

**CHINA ENHANCES POLICY EFFORTS
TO GREEN ITS ECONOMY**

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Executive Summary

1. China's policy efforts to greening its economy started as early as the 1980s. The emphasis later shifted from reducing pollution to sustainable development. More recently, the preservation of natural resources environment has gained even greater attention as championed by China's President Xi Jinping.
2. China has also committed to peak its carbon footprint and attain neutrality with its active participation in international environmental cooperation to fight against climate change. Policies turned to reducing carbon emission and consumption in economic development.
3. Policy efforts to facilitate the greening of China's economy have been wide-ranging and rapidly evolving, including plans and targets as well as reorganised authorities for policy enforcement. The three prioritised tasks are industrial and energy restructuring, saving energy and increasing energy efficiency, and promoting green finance.
4. Green finance is among the most important strategies for it diverts financial resources into greening efforts. Government policies have played an especially crucial role in promoting the development of China's green financial system in areas such as banking, insurance and bond.
5. A well-functioning financial market is necessary for China to achieve the goal of carbon neutrality by 2060 as direct governmental financial support can only meet a very small part of the huge funding demand for green economy development. The government and financial sector have made great efforts to build the market-based green financial system in China.
6. Modernising green standard is another important strategy. China has put forward specific plans for green standard setting to accelerate the establishment of a carbon-peak and carbon-neutral "1+N" policy system and further fulfil international obligations.

7. The plans help to facilitate the development of national green standard setting in the green development of agricultural and rural areas, green manufacturing, sustainable development of cities, producer services and administration of business environment, and ecological civilisation.

8. Some cities/provinces have reached carbon summit by optimising their industrial structure, adjusting energy structure, and promoting low-carbon buildings and transportation. Others like Guiyang and Nanchang are having difficulties due to their high reliance on high-carbon industries and fossil energy resources and underdeveloped statistical system for government regulation.

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ZHOU Na, LI Yao & KONG Tuan Yuen*

Economic Reforms to Protect the Environment

- 1.1 China embarked on greening its economy in the 1980s, shortly after the country launched its economic reforms. Its green policies initially focused on reducing industrial pollution before shifting to sustainable development with a balanced ecological system.
- 1.2 Recently, China has prioritised preserving the environment and natural resources after Xi Jinping took the lead in recognising their importance when he likened harmonious coexistence between man and nature to the Chinese idiom “clear water and green mountains” and “as valuable as gold and silver mountains”.¹ China reemphasised its basic national policy of saving resources and protecting the environment for shaping its green development in the future. It has also committed to peak its carbon footprint and attain neutrality with its active participation in international environmental efforts.
- 1.3 After China launched its economic reforms, it has also begun to formulate policies to protect the environment with a focus on reducing industrial pollution. When China attended the United Nations Conference on the Human Environment (held in Stockholm, Sweden, June 1972), it reviewed its environmental problems as being triggered as early as in the 1970s. In the following year, China held its first national conference on environment protection. The conference acknowledged severe environmental problems in China and generated related general guidelines, solutions and targets.

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¹ http://www.xinhuanet.com/politics/2017-10/18/c_1121820368.htm, accessed 20 February 2022.

- 1.4 Thereafter, the government set up environment protection bureaus at both central and local levels for pollution treatment. Ten years thereafter, environmental protection became a fundamental national policy for adhering to in the long run.
- 1.5 For about two decades, China focused on pollution prevention and accountability. It enacted the first national law for environment protection in 1989, while putting forward a few individual laws for eliminating pollution in water, gas, solid waste and environmental noise, and for protecting marine environment.
- 1.6 In the 1990s and 2000s, China took one step further when it initiated efforts to protect the environment while pursuing economic growth; the focus was on simultaneously reducing pollution and protecting the ecological system. The government added a few measures in the legal, economic and technological aspects to the previous administrative method for environment protection and upgraded the Bureau of Environment Protection to a new ministry.
- 1.7 In 2005, the concept of a circular economy was brought up and the State Council issued a notice² to promote a circular economy in order to reduce resource consumption and minimise the environmental costs of economic development. The country soon put forward the Circular Economy Promotion Law, which gave rise to the circular and reuse industry.
- 1.8 Around 2010, China aimed to integrate environment protection with economic development through the enhancement of government regulation. At the seventh National Conference on Environment Protection, then Vice Premier Li Keqiang mentioned that the country should pursue economic growth and protect the environment at the same time. The State Council subsequently issued a notice³ on the key points in environment protection, including enhancing government's regulation capacity, preventing problems that risk people's health and reforming institutional arrangement for environment protection.

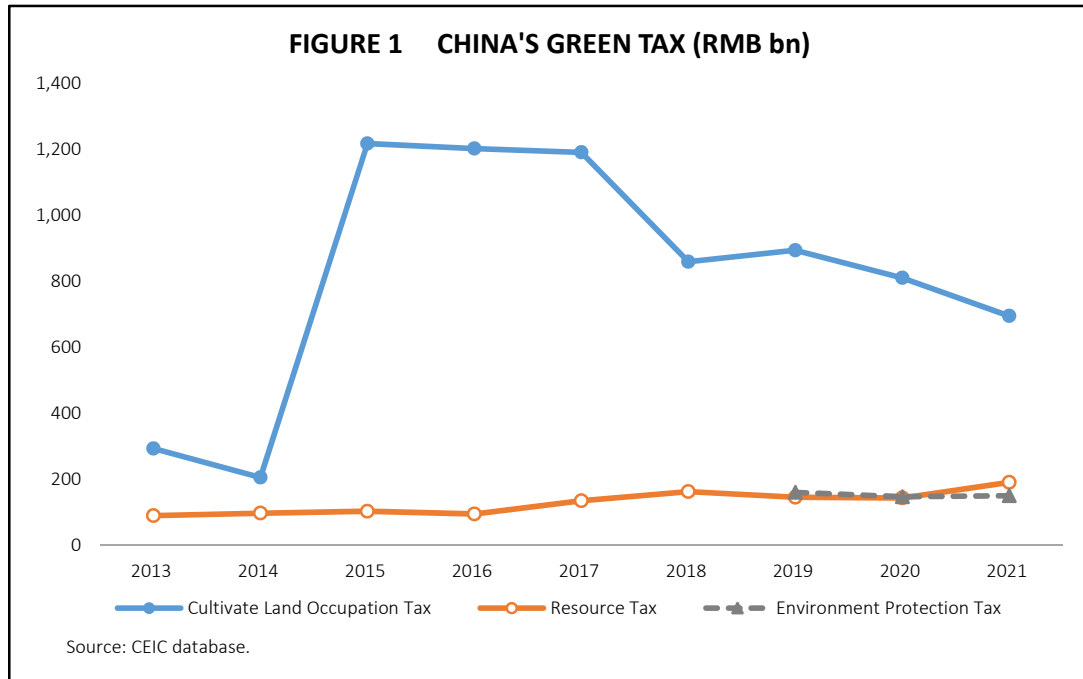
² http://www.gov.cn/zwgk/2005-09/08/content_30305.htm, accessed 2 February 2022.

³ http://www.hunan.gov.cn/xxgk/wjk/zcfgk/202007/t20200730_103d4b8f-774b-47ce-97eb-43a742cc629e.html, accessed 2 February 2022.

- 1.9 China has given even greater emphasis to the environment after Xi Jinping took office. First, China revised the *Environment Protection Law* in 2015 to strengthen government regulation on high-polluting market actors. The law takes strong punitive measures against polluting enterprises. Daily calculated and unlimited fines could be imposed instead of the one-off fine capped at a certain amount as set up in the previous law. The unlimited fines could easily bankrupt polluting enterprises. The law also requires central and provincial governments to conduct environment impacts assessment on government plans and policies in addition to projects.
- 1.10 Second, China incorporated the two concepts of ecological civilisation and green development into the Constitution. It shows the Chinese leadership's determination to shift away from traditional growth pattern of growth first and cleaning up later. In addition, when China held its eighth National Conference on Ecological and Environmental Protection in 2018, Xi Jinping and other top leaders took turns to address the issue. Chinese leaders emphasised the building of an ecological civilisation and comprehensively promoting green development.⁴
- 1.11 In its journey to green development, the country would adjust its economic and energy structure, optimise land and space development planning, restructure regional and basin industries, and promote a few industries, such as those for energy conservation and environment protection, clean production and clean energy. It would also develop new technology to facilitate industrial upgrade and increase green investment from the government and various sources.
- 1.12 Third, as China places more and more priority on ecological civilisation, it reorganised the departments at the central level and reformed the tax system. The State Council integrated the former Ministry of Environment Protection with a few departments to set up a new ministry, the Ministry of Ecology and Environment. Those departments were once subordinated to other government executive bodies such as the Ministry of Water Resource, Ministry of National Land Recourses and National Development and Reform Committee. They were, for example, responsible for monitoring underwater pollution, reducing emissions and addressing climate change.

⁴ https://www.mee.gov.cn/home/zxbd/gzhy/qgsthjbdh/tplb/201807/t20180713_446605.shtml, accessed 3 February 2022.

1.13 The Chinese government has also restructured its taxes and fees to enhance its regulation on ecological civilisation. Taxes and fees for environmental protection and green development include taxes for environmental protection, resource and cultivate land occupation. After 2019, the environment protection tax has been replaced by the pollutant emission fee; for the last 38 years, the government had collected a total of over RMB30 million from 13.8 million enterprises.⁵ For green development, the government has collected three direct taxes (Figure 1).



1.14 Hence, China has long made efforts to protect its environment while maintaining economic growth in the reform era. Reducing pollution used to take centre stage, but priorities have shifted to sustainable development, ecological civilisation and green development, indicating that China is moving towards a growth mode that optimises resource and energy utilisation in its economic pursuit.

Policies Targeting Carbon Neutrality

2.1 In recent years, China has forged international cooperation to fight against climate change. It has turned to reducing carbon emission and consumption in economic development. President Xi committed China to peaking emission before 2030 and

⁵ http://www.gov.cn/zhengce/2018-01/11/content_5255653.htm, accessed 5 February 2022.

reaching carbon neutrality by 2060 at an international conference, showing China's determination to green development. The government and the party have since accelerated top design and policymaking for achieving the two targets. These policies include three prioritised tasks: industrial and energy restructuring, saving energy and increasing energy efficiency, and promoting green finance.

- 2.2 The State Council issued *Guiding Opinions on Promoting the Green, Low-Carbon and Circular Economy System* in February 2021 to promote an overall transformation of economy and society towards green, low-carbon and circular development. The Opinions was released after Xi Jinping's announcement on peaking emission and meeting its neutrality target. It plans to make a noticeable improvement to upgrading industrial, energy and logistical structures by 2025, scale up the green industry and reach an international advanced level of resource utilisation efficiency in important industries and products by 2035.
- 2.3 The Opinions has laid out various tasks. It encourages the economy to build a green manufacturing system with targets such as developing industry, agriculture and services sectors, and promoting the environmental protection industry, industrial parks and clusters, and green supply chains. It also calls for efforts to upgrade the circulation systems, including transportation networks, resources reuse and recycling, and international trade. There are also plans to expand green procurement in the government and state-owned enterprises as well as guide people's green consumption and lifestyle. Other tasks include accelerating infrastructure upgrading, such as promoting new or clean energy and technological innovation.
- 2.4 China's plan on environment protection and to transit to a green, low-carbon and circular economy was highlighted in its *14th Five-Year Plan (FYP, 2021-2025)*. It plans to control and prevent pollution with enhanced government capacity, while accelerating green development by way of using energy effectively, building up resource-efficient circular systems and advancing clean industries. Projects were listed for environment protection and resource savings, including reducing air pollution, recovering ecological systems in lakes and rivers, controlling land pollution, building medical waste disposal sites and conducting demonstration projects of low-carbon technology.

- 2.5 These initiatives had the support of several ministries. First, the Ministry of Agriculture and Rural Affairs has joined hands with a few other ministries to produce an outline for the green development of agriculture. The outline aims to increase the efficiency of arable land and water resources, reduce the use of fertilisers and pesticides, promote the reuse of agricultural waste and effectively address rural non-point source pollution. It has also formulated indexes for green agriculture set for 2025.
- 2.6 Second, the Ministry of Industry and Information Technology's plan for industrial green development during the 14th FYP period is a reduction in CO₂ emission, main pollutants and water consumption, an increase in the utilisation of energy in production, and a reuse of bulk industrial solid waste and main reusable resources in key sectors such as steel, non-ferrous metals and construction materials.
- 2.7 Third, the Chinese Communist Party and State Council jointly issued the Opinions on promoting green development for the urban and rural areas.⁶ They required regions and city clusters to maintain balanced development through effective design and use of various types of land and natural resources for constructing high-quality green structures/buildings and upgrading infrastructures between urban and rural areas. The two authorities particularly encouraged a green process in project construction and green lifestyles.
- 2.8 At the national level, the promulgation of the "1+N" policy framework is for attaining carbon summit and carbon neutrality. The number "1" in this framework refers to the *Notice on Completely, Precisely and Comprehensively Commit to New Development Vision for Carbon Summit and Carbon Neutrality Work*⁷ issued in September 2021. This notice lists groups of targets for three periods, by 2025, 2030 and 2060 (Table 1).

⁶ Opinions on Promoting Green Development in Urban and Rural Development (guanyu tuidong chengxiang lvse fazhan de yijian), October 2021, the General Office of the Chinese Communist Party and the General Office of the State Council.

⁷ http://www.gov.cn/zhengce/2021-10/24/content_5644613.htm, accessed 5 February 2022.

TABLE 1 CHINA'S CARBON REDUCTION TARGETS IN 2025, 2030 AND 2060

| | Energy consumption per GDP unit | CO ₂ emission per GDP unit | Share of non-fossil energy consumption | Forest cover rate | Forest growing stock |
|------|---------------------------------|---------------------------------------|--|-------------------|-------------------------|
| 2025 | 13.5% | Reduce by 18% of that in 2020 | Around 20% | 24.1% | 18 billion cubic metres |
| 2030 | Largely reduced | Reduce by 65% of that in 2005 | Around 25% | 25% | 19 billion cubic metres |
| 2060 | | | Over 80% | | |

Source: data collected by authors from the Chinese government website, http://www.gov.cn/zhengce/2021-10/24/content_5644613.htm, accessed 5 February 2022.

2.9 In October 2021, China released another important document, *An Action Plan for Carbon Peak by 2030*,⁸ as the top policy in the “N” framework. It plans to adjust industrial and energy structure, increase the energy efficiency of key industries, strictly control carbon consumption and accelerate the building of new power system. This action plan only mentions the first three targets listed in Table 1 and respectively for two periods, the 14th and 15th FYPs. Non-fossil energy utilisation would take about 20% of total energy use in 2025 and by 2030, and to further hit 25%. Meanwhile, the target for CO₂ emission per GDP unit in 2025 is a reduction of 18% compared with that in 2020, with CO₂ emission peaking in 2030. The government lists 10 ways to approach these targets of carbon summit (Table 2).

TABLE 2 TEN APPROACHES IN CHINA'S ACTION PLAN FOR CARBON SUMMIT

| | | |
|----|------------------------------|---|
| 1 | Energy types | Replacing carbon consumption with electricity and developing new energy |
| 2 | Carbon efficiency | Enhancing energy saving administration, building energy saving projects and new type of infrastructure, and upgrading equipment |
| 3 | Industry | Reaching carbon summit in steel, non-ferrous metals, construction materials and petrochemical industries, and phasing out projects with high energy consumption and high emission |
| 4 | Urban and rural construction | Upgrading buildings' energy efficiency level and promoting low carbon energy consumption in the rural areas |
| 5 | Transportation | Using low carbon vehicles and constructing a green and highly efficient transportation system |
| 6 | Circular economy | Developing circular economic industrial parks and increasing waste reuse, reduce and recycling |
| 7 | Technology and innovation | Enhancing innovation institutions, cultivating talents and accelerating the research and application of advanced technologies |
| 8 | Carbon sequestration | Consolidating the ecological system in carbon sequestration |
| 9 | Green lifestyle | Promoting green and low carbon lifestyle, enterprise social responsibilities and cadres' training |
| 10 | Local actions | Setting low carbon targets with local conditions and conducting pilot projects |

Source: Chinese government website, http://www.gov.cn/zhengce/2021-10/27/content_5645109.htm, accessed 8 February 2022.

⁸ http://www.gov.cn/zhengce/content/2021-10/26/content_5644984.htm, accessed 5 February 2022.

- 2.10 China has seemingly adopted a few strategies in its recent policies to promote green development and reach carbon neutrality. Industrial and energy restructuring is the top strategy. First, it strives to resolve industries with excessive production capacity and transform them to green and low carbon ones. Since 2020, it has focused on eliminating excessive capacity particularly in the steel, coal and power industries.⁹
- 2.11 Second, the government aims to save energy and increase energy efficiency. Some ministries singled out key industries for assigning clear tasks to save energy and conduct carbon reduction technology transformation.¹⁰ These industries include steel, electrolytic aluminium, cement, plate glass, oil refining, ethene, ammonia, calcium carbide and data centre. According to government plan, over 30% of products would reach industrial benchmark level in 2025 and international advanced level in 2030. The government also mandates energy saving in buildings, transportation, public organisations and so on.
- 2.12 Third, China is developing a green financial system to encourage social capitals to enter green industries and projects. It issued a notice on building a green financial economy in 2016.¹¹ To guide investment in projects in the green industries, it promotes financial products and policies including those for energy saving, clean energy and green buildings. It also aims to cultivate new economic growth points through these projects.

Policies for Developing Green Finance

- 3.1 One important aspect of green development is to divert more financial resources into greening efforts. The three stages in the development of China's green financial system are (i) the initial stage (1995-2006) involving only a few financing services related to pollution control facilities; (ii) the expansion stage (2007-2014) including diversified financing services for pollution control; and (iii) the high-quality

⁹ http://www.gov.cn/zhengce/zhengceku/2020-06/19/content_5520429.htm, accessed 7 February 2022.

¹⁰ https://www.ndrc.gov.cn/xxgk/zcfb/tz/202110/t20211021_1300583_ext.html, accessed 8 February 2022.

¹¹ <http://www.scio.gov.cn/32344/32345/35889/36819/xgzc36825/Document/1555348/1555348.htm>, accessed 9 February 2022.

development (2015- current) stage with more diversified financing objects such as green technology R&D and industrialisation, more market-based and upgraded financial services such as Green Start-up Financing, internet-related green financing services, big data and cloud computing, and financial services following internationally recognised standard and rules, such as carbon trading and financial derivatives. Government policies play an especially crucial role in promoting the development of China's green financial system in these different stages.

Varying policies for green financing development

- 3.2 In February 1995, the People's Bank of China (PBoC) issued the *Notice on Issues Related to Implementing Credit Policies and Strengthening Environmental Protection Work*. In the same month, the former State Environmental Protection Administration issued the *Notice on Using Credit Policies to Promote Environmental Protection Work*. These are the two earliest policy documents that initiated China's development of green finance,¹² clearly requiring banks to include ecological protection and pollution prevention performance in bank loans evaluation.
- 3.3 Further in August 2007, the State Environmental Protection Administration issued the *Notice on Further Regulating the Environmental Protection Verification of Companies in Heavy Pollution Industries' Application for Listing or Refinancing*. It required the environmental verification of production and operation in 13 heavily polluting industries such as metallurgy, chemical and petrochemical. Verification is to be organised and carried out by the State Environmental Protection Administration, and results reported to the China Securities Regulatory Commission (CSRC) and announced on major media. In December 2007, the former Ministry of Environmental Protection and the former China Insurance Regulatory Commission jointly issued *Guiding Opinions on Environmental Pollution Liability Insurance*. The release of these two documents indicates that the development of China's green finance has entered the second stage, a stage of diversified services that provides both green credit, green securities and green insurance.

¹² For more details refer to <https://cdm.ccchina.org.cn/Detail.aspx?newsId=52082&Tid=1>, accessed 21 March 2022.

- 3.4 When China formally applied to join the Paris Agreement in 2015, it also launched a series of important policies related to environment protection in the financial sector. For example, the *Opinions of the Central Committee of the Communist Party of China and the State Council on Accelerating the Development of Ecological Civilisation* issued in May 2015 aimed to promote financing such as green credit and mortgage of pollution discharge rights, and to carry out pilot projects of environmental pollution liability insurance. *The Overall Plan for the Reform of Ecological Civilisation System* issued in September of the same year proposed to establish a green financial system covering various aspects such as green credit, green bonds, green funds and information disclosure of listed companies. The introduction of these policies was the beginning of the third stage of China's development of green finance, a stage of high-quality development.
- 3.5 In 2016 the establishment of a green financial system was included in the 13th FYP for the first time. Shortly thereafter in August 2016, the *Guiding Opinions on Building a Green Financial System* jointly issued by the PBoC and seven ministries and commissions provided China's official definition of green finance: "Financial services for the investment and financing, operation and risk management of projects that can support environmental improvement, address climate change and effectively save and use resources efficiently, i.e. projects in the fields of energy conservation and environmental protection, clean energy, green infrastructure and so on".¹³

Building a market-based green financial system

- 3.6 To achieve the goal of carbon neutrality by 2060, China must implement large-scale decarbonisation by cutting carbon-intensive economic activities and expanding low-carbon sectors in the coming decades. The National Centre for Climate Change Strategy and International Cooperation (NCSC), a research institution under the Ministry of Ecology and Environment, estimates that by 2060, the scale of China's new investment demand to achieve carbon neutral target will reach about RMB139 trillion, or an annual average of about RMB3.5 trillion, and accounting for 3.4% of GDP and 6.7% of the total investment in fixed assets in 2020. The average annual

¹³ http://www.gov.cn/xinwen/2017-06/16/content_5203023.htm, accessed 2 February 2022.

funding gap is estimated to be over RMB1.6 trillion.¹⁴ Estimates of the trillion-dollar costs of achieving China's carbon neutrality target with non-governmental background have also been made. For example, a report by Boston Consulting Group states that China's carbon neutral efforts could cost a total of RMB90 trillion to RMB100 trillion (or about \$13.5 trillion to \$15 trillion).¹⁵ Given such a huge demand for funds, the government can only afford a very small part. Green finance through market must play an important role.

- 3.7 Therefore, the Chinese government has put forward a series of policies to support the development of market-based green finance. For example, the *Green Investment Guidelines (Trial)* and *Green Industry Guidance Catalogue (2019 edition)* issued in 2018 and 2019 respectively clarified the division and definitions of green investment and green industries. The *2021 Catalogue of Projects Supported by Green Bonds* further specified the criteria and details for green bond support. Qualified enterprises can issue bonds to raise fund from the market. The 14th FYP released in 2021 also set the development of market-based green finance as an important national task.
- 3.8 Local governments have also actively participated in developing market-based green finance through reform and innovation. Like China's reform in other areas, the establishment of pilot zones for the reform and innovation of green finance is an important mechanism for promoting the development of China's green finance. By the end of 2021, a total of six provinces (Zhejiang, Guangdong, Guizhou, Jiangxi, Xinjiang and Gansu) had established nine financial reform pilot zones, each with its specific focuses; all these zones have been constantly introducing new policies to support the exploration and innovation of green financial services. For example, in June 2018, Ganjiang New Area in Jiangxi province issued the *Plan for the Construction of Green Insurance Innovation Pilot Area in Ganjiang*. In December 2020, Guangzhou released the *Guangzhou Green Finance Reform and Innovation Pilot Zone Green Enterprise and Project Library Management Implementation Rules (for Trial Implementation)*. In January 2022, Huzhou in Zhejiang province

¹⁴ For more details, please refer to <http://www.ccchina.org.cn/Detail.aspx?newsId=73642&Tid=57>, accessed 27 July 2021.

¹⁵ For more details, please refer to <https://www.bcg.com/publications/2020/how-china-can-achieve-carbon-neutrality-by-2060>, accessed 2 February 2022.

issued *Deepening the Construction of Green Finance Reform and Innovation Pilot Zone to Explore the Construction of Low-Carbon Transformation*.

- 3.9 Regions that have yet to be included in the pilot area are also active. For example, Beijing's *Opinions on Financial Support for Beijing's Green, Low-Carbon and High-Quality Development* aims to encourage more financial resources to be invested in green and low-carbon fields while Shanghai issued *Implementation Opinions on Accelerating the Construction of an International Green Finance Hub to Serve the Carbon Neutrality Target*. Others include *Special Plan for the Development of Green Finance in Chongqing* and *Heilongjiang Green Finance Work Implementation Plan*.
- 3.10 In the meantime, to help facilitate the development of green financing, China also promotes the development of a national standard of green finance, which is domestically unified and internationally recognised. According to the Financial Industry Standardisation System Construction and Development Plan (2016-2020) released in 2017, China's efforts at building green financial standards include five aspects: system standards, working mechanism standards, information disclosure standards, financial institutions' green credit rating standards and product standards.
- 3.11 To promote information disclosure and management, the Chinese government and financial institutions have introduced the concept of environmental, social and corporate governance (ESG) (Appendix 1). It is also establishing a mandatory information disclosure system, requiring listed companies to disclose information on major environmental pollutants, major pollution treatment facilities and processing capacity in the production process. Since 2016, the CSRC, inter-bank transactions business associations, PBoC and other institutions have issued various documents to clarify the obligation of information disclosure and the required contents of information disclosure.
- 3.12 In June 2021, the PBoC issued the Green Finance Evaluation Plan for Banking Financial Institutions. The comprehensive evaluation of green financial services, which covers all five aspects of the national standard, will be conducted for China's

financial institutions for regulation and incentive purposes. The evaluation results will also be incorporated into the PBoC's policy decision process.

- 3.13 China has also actively participated in the development of international standard for green finance. In 2016, the Green Finance Study Group was launched during China's G20 presidency to identify institutional and market barriers to green finance and options to enhance the mobilisation of private capital for green investment. Since then, the PBoC has jointly initiated the Network of Central Banks and Supervisors for Greening the Financial System, International Platform for Sustainable Finance (IPSF), "Belt and Road" Green Investment Principles and other multilateral platforms. In November 2021, the PBoC and European Commission have compiled and released a Common Ground Taxonomy, focusing on 80 economic activities contributing to climate change. With this common standard, green financial products from China and Europe will be more easily interconnected, recognised and trusted in Chinese and EU markets.

Green Standard

- 4.1 In cognisance of the importance of standardisation for modernising the national governance system, China has put forward specific plans for green standard setting. China's efforts indicate that the country is not only working hard to reduce pollution and carbon to achieve a comprehensive green transformation, but also accelerating the establishment of a carbon-peak and carbon-neutral "1+N" policy system to fulfil international obligations.
- 4.2 The State Council's *Outline for the Development of National Standardization* in late 2021¹⁶ lists targets including constructing standards for carbon peaking and achieving neutrality, upgrading the standards of energy saving, revising the mandatory national standards of energy consumption and efficiency, and enhancing the accounting, testing, certification and evaluation of energy.

¹⁶ The State Council of China, *The Outline for the Development of National Standardization* (Guojia biao zhun hua fazhan gangyao), 10 October 2021. Source: http://www.gov.cn/zhengce/2021-10/10/content_5641727.htm, accessed 10 February 2022.

- 4.3 Thereafter, the Chinese government issued *The 14th Five-Year Plan for the Setting of a National Standard System for Promoting High-Quality Development* (hereinafter *The 14th Five-Year Plan for National Standard Setting*).¹⁷ It aims to build a national standard system for high-quality development. Generally, the national standard system is for promoting high-quality development, especially for the full coverage of all sectors to attain a more complete structure of the system, higher quality and openness of national standards, improved capability of standard setting, and high efficiency in implementation and application. Among them, the green standard setting has been highlighted in almost all major areas in the plan.
- 4.4 Based on *The 14th Five-Year Plan for National Standard Setting*, the Chinese government aims to establish a national standard system for promoting high-quality development in the final year of the 14th FYP, covering all sectors including emerging industries and new business models. The plan promotes the digitisation and efficiency of national standards, shortens the average formulation cycle to less than 18 months and controls the average review cycle to five years. The Chinese government will further improve the consistency between national and international standards to improve the conversion rate to international standards to reach no less than 85%. To implement the national standard system, the Chinese government is establishing 50 units of national-level inspection points for the national standard system, 50 units of innovation bases for the national technology standard and 500 units of pilot demonstration for standardising all sectors.
- 4.5 The plan has also selected nine major areas for national standard setting, including agricultural and rural development, food and consumer goods, high-end manufacturing, new generation of information technology industry and biotechnology, urbanisation, service industry, business environment improvement, public emergencies and construction of ecological civilisation (Table 3). Moreover, progress has been made in various areas that help facilitate the development of national green standard setting in these nine areas (Appendix 2). For example, in agricultural and rural areas, it focuses on utilising livestock and poultry manure,

¹⁷ The Committee of National Standardisation, Ministry of Science and Technology, et al., *The 14th Five-Year Plan for the Setting of a National Standard System for Promoting High-Quality Development* “Shisiwu tuidong gao zhiliang fazhan de guojia biao zhun tixi jianshe gui hua”, 6 December 2021. Source: https://gkml.samr.gov.cn/nsjg/bzjss/202112/t20211214_338077.html, accessed 10 February 2022.

protecting natural resources for agricultural development, promoting green development of rural areas such as green renovation of roads, and providing hydropower and drinking water. For high-end manufacturing areas, it creates the green standards for products, factory, industrial park and the supply and industrial chains.

TABLE 3 MAJOR AREAS OF ENHANCING GREEN STANDARD SETTING

| Major Areas | Green Standard Setting | Details |
|--|--|---|
| 1. Agriculture and Rural | Green Development of Agriculture and Rural Areas | Utilise livestock and poultry manure and waste, protect and improve quality of cultivated land, prevent pollution and control aquaculture, develop and utilise climate resources, construct natural reserves system, among others |
| 2. Food and Consumer Goods | Not included | Not included |
| 3. High-end Manufacturing | Green Manufacturing | Develop standards for product design, production process, use, recycling and reuse. Accelerate the formulation of standards in the fields of green creation, evaluation and service for factories and industrial parks. Improve the national standard system for green supply chain and green packaging and so on |
| | Materials | Accelerate the upgrading of standards for steel, non-ferrous metals, building materials, chemicals and so on |
| 4. New Generation Information Technology and Biotechnology | Not included | Not included |
| 5. Urbanisation | The Sustainable Development of City | Formulate urban physical examination and evaluation standards, improve urban living environment construction and quality evaluation system, improve urban ecological restoration, green construction, landscaping construction management and so on |
| 6. Services | Producer Services | Green finance |
| 7. Business Environment | Administration | The standard of e-documents |
| 8. Emergency and Public Safety | Not included | Not included |
| 9. Ecological Civilisation | Natural Resource | Natural resources survey, monitoring and evaluating, key technical standards for cultivated land protection, land use standard system, technical standards for economical and intensive utilisation of natural resources, graded price assessment of natural resources, among others |
| | Efficient Recycling of Resource | Develop water-saving technologies and products, utilise unconventional water sources, collect industrial waste, recycle and utilise renewable resources and power batteries for new energy vehicles |
| | Ecological Environment | Revise the environmental quality standards for surface water, sea water, sound and vibration, and |

| | | |
|--|-----------------------|--|
| | | soil pollution risk management and control standards. Carry out industrial standards for pollution prevention, control equipment, environmental protection services and so on |
| | Carbon Neutralization | Formulate greenhouse gas emission accounting, reporting and verification standards, evaluate greenhouse gas emission reduction effects, promote carbon emission management systems and emission rights trading, formulate energy consumption management standards, and develop traditional energy efficient use standards and new energy development standards |

Source: *The 14th Five Year Plan of Promoting High Quality Development for National Standard System*, https://gkml.samr.gov.cn/nsjg/bzjss/202112/t20211214_338077.html, accessed 5 February 2022.

4.6 *The Standardisation Law of the People’s Republic of China* (2017) divided Chinese standard into national, industry, local, group and enterprise. National standards are included in the mandatory standards and recommended standards encouraged by the state, while industry standards and local standards are the recommended standards only.¹⁸ The current standards for promoting carbon peaking and neutrality are basically distributed in the areas of energy saving and efficiency, new energy and renewable energy, greenhouse gas management, carbon capture, utilisation and storage, and green finance (Appendix 2). Energy saving and energy efficiency have more than 390 national standards that widely covered energy metering, energy consumption control and system optimisation, online monitoring and detection, energy balance and management, energy saving technology evaluation, distributed energy and performance evaluation, and so on.

4.7 The areas of new energy and renewable energy include the standard for the power of solar, wind, hydrogen, biomass, new energy vehicle, nuclear and ocean. Apart from new energy vehicles (70) and nuclear power (170), each of these areas comprises nearly 100 national standards so far. The solar power standards cover photovoltaic and solar thermal; the wind power standards focus on mechanical and electrical equipment, and wind farm planning and design; the hydrogen power standards include safety, materials, quality and production of hydrogen power; the biomass power standards cover waste incineration, agricultural and forestry biomass thermal power and biological natural gas; the new energy vehicle standards relate to

¹⁸ The Standing Committee of the 12th National People’s Congress, *The Standardisation Law of the People’s Republic of China* (2017) “Zhonghua renmin gongheguo biao zhun hua fa”, 4 November 2017. Source: https://www.cnis.ac.cn/bzhzs/flfg/201812/t20181229_31982.html, accessed 10 February 2022.

the parts, vehicle and power battery; the nuclear power standards highlight the radiation protection and reactor technology; and the ocean power standards concern energy development, utilisation and conversion equipment, and system design and evaluation.

- 4.8 The standard of greenhouse gas management is needed to help China fulfil the promise of carbon neutrality. The committee of Carbon Emission Management (SAC/TC548) takes responsibility for making and revising the standard of carbon emission inspection, accounting, reporting and supervising the production of low carbon goods and their certification. Currently, 16 national standards and more than 30 standards are under revision. The committee of petroleum (SAC/TC355) is studying the national standard for developing a delivery system for carbon dioxide capture and storage.
- 4.9 In addition, the national standards framework of ecological environment is drawn up by the committee of Environmental Management (SAC/TC207), Environmental Protection Products (SAC/TC275), Ocean (SAC/TC283), Water Supply and Drainage (SAC/434), Chemistry (SAC/TC63), Fundamentals and Management for Waste Product Recovery (SAC/TC415) and Afforestation and Forest Management (SAC/TC385). The standards of environmental management mainly cover the environmental management system, performance assessment, costs and benefits analysis and life cycle assessment, while the standards of environmental protection concern environmental protection equipment, utilisation of recycling resource, environmental quality and pollutant discharge, pollution control, and ecosystem assessment and restoration.

Pilot Experiment

- 5.1 At the local level, provinces and cities also initiated pilot experiments when central government set up a policy framework to meet the promised targets on green, low-carbon and circular economy. Some places already reached carbon summit by way of optimising their industrial structure, adjusting energy structure, and promoting low-carbon buildings and transportation. Others are still facing challenges from the

long-term high reliance on high-carbon industries, fossil energy resources and underdeveloped statistic system for government regulation.

- 5.2 China has conducted pilot programmes on low-carbon development in select locations for more than 10 years. Economically advanced cities set examples and provide experience for other late comers in green and low-carbon development. Some local governments have made efforts to promote economically green and low-carbon transition through plans, policies, regulations and cooperation from the market.
- 5.3 Eight provinces and cities started their trial practices in 2010 and 29 others joined in after two years, followed by another 45 in 2017.¹⁹ In general, the pilots promoted low-carbon development through a few measures. First, they formulated plans to indicate their targets, major projects and approaches to low-carbon development. These plans integrated with their individual plans such as those for five-year growth, urban development and land use. They also institutionalised arrangements such as releasing public policies with local conditions, allocating responsibilities for limiting greenhouse gas emission and setting market mechanism to implement emission targets.
- 5.4 Second, they worked on building a low-carbon industrial system and promoting green life and consumption mode in society. These local governments worked on promoting green buildings and transportation networks, investing in low-carbon technologies and setting up the threshold of greenhouse gas for new major projects. They also encouraged residents to turn to green and low-carbon lifestyle with reduced consumption.
- 5.5 Third, pilot places also set up administrative systems for controlling greenhouse gas emission. They listed targeting enterprises in administration, enhanced statistics

¹⁹ The first batch of trial provinces and cities are Guangdong, Liaoning, Hubei, Shaanxi, Yunnan, Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang and Baoding. See http://www.gov.cn/zwjk/2010-08/10/content_1675733.htm, accessed 5 February 2022. For the list of 29 provinces and cities, see <http://www.ccchina.org.cn/Detail.aspx?newsId=73282&TId=290>, accessed 5 February 2022. For the 45 places, see http://www.gov.cn/xinwen/2017-01/24/content_5162933.htm, accessed 5 February 2022.

analysis, clarified relative index and assessment methods, and assigned emission reduction tasks to the listed enterprises.

- 5.6 The end results are mixed, with some places making special achievement. Economically advanced cities, including Beijing, Shanghai and Shenzhen, will set examples and provide experience in green and low-carbon development for other late comers. Cities which had reached carbon summit include Wuhan, Shenzhen and Kunming, while others proposed to reach carbon summit in the near future by optimising their industrial structure, adjusting energy structure, and promoting low-carbon buildings and transportation.
- 5.7 For example, Shanghai plans to stabilise good ecological quality and air quality fully up to the standard in 2025.²⁰ In its 14th FYP on ecological and environmental protection, Shanghai lists targets for water, land, pollution regulation, reuse of pollutants, forests and gardens. It will reduce coal consumption and purchase more electricity transferred from non-fossil resources in other provinces. In its latest implementation programme for green, low-carbon and circular development,²¹ it assigns tasks to three systems, namely the manufacture, circulation and consumption systems. Shanghai particularly aimed to develop new energy based on its natural conditions—it will construct bases for offshore wind power and green ports and encourage technological innovation by integrating local research and development foundation with advantages in financial products.

²⁰ <https://sthj.sh.gov.cn/hbzhywpt1272/hbzhywpt1157/20210902/cfe78afc5c7e400dae027e76cb38a142.html>, accessed 6 February 2022.

²¹ <https://www.shanghai.gov.cn/nw12344/20211021/bb02574688eb469aaa8a3b2e6a6cc5eb.html>, accessed 8 February 2022.

APPENDIX 1 THE ESG DEVELOPMENT IN CHINA

ESG is an investment philosophy and corporate evaluation standard that focuses on the environmental, social and governance performance of companies. Adequate ESG disclosure including environmental information disclosure by both enterprises and financial institutions is crucial for the financial system to distribute resources to green industries. Developed countries have relatively mature disclosure mechanisms and systems in place for information disclosure.

China issued the *Guiding Opinions on Building a Green Financial System* in 2016 to encourage investors to provide green investment responsibility reports. In 2018, the PBoC led a green financial standard working team to establish a unified, clear and feasible national green financial standard system in line with international standards. The standards for ESG rating and related information disclosure are the key points of this national system. In 2020, the Basic Requirements for Green Private Equity Funds was drafted under the leadership of the Securities Sub-Committee of the Financial Standardisation Committee. Currently, China's ESG information disclosure is still mainly based on voluntary disclosure, and there is no strict supervision and assessment on the investment of institutional funds and the benefits generated.

At the same time, there are various ESG disclosure regulations and standards for green financial projects and products in China. Taking green bonds as an example, the PBoC, Shanghai and Shenzhen Stock Exchanges and Interbank Dealers Association all have green bond information disclosure standards, albeit with variations. Among them, the disclosure requirements for financial bonds are clear, but not for corporate bonds or local government bonds. The lack of disclosure guidance documents makes it difficult for investors and borrowers to grasp unified information in green financing.

To solve the problems mentioned earlier, the Central Comprehensive Deepening Reform Committee had reviewed and approved the Reform Plan for the Legal Disclosure of Environmental Information System in December 2020 issued by the Ministry of Ecology and Environment in May 2021. According to the plan, in 2022, the National Development and Reform Commission, PBoC and CSRC will complete the revision of the legal document formats for information disclosure of listed companies and bond-issuing enterprises, and in 2025, a mandatory environmental information disclosure system will be formed.

The CSRC is also actively promoting the establishment of ESG-related regulation systems. First, the CSRC included ESG information for the first time in the *Guidelines for Investor Relations Management of Listed Companies (Draft for Comment)* issued in February 2021 and clearly suggested the ESG information disclosure. For example, the document suggested the inclusion of new channels such as websites, new media platforms and investor education bases in addition to the traditional investor communication channels such as telephone and fax. At the end of June 2021, the CSRC issued a new format and content guidelines for the annual and semi-annual reports of listed companies, requiring listed companies to set up a separate "Section 5 Environmental and Social Responsibility" and encourage the disclosure of carbon emission reduction measures and results. The CSRC also revealed in its response to the Chinese People's Political Consultative Conference proposal in February 2021 that "the CSRC will further connect and cooperate with international organisations in relevant aspects such as issuer sustainability information

disclosure and the establishment of international standards for non-financial information reporting”.²²

In terms of the daily operation of financial institutions, Chinese financial authorities have incorporated ESG requirements into the whole process of granting bank credit. Therefore, financial institutions need to have employees with sufficient ESG expertise to not only evaluate and review ESG risks in the early stage of lending, but also assess and review ESG risks periodically in every stage of lending. Chinese financial institutions are also encouraged to conduct ESG assessments themselves and establish an ESG risk reporting system that focuses on medium- and long-term risk management goals. The PBoC has promoted financial institutions in nine green finance innovation pilot zones (six provinces included) to carry out pilot projects of mandatory disclosure of environmental information. Based on the self-discipline mechanism of the financial industry, the projects study and determine the content and format of information disclosure. The projects also tried to force companies to disclose information and invest in a responsible manner through the disclosure of information by financial institutions on the environment, social responsibility, corporate governance and other aspects. The pilot zones also emphasise ESG characteristics of financing projects in project approvals and the dynamic management of the green project database.

In July 2021, the Guangzhou branch of the PBoC managed to get 13 financial institutions in the Greater Bay Area to publicly present their environmental information disclosure reports. In August 2021, the PBoC issued the *Guidelines for Financial Institutions Environmental Information Disclosure*, which provides the principles, forms and content requirements of financial institutions’ environmental information disclosure. By the end of 2021, major banks such as the Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, Bank of Communications and Postal Savings Bank of China have disclosed ESG-related information in their reports, including data such as emissions reductions, and information on wastewater and waste management, ensuring environmental compliance and evaluating supplier environmental performance.

To achieve the carbon neutrality target, the requirements for companies and financial institutions on climate-related financial information disclosure will likely be more and more stringent in China. The PBoC has claimed that one of its key tasks related to green finance is to promote the mandatory and standardisation of environmental information disclosure by financial institutions, the securities issuers and public sectors.

²² For more details, please refer to <https://www.yicai.com/news/101067087.html>, accessed 10 February 2022.

APPENDIX 2 CHINA'S CARBON NEUTRAL STANDARD SYSTEM

| Areas | Sub-areas | The Committees of Standardisation |
|--|--------------------|---|
| 1. Energy Saving and Efficiency | | Energy Fundamentals and Management (SAC/TC20), Building Energy Efficiency (SAC\TC452), Energy System (SAC/TC459) and so on |
| 2. New Energy and Renewable Energy | Solar | Solar Photovoltaic Systems (SAC/TC90), Solar Energy (SAC/TC402), Solar Thermal Electric Plants (SAC/TC565), Solar photovoltaic Glass Technical (SAC/TC255/SC1), Wind and Solar Energy of Climatic Resources (SAC/TC540/SC2) |
| | Wind | Wind Energy Generation Systems (SAC/TC50), and Wind and Solar Energy of Climatic Resources (SAC/TC540/SC2) |
| | Hydrogen | Hydrogen Energy (SAC/TC309), Fuel Cell and Flow Battery (SAC/TC342), Electric Vehicles (SAC/TC114/SC27), Gas Cylinders (SAC/TC31) and so on |
| | Biomass | New Energy and Renewable Energy (SAC/TC20/SC6), Fuel Ethanol and Denatured Fuel Ethanol (SAC/TC349), Forest Biobass Materials (SAC\TC416), Biogas (SAC/TC515), among others |
| | New Energy Vehicle | Road Vehicles (SAC/TC114), Hydrogen Energy (SAC/TC309), Fuel Cell and Flow Battery (SAC/TC342), Electric Vehicles (SAC/TC114/SC27) and so on |
| | Nuclear | Nuclear Energy (SAC/TC58) |
| | Ocean | Marine Energy Converters (SAC/TC546), Sea Area Use and Marine Energy Exploitation (SAC/TC283/SC1) |
| 3. Greenhouse Gas Management | | Carbon Emission Management (SAC/TC548) |
| 4. Carbon Capture, Utilisation and Storage | | Petroleum (SAC/TC355) |
| 5. Ecological Environment | | Environmental Management (SAC/TC207), Environmental Protection Product (SAC/TC275), Ocean (SAC/TC283), Water Supply and Drainage (SAC/434), Chemistry (SAC/TC63), Fundamentals and Management for Waste Product Recovery (SAC/TC415), and Afforestation and Forest Management (SAC/TC385) |
| 6. Green Finance | | Finance (SAC/TC180) (WG8), Energy Fundamentals and Management (SAC/TC20) |

Source: Summarised from *Progress Report on Construction of Carbon Neutrality Standard System (2021)*, China National Institute of Standardisation.

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