by 2030, systems of climate change observation and prediction, impact assessment, and risk management will be formed; by 2035, climate change monitoring and early warning capabilities will reach the international advanced level, and major climate disaster risks be effectively prevented and controlled. Specific measures include improving the observation network, strengthening monitoring, forecasting and early warning, and strengthening risk assessment. For example, to improve the ability of natural ecosystems to adapt to climate change by improving the monitoring and evaluation of water resources, terrestrial ecology, and marine ecology. [1]

Regional power market launched in southern China

On July 23, 2022, the regional power market officially started trial operation in southern China. This is China's first regional power market, covering Guangdong, Guangxi, Yunnan, Guizhou and Hainan, meaning that the five provinces will implement unified power market operating rules and management models. The regional power market includes a medium and long-term power market, a spot power market and an ancillary service market, of which the medium and long-term market include annual, monthly and weekly products; the spot power market has expanded from transactions within Guangdong Province to inter-provincial transactions in the five provinces, with a minimum transaction frequency of 15 minutes per transaction. It is expected that by the end of 2023, the electricity traded in the southern regional power market will account for 80% of the annual power consumption in the five provinces. [2] The operation of the southern regional power market will better optimize the allocation of power resources in the southern grid, balance power supply and demand on a larger scale, and provide strong support for local economic development.

The development timetable of the southern regional power market



Source: China Southern Power Grid, July 2022

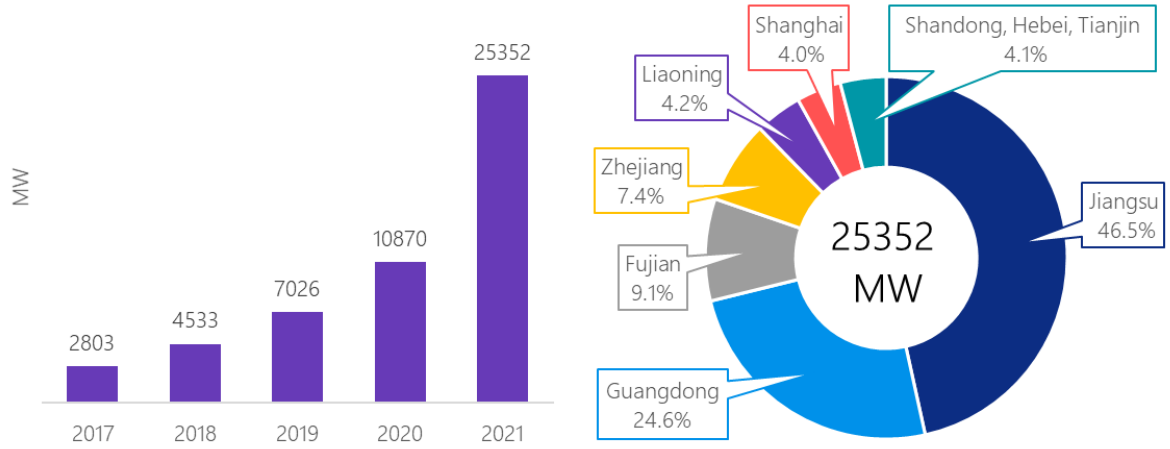
[1] "关于印发《国家适应气候变化战略2035》的通知, 环气候〔2022〕41号," Ministry of Ecology and Environment, National Development and Reform Commission, et al., 10 May 2022, accessed at http://www.gov.cn/zhengce/zhengceku/2022-06/14/content_5695555.htm ; "一图读懂丨《国家适应气候变化战略2035》," Ministry of Ecology and Environment, 14 June 2022, accessed at http://www.ncsc.org.cn/xwdt/gnxw/202206/t20220614_985538.shtml.

[2] "重磅！全国统一电力市场体系率先在南方区域落地," China Southern Power Grid, 23 July 2022, accessed at https://m.thepaper.cn/baijiahao_19146011.

10 provinces have clarified the 14th Five-Year Plan targets for offshore wind power

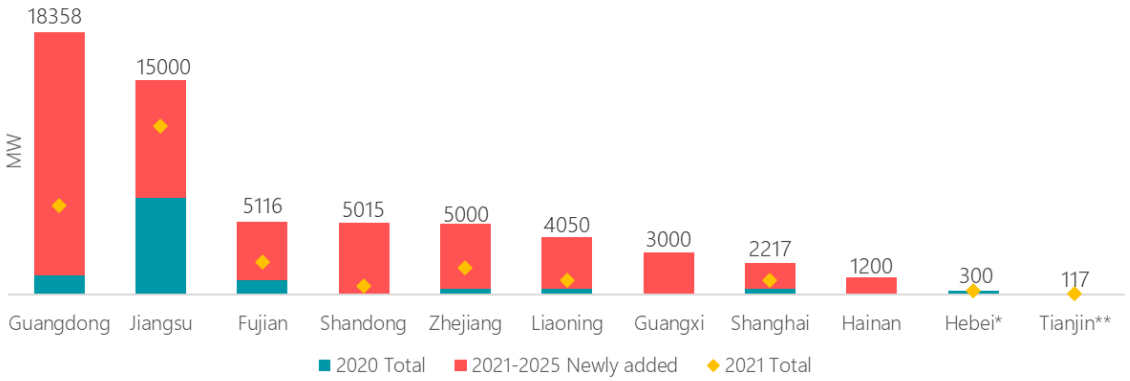
As of July 2022, ten provinces across the country have clarified the development goals of offshore wind power in the 14th Five-Year Plan period (2021-2025), in line with the *14th Five-Year Plan for Modern Energy System Planning* to promote the policy orientation of large-scale development of offshore wind power in coastal areas. According to statistics from the China Wind Energy Association (CWEA), the country has added 14.5 GW of installed offshore wind power capacity in 2021, a year-on-year increase of 278.6%, with Jiangsu and Guangdong accounting for 1/3 each. The cumulative installed capacity of offshore wind power reached 25.4 GW, nearly half of which is in Jiangsu Province. [3]

2017-2021 Total installed offshore wind power capacity in China (left); 2021 Total offshore wind power installed capacity by province



Source: China Wind Energy Association (CWEA), July 2022

The 14th Five-Year Plan target of total installed offshore wind power capacity by province



*Note: * Hebei has not released the 14th Five-Year Plan target; ** Tianjin's 14th Five-Year Plan target is to carry out the preliminary study work of the 900 MW offshore wind power project, without an installation target.*

Source: calculated according to the data of CWEA and the provincial development and reform commissions, accessed in August 2022

[3] "我国各地"十四五"海上风电开发规模目标统计！," China Wind Energy Association, 8 July 2022, accessed at https://news.bjx.com.cn/html/20220708/1239729.shtml; "2021年中国海上风电新增装机排名权威发布！," China Wind Energy Association, 19 July 2022, accessed at https://news.bjx.com.cn/html/20220719/1242197.shtml.

China's first island green hydrogen demonstration project put into operation

In July 2022, on Dachen Island, 50 kilometers southeast of Zhejiang Province, the State Grid put into operation China's first island green hydrogen-based energy supply demonstration project. The project is a combined cooling, heat and power (CCHP) system based on renewable energy hydrogen production. It uses proton exchange membrane (PEM) water electrolysis technology to produce hydrogen using wind power, and the generated hydrogen is stored in fuel cells for power generation. The annual hydrogen output of the project is 73,000 standard square meters and the power generation is 100 MWh, which can meet the power load of Dachen Island of peak electricity consumption and emergency maintenance. At the same time, the heat generated when the fuel cell generates electricity will supply hot water to the island, and the high-concentration oxygen generated by water electrolysis will be used for marine fish farming. State Grid plans to use hydrogen energy to charge tourist vehicles on the island in the future. [4]

State Grid plans RMB 300 billion of new investment in 2022

On August 3, 2022, the State Grid announced to further invest RMB 300 billion in power grid construction until the end of 2022. In order to achieve the GDP growth rate target of 5.5% in 2022, promotion of investment, export and local consumption are three of major pillars. As an important part of infrastructure investment, power grid construction will play essential role to release market demand and form physical workload. In the coming five months, the State Grid will start the construction of more than one thousand of 110 kV and above power transmission lines and pumped-hydro storage projects. In addition, the new investment is expected to bring along over RMB 2,600 billion of further investment in upstream and downstream industries.[5]

[4] "浙江投运海岛"绿氢"综合能源示范工程," Xinhua News Agency, 8 July 2022, accessed at https://baijiahao.baidu.com/s?id=1737786426842892056&wfr=spider&for=pc.

[5] "国家电网全力做好扩投资工作下半年开建新一批特高压工程," Shanghai Securities News, 4 August 2022, accessed at https://baijiahao.baidu.com/s?id=1740186366662153266&wfr=spider&for=pc; "再追加3000亿！国家电网要带动产业链上下游投资超过2.6万亿元," news.smm.cn, 4 August 2022, accessed at https://news.smm.cn/live/detail/101909168.

China's ETS one-year trading review

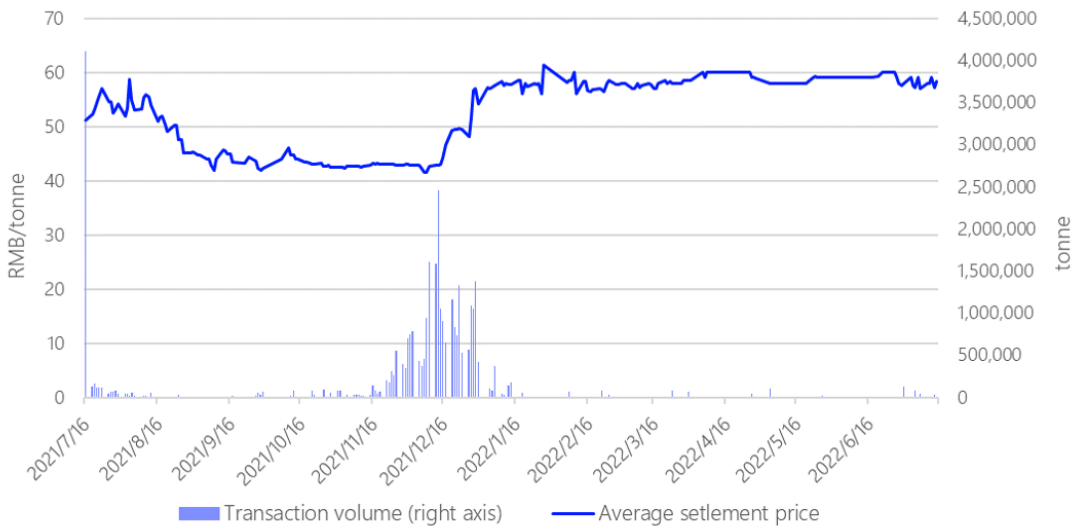
The contents is provided by the Carbon Research Team of Refinitiv under the CET program partnership

One-year mark China National ETS allowance price rose steadily

Last year, on 16 July 2021, the national carbon market finally kicked off its first compliance period, obliging more than 2,000 power generators to surrender allowances to account for their 2019–2020 emissions. The price of national carbon emission allowances (CEA) has soared from 48 RMB/t to a maximum of 61 RMB/t, and the price has fluctuated between 58-60 RMB/t since recently, up 20% from the beginning of the launch of trading. The CEA price stood at 58.24 RMB/t on 15 July 2022. As of that date, the market value of China's national ETS has reached RMB 8.5 billion, with nearly 194 million tonnes of CEA transacted.

The first compliance period of China's national ETS ended on 31 December 2021, a total of 179 million tonnes of CEAs changed hands over the 114 trading days in 2021, with a high compliance rate of 99.5 per cent. The carbon emissions allowances closed the year at 54.22 RMB/t, up 13% on the opening price of 16 July with upbeat results. In H1 2022, a total of 15 Mt of CEA has traded in the market, price ranged from 55-60 RMB/t, including listed and OTC bulk trade.

China national carbon market allowance daily closing price and trading volumes of listed trades



Source: Refinitiv, accessed in July 2022

Key challenges ahead for China's national ETS

According to the results of Refinitiv's 2022 survey, the largest challenges for China's national ETS are the data quality and MRV (Monitoring, Reporting and Verification) issues. Nearly half the Refinitiv 2022 survey mentioned MRV and technical issues as the most urgent problem in the national ETS, specifying absence of information. This could be highly related to existing ETS policies are still mostly in "draft" or "trial" stage or marked "for consultation purposes., which could not set high penalties on data frauds.

Pilot ETS trading performance reviewed

China's eight regional pilot ETS are still operational, running in parallel to the national ETS. Large emitters in sectors other than power generation (which is so far the only sector covered by the national market). Guangdong pilot and Beijing pilot's captive power plants have shifted to the national ETS under the key compliance entities.

In 2021, we witnessed decreased trading volume of 8 pilots in total, compared to 2020, while carbon allowance price jumped to a higher level. A total of 0.64 billion tonnes of allowances were traded in the pilots (36% of the national carbon market in 2021), with a total market value of 2.2 billion tonnes, an average price of 34 RMB/t, or about 4.5 €/t.

4. Policy monitoring

2022-07-06

http://www.gov.cn/zhengce/zhengceku/2022-07/09/content_5700171.htm

The government will develop a dual-carbon standardized measurement system

Notice on Issuing the Action Plan for Implementing the National Standardization Development Outline, SAMR Technology Development Standardization [2022] No.64

The ministries and commissions will set up a national dual-carbon standardization group, and to improve the basic standards for carbon peaking. The document calls for tightening energy consumption limits for key industries and energy efficiency standards for key energy-using products; improving energy accounting, testing, certification, evaluation, and auditing standards; formulating verification standards for carbon emission accounting reports and greenhouse gas emission standards for key industries and products; strengthening the standardized construction of new-type power systems, including standards of wind power, solar PV, power transmission and distribution, energy storage, hydrogen energy, advanced nuclear power and clean and efficient use of fossil energy; study and formulate standards for ecological carbon sinks, carbon capture, utilization and storage.

2022-06-29

https://www.miit.gov.cn/jgsj/jns/gzdt/art/2022/art_4b0af417e18e48da8ea9f9aa8e30e714.html

The 14th Five-Year Plan targets of industrial energy efficiency determined

Notice on Issuing the Action Plan for Industrial Energy Efficiency Improvement, MIIT Joint Energy Saving [2022] No.76

By 2025, the energy efficiency of key industrial fields such as data centers will be significantly improved, and the energy consumption per unit of added value of large-scale industrial enterprises will be reduced by 13.5%; the use of renewable energy power instead of fossil fuels will be encouraged, and the proportion of electricity in end-use energy consumption will reach 30%. Through the construction of green micro-grids, distributed sola PVs, distributed wind power, high-efficiency heat pumps and waste heat and pressure utilization facilities, the proportion of green and low-carbon energy in energy consumption will be increased significantly. In addition, the government encourages industrial enterprises to purchase green power through the power market and consume a high proportion of renewable energy power nearby.

2022-06-30

https://www.mohurd.gov.cn/gongkai/fdzdgknr/zfhcxjsbwj/202207/20220713_767161.html

Urban and rural carbon peaking action plan released

Notice on Issuing the Implementation Plan for Carbon Peaking in the Field of Urban and Rural Construction, MoHURD Standard [2022] No.53

In urban areas, the government requires the promotion of building integrated solar PV, and the rooftop solar PV coverage of new public buildings will reach 50% by 2025; promote solar thermal water supply in qualified buildings, promote the application of geothermal energy and biomass energy according to local conditions, and promote various kinds of electric heat pump technology, to reach 8% of the renewable energy replacement rate of urban buildings in 2025. In rural areas, promote the application of solar energy, geothermal energy, air thermal energy, and biomass energy in gas supply, heating, and power supply; vigorously promote the installation of rooftop solar PV of farm houses, courtyard open spaces, and agricultural facilities.