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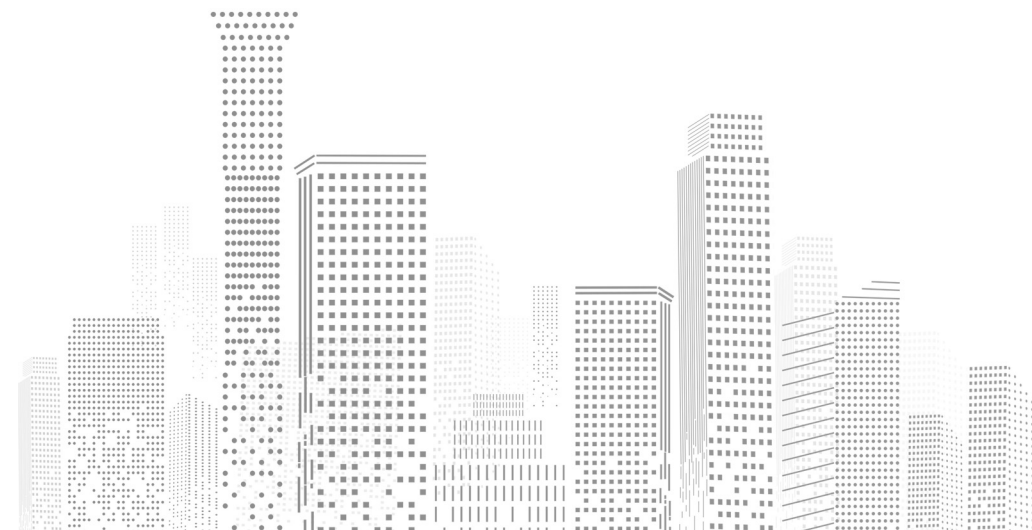
COAL TRANSITION QUARTERLY

NEWSLETTER OF ENERGY FOUNDATION CHINA'S COAL TRANSITION TASK FORCE

ISSUE 7

May 2023

Preparation team: led by Cynthia YU, GAO Yuan, ZHANG Lingyue.



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Foreword by Cynthia Yu

Director, Coal Transition

Throughout Q1 2023, China's coal production increased by 4.8%, exceeding the consumption growth. China keeps building coal inventory throughout upstream mines, midstream ports and downstream power plants, leading the record high of coal inventory by mid-May, with totally 38 million tons (Mt) of inventory in power plants in eight coastal provinces, increased by 18.3% YoY. Several factors supported the strong coal prices, however. The safety inspection triggered by Alax mine accident brought 100 Mt of mining capacity out of the market; China's top political event in this spring led to the shutdown of private coal mines temporarily; more critically, the decrease in hydropower output due to drought in south China led to the increase in coal power output instead. Looking forward, climate and economy continue driving China's coal consumption. Based on forecasts from China's climate center, warmer than normal weather condition may lead to another low hydropower output year, while the economic cooling-down since April 2023 may lead to less power consumption.

In National Energy Administration (NEA) 2023 workplan, energy security is continued being positioned as top priority. It is expected that China's power consumption to increase by 6% to 9.6TWh. Wind and solar generations are targeted to account for 15.3% in the power mix, enhancing from 13.8% in 2022, with approximately 160 GW of new capacity being installed. Enhancing systematic flexibility for balancing larger percentage of wind and solar power output is emphasized, where coal power flexibility retrofit and pumped hydro are both largely promoted.

Coal power's role is being transitioned from baseload to supporting power generation. Moreover, coal power is used for modulation was first mentioned by NEA in April. In fact, we have seen several cases that coal power is used for systemic inertia in Henan and Shandong. During China's labor holiday (May 1st to 2nd), coal power was positioned as systemic inertia when Shandong's spot power price was negative.

On May 11th, EF China (EFC) held a close-door seminar on coal and new power system. Various experts from coal supporters to green supporters were invited. Consensus was formed that it is critical for non-fossil fuel storages to mature commercially within the next 10-20 years to gradually replace coal power as flexibility. Eleven out of the fifteen China's top experts believe carbon peaking will happen prior to 2030, and coal power will be massively replaced by non-fossil fuel within 20 years. The most critical problems that all experts agreed on are flexible resources, pricing mechanisms, and the solution for power system security following high percentage of renewable penetration.

For EFC's coal team, we are focusing on advocating role transition of coal power to adapt to new power system and shape climate friendly energy security view in 2023. We prioritize minimizing coal power investment while promoting non-fossil fuel solutions effectively. EFC holds positive view to largely phase out China's coal power without CCUS by 2045 and we are working to achieve the goal even facing the challenging macroenvironment.

Coal Data Updates

Summary of economic and energy trends in Q1 2023

With the post-pandemic recovery, China's GDP restored from 3% YoY growth in 2022 to 4.5% YoY in Q1 2023. Correspondingly, the growth rate of national energy demand increased from 2.9% YoY in 2022 to 3.8% YoY in Q1 2023. Power consumption grew by 3.6%, due to the recovery of industrial productivity. Particularly, power consumption grew by 5.9% in March.

By technology, hydropower generation decreased by 8.3% in Q1 2023, primarily due to the 27.4% drop of hydropower output from Hubei province, one of the largest hydropower producers. Wind and solar power generation continues accelerating YoY growth in Q1 2023, reaching 18.1% and 11.8% respectively, evidently higher than the level of thermal power at merely 1.7% YoY.

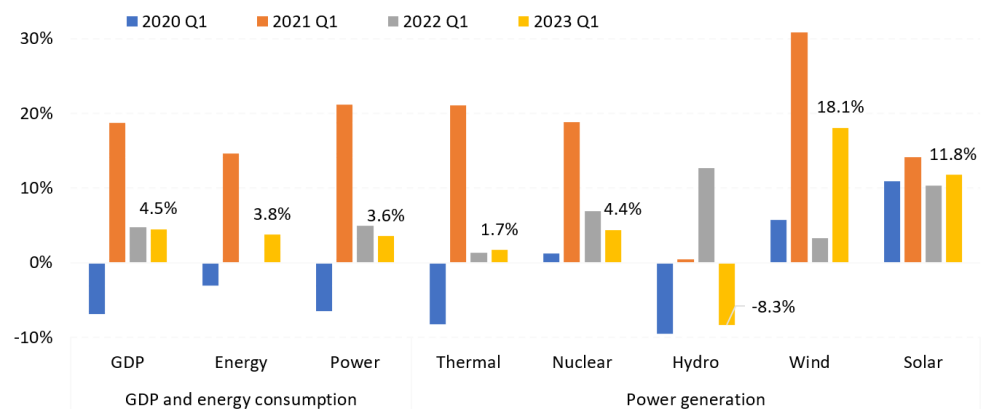


Figure 1. YoY changes of China's key economic and energy indicators, 2020-2023

Source: National Bureau of Statistics (NBS) and China Electricity Council (CEC).

Coal production

China's coal production growth slowed to 4.8% YoY over the first four months of 2023, reaching 1,527 Mt. After the Alax mining accident in February, China's government has tightened the safety inspections in coal production areas. In April, the National Mine Safety Administration (NMSA) withdrew or suspended the former approval for capacity promotion in 30 coal mines due to safety issues, indicating a suspension of 23.55 Million Tons Per Annum (MTPA) in coal capacity.

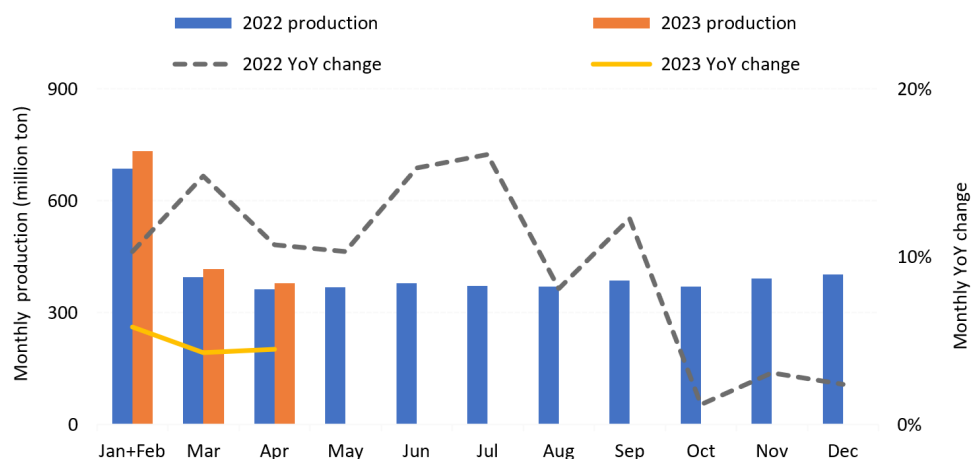


Figure 2. YoY change of China's monthly coal production: 2022 vs. 2023

Source: NBS

National coal production is highly concentrated in the top producing regions. Specifically, the top ten and top four provinces respectively stand for 94% and 81% of national coal production. Shanxi, China's largest coal producer, produced over 333 Mt of coal in Q1 2023, accounting for 29% of China's national output. Meanwhile, Inner Mongolia, Shaanxi and Xinjiang represent 27%, 16% and 10%, respectively. Among the top ten producing provinces, only Shandong saw a YoY decline of coal production in Q1 2023. Among the top ten coal producers, Xinjiang sees the highest growth rate, though the province is far from the demand centers.

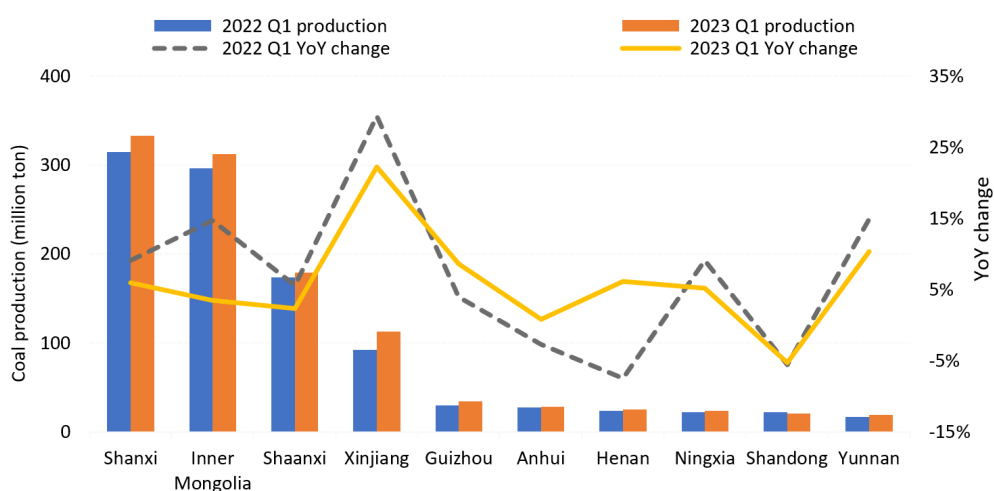


Figure 3. China's top ten coal producing provinces: 2022 Q1 vs. 2023 Q1

Source: NBS.

From a global perspective, with the end of heating season and the decline of natural gas price, the coal production either declined or decelerated in main coal producers in Q1 2023 from the level of 2022.

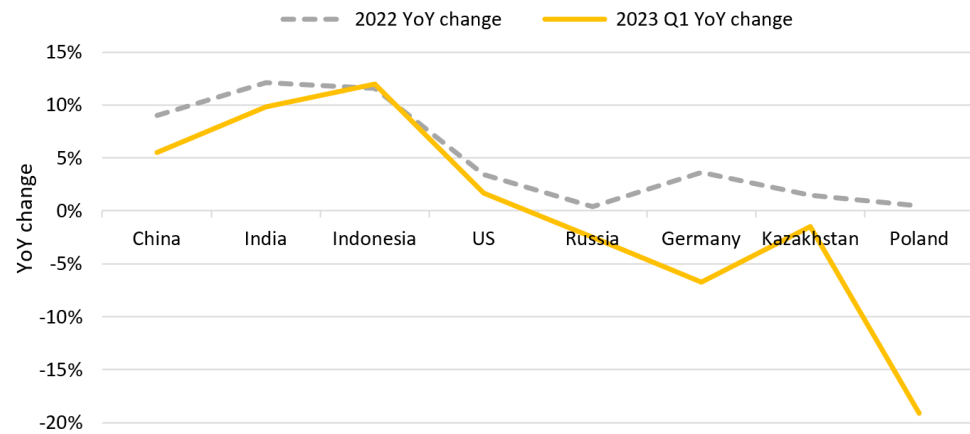


Figure 4. YoY change of coal production in top ten coal producing countries in Q1 2023

Source: [China Coal Economic Research Association](#).

Note: Data of South Africa and Australia is unavailable by the reporting date.

Coal imports

By the end of April 2023, China's coal import reached 142.48 Mt, growing 88.8% YoY. As China resumed imports from Australia and the cooling down of global commodity prices, China's coal imports have been crawling up in the first four months of 2023 from the low base in the same period of 2022. Moreover, the extension of zero tariffs on coal imports will encourage coal imports in the following months.

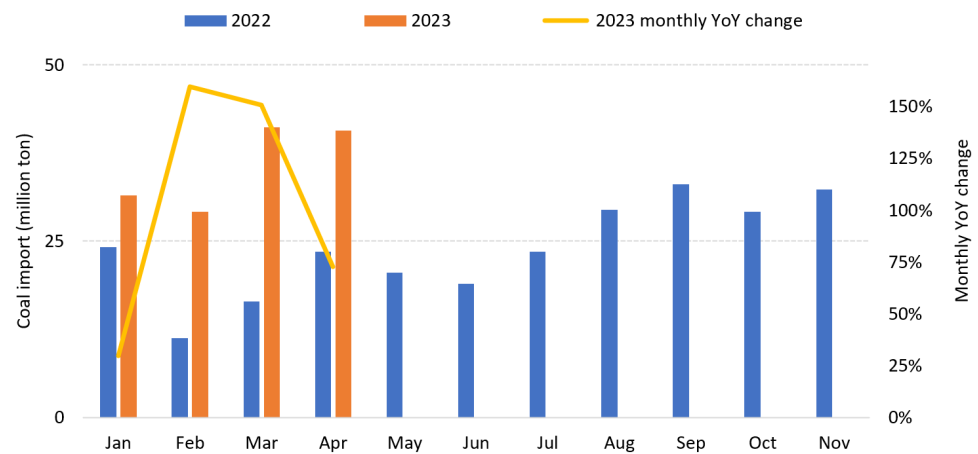


Figure 5. China's monthly coal imports: 2022 vs. 2023

Source: [China Customs](#).

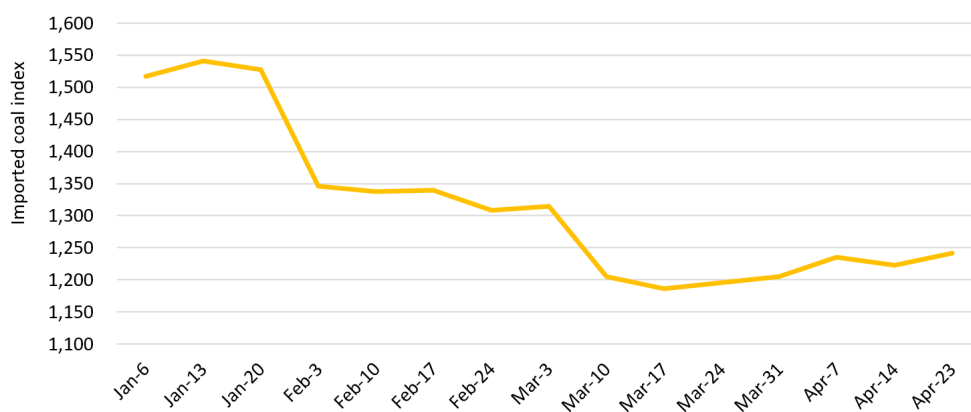


Figure 6. China's imported coal index

Source: CEC.

Coal consumption

Globally, the international coal market has entered the slack season since Q1 2023. As World Bank noted in a report, coal prices fell in Q1 2023 as additional production was about three times the level of additional consumption. As several constraints pushing up coal prices in 2022 unwind, coal prices are forecast to fall 42% in 2023, but remain well above the 2015-19 average.

In China, the national coal consumption is mainly for thermal power generation (~56%) and industrial production of steel, cement and chemical products (~36%). In Q1 2023, as China seeks to boost economic recovery, the downstream demand of coal has gradually rebounded.

The YoY growth rate for steel production started to turn positive in Q1 2023 and fell to negative in April again. Driven by the infrastructure investment, cement production saw a strong recovery in Q1 2023 from 2022 level, but evidently slowed down in April due to the still weakening demand from the property sector. Since the beginning of 2023, the growth rate of thermal power has been climbing. During January-April in 2023, coal-related key sectors' production data as:

- Thermal power generation: 1,946.7 TWh, increased by 4% YoY vs. total power generation increased by 3.4%, following 0.9% decrease in 2022
- Crude steel production: 354.39 Mt, increased by 4.1% YoY, following 2.1% decrease in 2022
- Cement output: 584.29 Mt, increased by 2.5% YoY, following 10.8% decrease in 2022

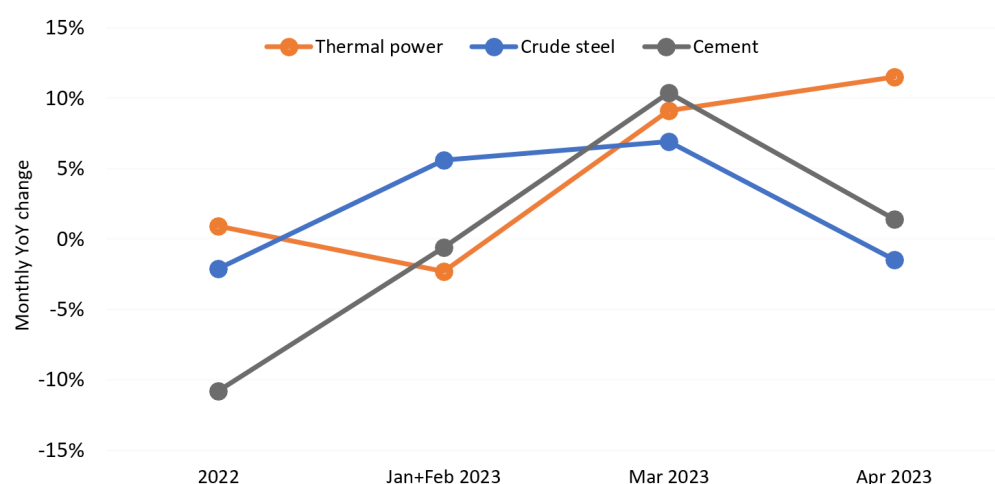


Figure 7. Monthly YoY change of production in main coal-related sectors in 2023

Source: NBS.

Coal-fired power plants

According to CEC, China's total power capacity advanced 9.1% YoY in Q1 2023, reaching 2,620 GW, with the breakdown as the following figure. For the first time, China's non-fossil fuel capacity exceeds half of the total power capacity, accounting for 50.5% in power capacity mix. The coal power capacity accounts for around 43.1%, increasing by around 1.8% YoY. Among all the power sources, the solar power capacity experienced the fastest expansion, with 33.7% YoY growth.

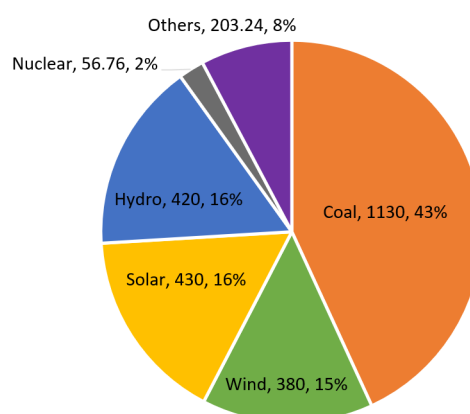


Figure 8. Power capacity mix by Q1 2023 (Unit: GW)

Source: CEC.

Q1 2023	Total	Hydro	Coal	Gas	Biomass	Nuclear	Wind	Solar
Incremental capacity (GW)	59	2.71	8.05	4.84	1.31	0.71	1.19	10.4
Growth rate	9.1%	5.4%	1.8%	7.4%	8%	4.3%	11.7%	33.7%

Table 1. Incremental power capacity by technologies in Q1 2023 (Unit: GW)

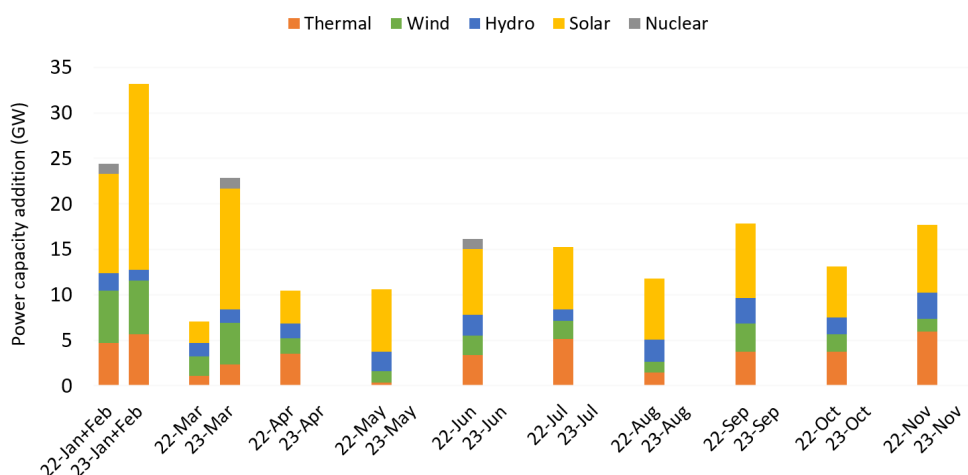


Figure 9. Power capacity additions by technology: 2022 vs. 2023

Source: CEC.

By the end of April 2023, China's thermal power generation increased by 4% YoY to compensate for the decrease in hydropower output, while total power production increased by 3.4% YoY. The wind power generation contributed most to the power generation growth, hitting 18.8% YoY. The hydropower output continued the shrinking trend.

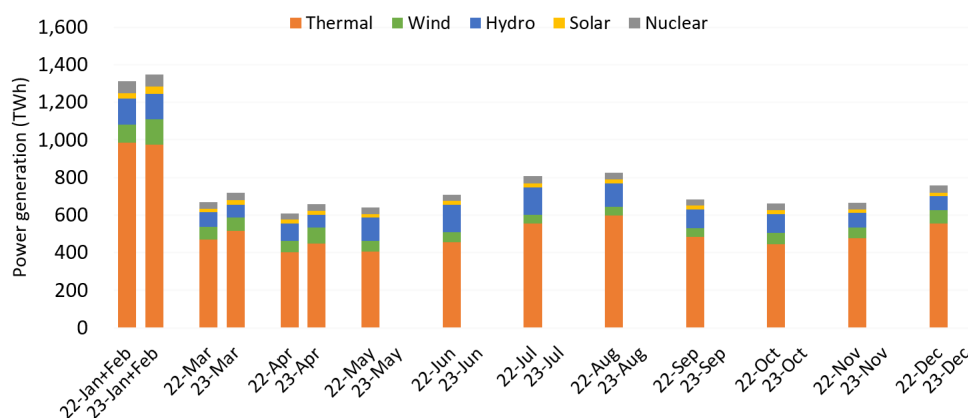


Figure 10. Power generation mix by technology: 2022 vs. 2023

Source: NBS.

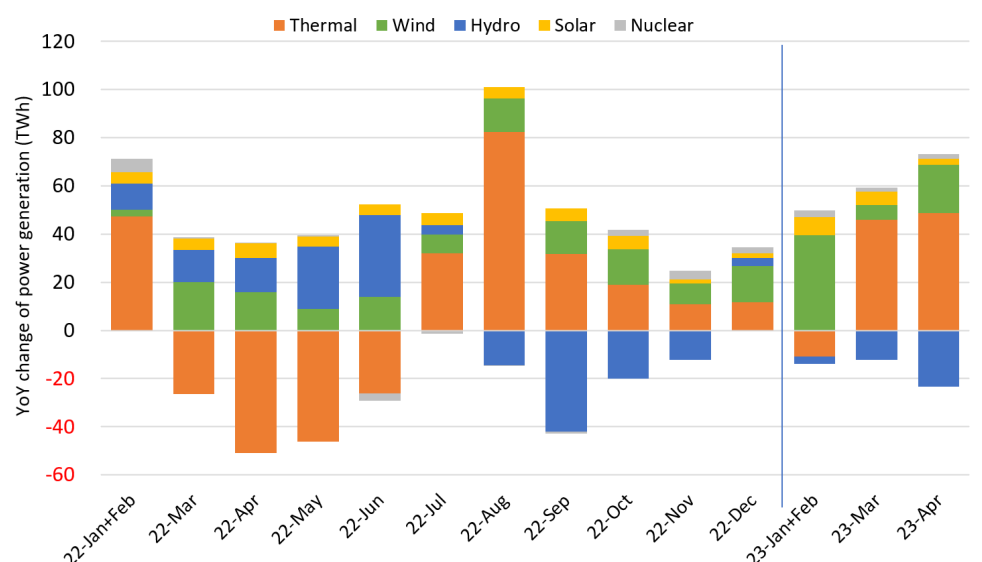


Figure 11. Monthly YoY change of power generation by technology

Source: NBS.

During Q1 2023, the power investment reached 126.4 billion RMB, 55.2% higher than the level in the same period of 2022. The thermal power investment expanded by 3.7% YoY, accounting for 10% of the total investment. Investment in clean power, focusing on hydro, nuclear, wind, solar and biomass, accounting for 90% of the total investment. Thereinto, the investment in hydropower decreased by 7.8% YoY. The soaring investment in others mainly revealed the mounting solar power expansion.

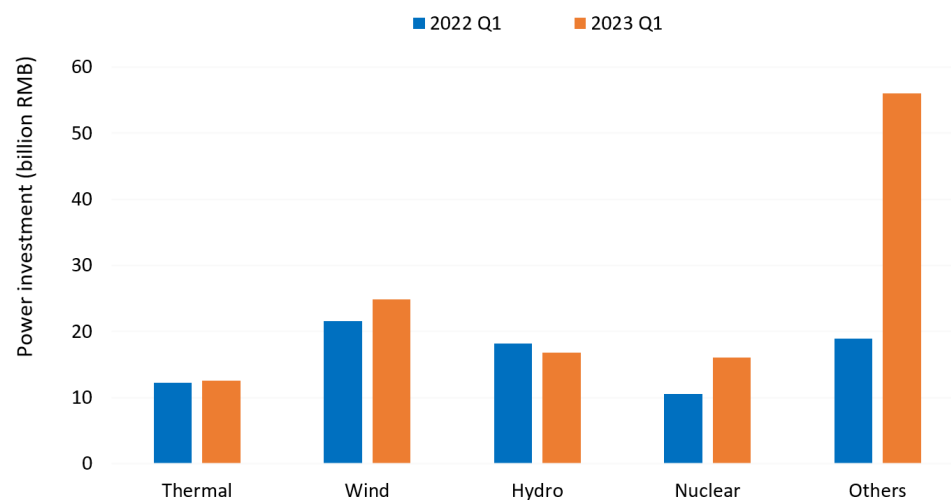


Figure 12. Power investment by technology (unit: billion RMB)

Source: CEC.

Key Developments in China



NDRC issued the opinion soliciting drafts on the management measures for power demand side and power loading (consultation draft)

On May 19th, 2023, the National Development and Reform Commission (NDRC) issued two opinion soliciting drafts on the management measures for power demand side and power loading. The demand response and ordered electricity consumption are emphasized in both two drafts. It's proposed that by 2025, the demand response capacity of each province will reach 3% - 5% of the maximum power load, and exceed 5% for the provinces with the annual maximum electricity load peak. For ordered electricity consumption, when in a foreseeable shortage of electricity supply, the power operation dispatch should strictly guarantee the supply to residents, agriculture, important public utilities, and public welfare services. The electricity supply to enterprises in key industrial chain or supply chain should also be prioritized. ([NDRC](#))

NEA issued the Guiding Opinions on Strengthening the Stability of New Power System (consultation draft)

On April 24th, 2023, the NEA issued a notice on Guiding Opinions on Strengthening the Stability of New Power System. The notice emphasized stability as the foundation of the power system development. As the main flexible power source, coal power should play a greater role in regulating and supporting the power system. The notice emphasized again that all new coal power units should achieve flexible manufacturing, and also required to accelerate the flexibility retrofitting of existing coal power units. Besides, in national policies, the notice first proposed to support the transformation phase modulation function of retired coal power units. In June 2022, one retired coal power unit in Henan Province was transformed into a unit with two modes: phase modulation and power generation. ([NEA](#))

NEA issued the Guiding Opinions on Energy Work in 2023

On April 6th, 2023, NEA issued a notice on the Guiding Opinions on National Energy Work in 2023. Compared with 2022, the main topic of the current notice changed from carbon peaking to energy security. To prioritize energy supply security, China targets 4.75 billion tons of coal equivalent for total primary energy supply, and 9.36 TWh for total power generation. In the coal sector, the government will orderly push the approval and construction of advanced coal mine capacity, accelerate the delivery of coal mines under construction, and enhance the ability of coal mines in increasing production and securing supply. Meanwhile, to increase energy system's flexibility, coal power retrofits for lowering carbon emission, enhancing flexibility and heating retrofit are highly promoted together with the acceleration of pumped hydro construction. The NEA also targets to continue to lower coal share in primary energy mix while increasing non-fossil fuel share to 18.3%. ([NEA](#))

China continues to implement zero tariffs on coal imports till the end of 2023

On March 24th, 2023, the Tariff Commission of the State Council issued a notice to continue the implementation of zero tariffs on the import of all types of coal. To support the stable coal supply in China, the implementation will be continued till the end of 2023. ([GOV](#))

NMSA issued a notice to strengthen the prevention and control of coal mine gas

On March 22nd, 2023, the NMSA issued an emergency notice to strengthen the prevention and control of coal mine gas. Since the beginning of 2023, four coal mine gas outburst accidents occurred nationwide, and the latest one happened in Guizhou Province on March 19th caused six deaths. Against the background, the current notice has put forward seven items to control the great risks of coal mine gas, including strengthening the accountability mechanism of coal mine enterprises, investigating the prevention mechanism of coal and gas outbursts, investigating coal mine gas parameters, etc. ([NMSA](#))

NDRC issued a notice to guarantee the coal supply for the fertilizer production

On February 9th, 2023, NDRC issued a notice on ensuring the supply and stabilizing the price of chemical fertilizer during the spring ploughing in 2023. The notice emphasized that coal enterprises should establish and strengthen stable commercial relations with chemical fertilizer suppliers to maintain the price of coal used for chemical fertilizer production at a reasonable level. Moreover, medium and long-term contracts among coal enterprises, railways, and key chemical fertilizer producers are encouraged, and the contracts of coal for chemical fertilizer over 0.1 Mt will be regulated by the national coal trading center. ([GOV](#))

NDRC and NEA optimized the investment arrangement in the coal mine safety reform

On February 9th, 2023, NEA and four other departments jointly revised and issued the Management Measures for the Special investment within Central Budget in the Coal Mine Safety Reform, including key points as follows:

- Adjust the method of capital arrangement: fund allocation will be linked to implementation of increasing production and ensuring supply.
- Optimize investment direction: the special fund will mainly encourage and support the high-technology development of coal mines (deep integration of AI, industrial internet of things, cloud computing, big data, robots, intelligent equipment, etc. with modern coal mines), comprehensive utilization of coal mine gas, and the transformation of coal storage facilities, etc.
- Specify the standards for fund subsidies: for individual coal mine safety renovation projects, the subsidy is capped at 25% of the total investment and 30 million RMB at the maximum. ([NDRC](#))

PBoC continued to implement three structural monetary policy tools

In January 2023, People's Bank of China (PBoC) issued a notice to continue the implementation of three monetary policy tools, including the carbon emission reduction support tool, the special re-lending for the clean and efficient use of coal tool, and the special re-lending for the transportation and logistics tool. The carbon emission reduction support tool will continue to fund financial institutes at a preferential interest rate, guiding them to equally provide loans to all kinds of enterprises in the key areas of carbon emission reduction throughout 2024. The special re-lending for the clean and efficient use of coal tool will continue to support nine fields involving coal, such as intelligent coal mining and the clean and efficient processing of coal throughout 2023. By the end of 2022, 81.1 billion RMB of coal clean and efficient use re-lending facilities was issued out of the 300 billion RMB proposed by PBoC. ([PBoC](#))

Key Developments:

International Perspective

May 15 Australia approves new coal mine after pledges of climate action

Australia's center-left Labor government has approved its first new coal mine since it came to power a year ago, in a boost to the country's lucrative fossil fuel industry. Bowen Coking Coal Ltd. had received approval to move ahead with its planned Isaac River Coal Mine, which will sit alongside several other projects in the Bowen Basin in Queensland. The company plans to increase its output of coal used in steelmaking to 5 Mt by 2024. ([Bloomberg](#))

May 15 South Africa can keep coal-fired plants running longer

South Africa's climate policy body suggested the government could delay retiring its aging coal-fired power plants to address electricity shortages. The ruling African National Congress has recommended that state power utility Eskom delay the decommissioning of its aging coal-fired power stations to help minimize rolling electricity outages. However, it is also committed to a plan - partly funded by the United States, Britain, France, Germany and the European Union - to accelerate a shift away from coal and towards solar and wind energy. ([Reuters](#))

April 6 World Bank's private sector arm to stop supporting new coal

The International Finance Corporation (IFC), the private sector arm of the World Bank, is to stop supporting new coal projects. An update to the organization's 'green equity approach' policy, which is aimed at intermediary clients such as commercial banks, explicitly states that IFC investment will no longer support new coal. The policy previously only required financial clients to reduce their exposure by half by 2025, and to zero by 2030. The loophole had allowed the IFC's financial clients to support a number of substantial new coal projects over the past five years. ([Climate Change News](#))

March 7

Emergency coal power plants used for first time as UK sees cold snap

Two old coal-fired power plants have begun generating again as the UK expects to see its coldest night of the year. National Grid blamed high demand and a shortage of electricity from other sources. The coal plants began operating in 1966 but were due to close last September. However, operators have kept them open for an extra six months at the request of the government, amid fears of possible power shortages. With weather warnings across the UK, the two coal-powered stations that are in use again are in West Burton in Nottinghamshire. National Grid has a total of five coal-fired generating units on standby, and two further contingency coal-fired units, at Drax power station in Yorkshire, were ordered to get ready for use as well. ([BBC](#))

February 22

Canada's Teck Resources to spin off steelmaking coal business

Canadian diversified miner Teck Resources is planning to restructure its business into two independent, publicly listed companies, Teck Metals and Elk Valley Resources (EVR). The firm would change its name to Teck Metals and spin off its steelmaking coal business into EVR. With the transaction, Teck Resources will exit from fossil fuels to focus on metals, which are crucial for the transition to a low-carbon world. ([Mining Technology](#))

January 5

Glencore under new climate pressure over its coal cash cow

Glencore Plc is facing new investor questions over the climate impact of its top performing coal mining unit, ratcheting up pressure on the world's biggest shipper of the dirtiest fossil fuel. Shareholders will vote at a May annual meeting on a resolution urging the company to explain how its thermal coal business aligns with efforts to achieve climate targets. The move comes as concerns about climate change clash with the extreme profitability of coal, a result of the global energy crunch caused by Russia's invasion of Ukraine. ([Bloomberg](#))



Progresses of EFC's Coal Transition Task Force

EFC supported the publication of an article about coal power transition on China Energy News

On March 27th, 2023, supported by EFC, Professor Wang Ke from the Renmin University of China published an article on China Energy News, one of the most influencing publications in China. In this article, Prof Wang Ke calls for a sound and orderly transition of coal power to prevent the risk of stranded assets. Prof. Wang Ke indicated that multi-trillion RMB of net asset loss will be triggered for the transition of existing coal assets. Measures need to be taken to minimize the financial risks, including clarifying coal power's role in the transition, implementing suitable technology based on the local conditions, promoting alternative new energy solutions, emphasizing transition finance and risk management, and introducing applicable market mechanisms. A policy note was also submitted.

In-depth exchange on jointly promoting pollution and carbon reduction between EFC and Linfen City

From March 1st to 3rd, 2023, the Coal Transition Task Force together with the CEO and President of EFC, Zou Ji, visited the offices of the Department of Ecology and Environment of Shanxi Province and Linfen Municipal Government. During the visit, we carried out in-depth exchanges and shared the research on jointly promoting pollution reduction and carbon reduction in Shanxi. Zhang Dawei, Deputy Director-General of the Department of Atmospheric Affairs of Ministry of Ecology and Environment, also participated in the meeting between EFC and Linfen City. In Linfen, EFC investigated with local key enterprises to study the opportunities on decreasing coal consumption from an air quality improvement perspective.

Field Trips in Inner Mongolia

From April 4th to 7th, 2023, Coal Transition Task Force and the Clean Power Program jointly visited Ordos and Hohhot, Inner Mongolia. Several highlights and observations during the trip included:

Inner Mongolia, which has large potential for renewables installation, views China's dual-carbon policy as an opportunity, not a burden. Currently, coal accounts for 82% of primary energy consumption in Inner Mongolia.

Low costs of green power can be an opportunity for Inner Mongolia to extend its business, such as zero-carbon

industrial park where EFC would like to support the pricing mechanism for green power micro-grid.

Coal subsidence area restoration with on-site solar farm generates green power and also provides shade for crop productivity enhancement.

In remote desert areas, China is massively installing renewables where power will be transmitted to loading centers via ultra-high voltage lines. To provide balanced power output for grid network, new coal power capacity is proposed as associated flexible generation. EFC would like to explore non-fossil flexible alternatives to minimize new coal capacity.

A mid-term review meeting was held for two Inner Mongolia projects

On April 6th, a mid-term review meeting was held for two Inner Mongolia projects conducted by Inner Mongolia Branch of Shanghai Jiaotong University: The Comparative Study on Coal Consumption Control in Inner Mongolia and Research on the Promotion Scheme and Pilot Project of Upgrading Coal-Fired Power Unit. The two projects will help the region better achieve high-quality transformation of green development and achieve carbon peaking and neutrality.

A kick-off meeting to support the study on reframing Heating System in Beijing under dual carbon goals

On April 14th, EFC held a kick-off meeting to support the study on reframing Heating System in Beijing under dual carbon goals. This grant fits well under the cooperation framework between EFC and Beijing government officials. For the next step, the grantee will continue routine study according to the planned schedule and will organize and hold special seminars on key contents such as the impact of heat pump heating on the power system, the development and transformation of urban heat networks in central urban areas, and the feasibility of heating from industrial waste heat from outside the region.

A mid-term review meeting for the project on control strategies for scattered coal use

On April 21st, granted by EFC, Chinese Academy of Environmental Planning held a mid-term review meeting for the project: A Study of Pollution Characteristics and Control Strategies for Scattered Coal Use in the Border Areas of Jiangsu, Anhui, Shandong and Henan Provinces. During the past several months, the grantee organized local partners from Jiangsu, Anhui, Shandong, and Henan provinces to carry out local investigations on scattered coal use, which covered 24 cities. The sample size includes more than 800 sets of equipment for investigation of agricultural production, 400 sets of equipment for investigation of agricultural processing, as well as 1000 villages and communities. Based on the solid first-hand data, the grantee summarized the

characteristics of scattered coal emissions, and suggested the technical pathways for scattered coal pollution control, as well as policy options including energy prices, new heating technologies, production process and technical upgrades, incentive policies for agricultural bulk coal management, and supervision and management mechanisms.

A county-level just transition case study in Shanxi Province

On April 27th, funded by EFC, Shanxi Coshare finalized a county-level just transition case study to fill the gap in domestic research. As a local research institute, Coshare has strong capacity in developing Shanxi coal transition projects. This project focused on Qinshui County, whose GDP per capita ranked first in Shanxi in 2020 due to the high dependency on coal industry. In the project, Coshare developed a just transition indicator system, considering employee, employee's family, company, community and county; and provided policy suggestions accordingly. Furthermore, the research results can be fed into international dialogue on a just coal transition.

A mid-term review meeting for the project on development path of biomass energy in China

On March 14th, granted by EFC, China Association of Circular Economy held a mid-term review meeting for the project - Development path of biomass energy in China based on dual carbon goals (stage 1): technical policy research on biomass application in power system under dual carbon goals. In the New Power System, as an indispensable key emission reduction technology choice, biomass power could be a replacement to coal power on the rotational inertia supply and flexibility regulation. Therefore, it is necessary to help find a way out for biomass power to be further developed.

A case study for the project deep dive for promoting intelligent heating

On March 13th, together with our grantee Beijing Gas and Heating Engineering Design Institute Co., Ltd, Coal Task Force and Low Carbon Cities Program visited Nuanliu Technology as a case study for the project deep dive - to support the study on policies and measures for promoting intelligent heating to achieve carbon peaking and carbon neutrality.

A discussion with IEA

On March 8th, Coal Task Force held a discussion with experts in IEA to better understand China's coal consumption situation in 2022, and to forecast the 2023 trends. The topics cover coal consumption, stockpiling and quality, the role of new coal power, and the trend of production and coal to chemical expansion.

A mid-term review meeting for the project on low carbon transition pathway of coal power in China

On March 7th, EFC held a mid-term review meeting for the project – Low carbon transition pathway of coal power in China – conducted by Renmin University of China. The key findings included but were not limited to: coal power should transition from being the main power source to being the source for peak/frequency regulation power. Furthermore, regarding systematically regulated power, there should be a moderate growth of coal power until 2025, followed by an accelerated transition period. To ensure a smooth and orderly transition away from coal, enabling tools must be utilized and which could include transition finance, market mechanisms for flexible power generation, etc.

A mid-term review meeting for the project on Hohhot's Low Carbon Heating Development

On March 31st, EFC participated in the 19th Building Energy Efficiency Academic Week in Tsinghua University, and also held a mid-term review meeting for the project - To support the study on Hohhot's Low Carbon Heating Development Plan and Recommendations. The project studied the barriers hindering implementing a low carbon heating plan, including the cost, heat price, stakeholders' interests, etc., and proposed policy recommendations and solutions to address these barriers. The goal is to provide an updated heating sources map around the city and develop the low-carbon heating development plan by recovering waste heat from power plants, industries, data centers, and renewable energy. Roughly estimated, it would reduce 30% of carbon emissions immediately and be on the right path of zero-carbon heating by 2050.

Agora Afternoon Tea on China's new type of energy system

On March 22nd, Coal Task Force took part in the 1st Agora Afternoon Tea, together with Global Energy Interconnection Development and Cooperation Organization, China National Offshore Oil Corporation Research Institute, and other organizations. The topic of this activity is Discussion of Key Issues of China's New Type of Energy System.

A mid-term review meeting for the project on energy storage in China's electric systems

On March 21st, to study the strategy and technical roadmap for energy storage in China's electric systems under carbon peak and carbon neutrality goals, the mid-term project review meeting was held by CEC and EFC. In this project, CEC will design a development roadmap and viable policy recommendations on energy storage growth during the 14th Five-Year Plan period (2021-2025) and in the medium- to long-term, particularly focusing on top-level design, policy objectives, technical standards, coordination mechanism, market establishment and policy incentives.



Highlights of Knowledge from the Field

Power Sector Implementation of a Country Coal-to-Clean Transition ([RMI](#), April 2023)

Major coal-dependent countries, including South Africa, Indonesia, and Vietnam, have agreed to Just Energy Transition Partnerships (JETPs) that aim to transform and decarbonize multiple sectors of their economies. The report identified five key outcomes critical to the success of the coal-to-clean transition and proposed an integrated approach which raises a set of key questions that need to be answered along the road to implementation.

Boom and Bust Coal 2023: Tracking the Global Coal Plant Pipeline ([Global Energy Monitor](#), April 2023)

The amount of operating and planned coal plants fell in 2022 both in developed and developing countries excluding China, as plants were retired and new projects cancelled. But the global pace of retirements needs to move four and half times faster in order to put the world on track to phasing out coal power by 2040, as required to meet the goals of the Paris climate agreement. The report follows the latest warnings from the Intergovernmental Panel on Climate Change that existing fossil fuel infrastructure will consume the world's remaining carbon budget needed to limit planetary warming to 1.5°Celsius.

Commodity Markets Outlook ([World Bank](#), April 2023)

During the first quarter of 2023, energy prices continued their sharp decline from last year's record highs, as global growth weakened and the global reshuffling of export markets for natural gas and coal settled. For 2023 as a whole, the energy price index is forecast to fall by 26% from 2022. Thereinto, coal prices fell in the first quarter of 2023 as additional production was about three times the level of additional consumption. In the short term, upside risks include the possible stronger-than-expected recovery in China, production shortfalls, reduced Russian exports, or switching from gas to coal in Europe caused by higher natural gas prices next winter. Downside risks include a deeper-than-expected slowdown in global activity, favorable weather conditions, or reduced demand from China.

Inflation Reduction Act to accelerate US coal plant retirements ([S&P Global](#), February 2023)

U.S. coal-fired power capacity has been fading quickly for nearly a decade, but the Inflation Reduction Act passed in 2022 will accelerate the trend, according to a forecast from S&P Global Market Intelligence. Of the 58.7 GW of coal plant capacity projected for retirement by 2030, about 24.3 GW, or 41.4%, are due to the Inflation Reduction Act, or IRA, making coal less competitive than other resources, according to S&P Global Commodity Insights. By 2030, Market Intelligence forecasts that electricity demand for coal will decline by 33.6% and coal-fired power will account for just 10.4% of electricity generation.

Driving Down Coal Mine Methane Emissions ([IEA](#), February 2023)

Tackling methane in the coal sector is a major opportunity for climate action that can also strengthen energy security. Experience shows that there are several steps countries can take today – using existing technologies and tools – that can lead to significant reductions in methane emissions from coal mining. This report highlights the lessons learned in different coal-producing jurisdictions to support the development of smart and effective methane regulation. It then provides detailed guidance on the process of designing, drafting and implementing new regulations. Finally, it discusses the different regulatory approaches currently in use for methane, with the aim of providing a comprehensive toolkit for policy makers.

