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China

RENEWABLE ENERGY

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This country-specific Q&A provides an overview of renewable energy laws and regulations applicable in China.

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CHINA

RENEWABLE ENERGY



1. Does your jurisdiction have an established renewable energy industry? What are the current production levels?

Yes, the People's Republic of China ("China" or "PRC") has an established renewable energy industry.

Between 1990 and 2019, the energy generated from hydro-power increased by ten-fold, the energy generated from wind and solar energy grew from 1,388 terajoules ("TJ") to 4,028,267 TJ¹.

In 2020, renewable energy electricity generation in China rose by around 7%, which is 20% above the average annual percentage growth since 2010 and accounts for 29% of the global renewable energy electricity generation².

In 2021, accordingly to the National Energy Administration ("NEA"), the production level of China's renewable energy industry exceeded 1,000 GWh and accounted for 13.8% of the country's energy consumption, with 587 GWh from wind energy, 301 GWh from solar energy, and 148 GWh from biofuel waste³.

China leads the world in the deployment of renewables and is expected to reach 1,200 GW of total wind and solar energy capacity by 2026⁴.

[1] <https://www.iea.org/countries/china>

[2] International Energy Agency (2021), Renewable Power, International Energy Agency, Paris <https://www.iea.org/reports/renewable-power>

[3] http://www.nea.gov.cn/2021-12/31/c_1310404016.htm

[4] <https://www.iea.org/news/renewable-electricity-growth-is-accelerating-faster-than-ever-worldwide-supporting-the-emergence-of-the-new-global-energy-economy>

2. Who are the key regulators for renewables industry in your jurisdiction? How do they impact the industry?

The main regulator of the Chinese renewables industry is the NEA, a state administration under the National Development and Reform Commission ("NDRC") that formulates energy strategy, industrial policies, standards related to coal, petroleum, natural gas, electricity, new energy, renewable resources, and the fuel alcohol industry for the country. It is responsible for energy conservation and integrated use of natural resources; analysing and setting minimum-cost goals for energy consumption; guiding, supervising and controlling the total consumption of energy; rationalising energy production; and balancing supply and demand. It regulates renewable energy industries by examining and approving major domestic and overseas renewable energy fixed assets investment projects and formulating rules on how they should be operated.

In addition, the National Energy Commission ("NEC") is an inter-ministerial agency within the State Council currently chaired by Li Keqiang, the Premier of China, and includes members from the other key government agencies such as the NDRC, NEA, the Ministry of Science and Technology, the Ministry of Finance ("MOF"), the Ministry of Industry and Information Technology ("MIIT"), the Ministry of Housing and Urban-Rural Development ("MOHURD"), the Ministry of Ecology and Environment ("MEE") and the Ministry of Foreign Affairs. The NEC produces the country's energy development strategy, reviews issues of energy security and development, and coordinates domestic energy exploration and international energy cooperation. The office of the NEC is run from within the NEA.

The MOF works with relevant government agencies to set subsidy policies in the demonstration and deployment of new energy technologies. It also oversees the latest research and pilot programmes for fuel cell vehicles. The MIIT designs standards and industrial policy for energy saving technologies and green manufacturing. The State-owned Assets Supervision and

Administration Commission also issues rules to supervise and administer the energy conservation and environmental protection practices of state-owned enterprises ("SOE"). The MOHURD is involved in the establishment of low-carbon-oriented urban and rural planning, and the promotion of green buildings through the deployment of renewables to optimise energy use in new buildings with rooftop photovoltaic ("PV") installations.

3. How are rights to explore/set up renewable energy projects, such as solar or wind farms, granted? How do these differ based on the source of energy, i.e. solar, hydropower, wind, geothermal and biomass?

The right to set up a renewable energy power project is established by complying with various regulatory requirements, including:

- obtaining an electric power business permit from the NEA and its local counterpart;
- depending on the renewable energy source, the installed capacity, and/or possible impacts on the locality of the project by making a filing with NEA or its local counterparts or obtaining an approval from the State Council, local government or NDRC (or its local counterparts);
- obtaining a land use right;
- obtaining construction-related approvals from the construction or zoning authorities, principally MOHURD or its local counterparts; and
- obtaining approval from the MEE or its local counterparts which examine and approve environment impact assessments and the final inspection and acceptance of renewable energy facilities.

4. What does the energy split look like in your jurisdiction and how is this changing as a result of the green energy transition?

While the majority of power in China is still generated from coal, non-fossil fuel⁵ power generation made up for 34.6% of the total national power generation by the end of 2021.

The pledges made by China under its Mid-Century Long-Term Low Greenhouse Gas Emission Development Strategy ("Strategy")⁶ mean coal's share of the energy mix is expected to decline from 57% in 2020 to 51% in

2025 and 45% in 2030. The current plan is to increase the share of non-fossil energy in total energy consumption to 25% by 2030 and more than 80% by 2060.

Further, with energy efficiency improvements and the gradual shift away from heavy industry, the growth of China's primary energy demand is expected to slow down. For example, the energy intensity of transportation is expected to be lowered with investments in metro, light-rail and electric buses in cities, and high-speed rail between cities.

[5] Non-fossil fuel includes nuclear energy. In this chapter, the focus is on renewable energy sources and not nuclear energy.

[6]

https://www.mee.gov.cn/ywdt/hjywnews/202110/t20211029_958240.shtml;
http://www.ncsc.org.cn/zt/2021_COP/202111/P020211110591154262243.pdf;
<https://www.climatepolicydatabase.org/policies/mid-century-long-term-low-greenhouse-gas-emission-development-strategy>

5. Is the government directly involved with the renewables industry? Is there a government-owned renewables company?

The Chinese government is directly involved in the renewable energy industry as a regulator, an industrial partner and a financial investor.

Different branches of government are involved in the regulation of the renewables industry by formulating the overall strategy, designing and formulating laws and regulations, administering approvals and filings for renewable energy projects and supervising their operation. Please also see responses to questions 2 and 3 above.

The government is directly involved as a stakeholder in key Chinese renewables companies, such as:

- China Longyuan Power Group Corporation Limited, a leading wind power company, is among the earliest state-owned independent power producers to engage in renewable energy development in China⁷;
- China Huaneng Group, a key state-owned company engaged in the development, investment, construction, operation and management of projects encompassing a range of power sources (including renewable energy)⁸; and

- State Power Investment Corporation, the largest solar power generation enterprise in the world, which is under the direct management of the central government⁹.

Further, both government authorities and SOEs have set up investment funds for the decarbonisation of the energy industry, including¹⁰:

- National Green Development Fund, formed by the MOF, the MEE, and the Shanghai Municipal People's Government, which provides financial support for solutions against pollution, supports the development of green industry sectors, and promotes green technology research and development¹¹;
- Guoneng Green and Low-Carbon Development Investment Fund, formed by China Energy Investment Corporation, China Shenhua Energy, GD Power Development, and China Longyuan Power Group, which targets investments in the renewable energy sector¹²;
- Guoneng New Energy Industry Investment Fund, formed by China Energy Investment Corporation and China Reform Holdings Corporation Ltd, which primarily targets investments in wind power sector¹³;
- Wuhan Carbon Peak Fund the lead investor of which is the Wuhan Municipal People's Government, which targets investments in green and low-carbon projects within Hubei Province¹⁴; and
- Sinopec Carbon Neutral Master Fund formed by Sinopec's private equity investment arm and Shandong Shanke Holding, which primarily targets low carbon investments in Shandong Province¹⁵.

[7] www.clypg.com.cn

[8] <https://www.chng.com.cn/en/aboutus.html>

[9] <http://www.spic.com.cn/overview.htm>

[10] <https://www.36kr.com/p/1545400654801152>

[11] <https://www.iea.org/policies/12360-launching-of-the-national-green-development-fund>

[12] <http://field.10jqka.com.cn/20211112/c634196384.shtml>

[13] https://www.thepaper.cn/newsDetail_forward_10912522

[14] https://www.sohu.com/a/478324926_439726

[15] <http://finance.sina.com.cn/roll/2021-07-26/doc-ikqciyzk7769729.shtml>

6. What are the government's plans and strategies in terms of the renewables industry? Please also provide a brief overview of key legislation in the renewable energy sector?

The Chinese government has ongoing and ambitious plans and strategies for the renewable energy industry. Since the introduction of the Renewable Energy Law in 2005, China has successfully built up the largest wind and solar energy installed capacity in the world with the use of feed-in tariff to incentivise the development of renewable energy installations. At the top level, the 14th Five-Year Plan (the "FYP") sets Chinese national policy for social and economic development, which covers the building of a modern energy system including renewables¹⁶.

- The FYP sets various targets from 2021 to 2025, including to lower carbon intensity by 18%, to lower energy intensity by 13.5%, and to increase forest coverage rate from 23.4% to 24.1%.
- The FYP calls for the acceleration of the development of non-fossil fuel energy, the extensive expansion in the generation scale and size of wind and solar power, and an increase in the proportion of non-fossil fuel to around 20% of China's total energy consumption. For 2022, the NEA has pledged to increase the share of non-fossil fuel to 17.3% of total energy consumption¹⁷.
- It calls for the construction of clean energy complexes that integrate renewable power generation with new storage technologies, including the construction of eight major clean energy bases. See also response to question 14 below.

On 29 January 2022, the NDRC issued the 14th Five Year Plan for Modern Energy System¹⁸ ("FYP Energy"), which reinforced the FYP in relation to renewables, and the development of a modern energy market to facilitate electricity market transactions, green power trading and wider market participation by stakeholders.

Accordingly, the latest Chinese government renewable energy and electricity policies and regulatory reforms are focusing on increasing the proportion of renewable energy generation and consumption, rather than only increasing installed renewable energy capacity. With the

impetus of the FYP and FYP Energy, current policy priorities of the Chinese government are to:

- increase the output and consumption of renewable energy;
- focus on the gradual elimination of feed in tariffs for wind and solar power to compete with coal fired power on an unsubsidised basis and to avoid excessive capacity (and prevent wind and solar power curtailment) due to perverse incentives created by feed in tariffs that were not precisely set or adjusted over time in the past;
- continue to set renewable portfolio standards ("RPS") on an annual basis by the NEA as the target proportion of renewable energy for each province. The grid companies, electricity retailers, wholesale buyers, and captive power plant¹⁹ owners are required to contribute to the overall target;
- expand the use of Green Energy Certificates ("GEC") which can be deemed as the consumption of renewable energy²⁰. GECs are a form of energy attribute certificate sold by renewable energy generators eligible for feed-in tariff (see the answer to question 7 below) and designed and maintained by the China Renewable Energy Engineering Institute²¹. Pilot projects are being run in several provinces for a green power trading system²²;
- continue to reform the energy market to increase participation by a wider range of stakeholders.

In addition, SOEs have been directed by national, provincial, and local governments to develop targeted action plans, increase budgets, and carry out R&D in, and accelerate the deployment of, low-carbon technologies. SOEs such as Sinochem, China National Offshore Oil Corporation, and Baowu Steel have initiated discussions over carbon neutrality²³ plans and strategies²⁴.

The key legislation relevant to the renewable energy sector consists of:

- the Electric Power Law of the PRC;
- the Renewable Energy Law of the PRC ("RE Law");
- the Environmental Protection Law;
- the Law on Environmental Impact Assessment; and
- other legislation relevant to renewable energy.

The following paragraphs provide further details of the

key legislation.

- The Electric Power Law of the PRC is the principal law covering the electric power industry. It came into effect on 1 April 1996 and was amended on 27 August 2009, 24 April 2015, and 29 December 2018. It applies to the construction, generation, supply, and consumption of electric power in China. It also provides that environmental protective technology shall be adopted to decrease the discharge of noxious waste, and encourages power generation with renewable and clean energy.
- The RE Law contains the main regulatory framework for the development and use of wind energy, solar energy, hydro energy, and other renewable energy sources. It came into effect on 1 January 2006, and was amended on 26 December 2009. Article 2 of the RE Law defines "renewable energy" as "non-fossil fuel energies, such as, wind energy, solar energy, hydro energy, bioenergy, geothermal energy, and ocean energy, etc."²⁵The RE Law also set up the renewable energy development fund to provide funding for feed in tariffs raised from surcharges on the price of electricity sold nationwide²⁶.
- The Environmental Protection Law was promulgated on 26 December 1989, and amended on 24 April 2014. Pursuant to the Environmental Protection Law, the environmental protection administrative department of the State Council (currently MEE) is responsible for the overall supervision and administration of the environment and for the setting of national environmental quality and pollutant discharge standards.
- The Law on Environmental Impact Assessment was promulgated on 28 October 2002 with effect from 1 September 2003 and was most recently amended on 29 December 2018. It regulates the assessment of a renewable energy project's environmental impacts and provides for the issue of environmental impact approvals.
- Other legislation relevant to renewable energy includes the Energy Conservation Law, the Water Law, the Circular Economy Promotion Law, the Construction Law, and the Land Management Law as well as associated regulations and rules²⁷.

A draft Energy Law which also covers renewable energy has been issued for consultations since 3 April 2020²⁸ but has yet to be finalised. Section 3, Articles 43 to 48 of the

draft Energy Law specifically deals with renewable energy and proposes to enshrine into law the renewable energy development and policy priorities outlined in the FYP and documents issued by the NEA, NDRC and MEE, such as, the mandatory consumption of renewable energy, the RPS, Green Trading Certificates, market and tax incentives.

[16] See Article XI, Section 3 of the FYP:
https://cset.georgetown.edu/wp-content/uploads/t0284_14th_Five_Year_Plan_EN.pdf

[17] Energy work guidance for 2022 issued by the NEA on 29 March 2022

[18]
https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/202203/t20220322_1320016.html?code=&state=123

[19] An installation that provides a localised source of power to an energy user, a commercial or industrial facility, such as, a data centre.

[20] Circular on Interim Scheme for Issuance and Voluntary Purchasing Transactions of Renewable Energy Green Electricity Certificate (关于试行可再生能源绿色电力证书核发及自愿认购交易制度的通知)

[21] In addition, Chinese renewable energy projects are the largest supplier of International Renewable Energy Certificates of The International REC Standard in the voluntary market: <https://www.irecstandard.org/#/> Like GECs, iRECs represent the production of 1MWh of renewable energy. However, iRECs are not formally recognised by the Chinese government for compliance or trading purposes in China.

[22] 生态环境部令19号;
<https://www.energypartnership.cn/home/china-kicks-off-its-green-electricity-trading/>

[23] The concepts of “carbon neutrality” and “net zero carbon”, are distinct and should not be confused or used interchangeably. Carbon neutrality is achieved when an emitter of greenhouse gases (“GHGs”) neutralises its GHG emissions by either taking steps to reduce its actual emissions and/or using carbon credits to offset its GHG emissions for a specific period. Carbon neutrality does not result in a net zero carbon position, as the emitter has offset its emissions with carbon credits (avoided emissions) and not removed emissions permanently from the atmosphere. To achieve net zero carbon, an emitter goes further, and in addition to reducing actual emissions, it removes the equivalent emissions from the atmosphere on an ongoing basis and that it has historically released into the atmosphere, to attain net zero carbon from when it commenced

activities or operations or other defined periods. Net zero carbon involves the capture of GHG emissions from the atmosphere and the permanent storage of those captured GHG emissions.

[24] See page 20 of IEA (2022), Tracking Clean Energy Innovation: Focus on China, IEA, Paris
<https://www.iea.org/reports/tracking-clean-energy-innovation-focus-on-china>

[25] See also the definitions of “non-fossil fuel energy” and “renewable energy” under Articles 115(3) and 115(4) of the draft Energy Law.

[26] See Articles 20, 22 and 24 of the RE Law.

[27] Such as: 光伏电站项目管理暂行办法; 风电开发建设管理暂行办法

[28] A previous draft of the Energy Law was issued in 2007.

7. Are there any government incentive schemes promoting renewable energy? For example, are there any special tax deductions or incentives offered?

The Chinese government has introduced many incentive schemes to promote renewable energy.

Different governmental levels provide tax breaks, financial subsidies, and low-interest loans to low-carbon project developers, power market reforms, and grid improvement. These include a guaranteed price per unit of electricity known as the “feed-in tariff” offered to renewable wind and solar generators except where they elect to sell GECs²⁹ so that the corresponding feed-in tariff ceases to be available, and a reduction of corporate income tax rate is enjoyed by new technology enterprises (from 25% to 15%)³⁰.

In recent years, the focus of government policies has shifted towards the encouragement of technological innovation and implementation of additional market mechanisms. For example:

- The RPS set by the NEA and NDRC requires market participants in each province to contribute towards the target proportion of renewable energy (see answer to question 6 above).
- NDRC guideline in 2019³¹ seeks to incentivise green technology inventors with concessions, such as, higher tax deductions for income generated from innovative green technology.
- Several provinces in China have initiated

electricity spot markets for the better pricing of renewable energy³².

The policy of incentivising renewable energy is proposed to be enshrined under Article 46 of the draft Energy Law.

[29] Circular on Printing and Distributing the Administrative Measures for Additional Funds for Price of Renewable Energy Power in 2020 (关于印发《可再生能源电价附加资金管理办法》的通知 (财建[2020]5号));

[30] See page 71 of IEA (2022), Tracking Clean Energy Innovation: Focus on China, IEA, Paris <https://www.iea.org/reports/tracking-clean-energy-innovation-focus-on-china>

[31] 发改环资 (2019) 689号

[32] <https://www.utilitydive.com/news/three-major-policy-trends-to-watch-for-in-chinas-renewable-energy-market/581344/>

8. How have private companies outside of the renewable energy sector responded to the renewables industry? Have you seen more companies set net-zero and/or science-based targets?

The private sector has been actively participating in renewable energy development. With the rapid growth of solar energy in China, one of the options more widely adopted is for corporations to lease out their rooftops to solar energy developers for on-site solar energy production³³.

Further, China has seen an increase in venture capital and private equity investments in the clean and renewable industry, which is important for start-ups to develop new energy products and introduce new concepts to the technology markets. For example, the Carbon Neutral Technology Fund, CICC-GCL Carbon Neutral Industry Investment Fund, Hillhouse Carbon Neutral Investment Fund, Baowu Neutral Carbon Equity Investment Fund, and Envision-Sequoia Carbon Neutral Fund.

In addition, companies in China have been increasingly seeking to directly source and purchase renewable energy and purchase GECs and International Renewable Energy Certificates to support the production and use of renewable energy and to meet voluntary renewable energy targets and/or to meet environmental, social, and governance compliance requirements.

Private companies are also responding to the

government's carbon neutrality goal³⁴. According to Greenpeace, as of April 2021, 13 of China's 22 biggest tech companies began to procure renewable energy³⁵. In its 2021 Carbon Neutrality Action Report³⁶, Alibaba made three major commitments:

- achieving carbon neutrality in its own operations by 2030;
- cutting emissions intensity by 50% from 2020 by collaborating with its value chain partners; and
- facilitating 1.5 gigatons of greenhouse gas emission reductions in its digital ecosystem.

Accordingly, there has been a trend in China for leading companies to adopt emissions reduction targets or carbon neutrality commitments. However, few Chinese companies have made net zero carbon commitments³⁷.

[33] <https://www.pv-magazine.com/2020/02/27/renewable-energy-procurement-comes-to-china/>

[34] See response to Question 18 below.

[35] <https://www.greenpeace.org/eastasia/press/6514/tencent-beats-out-alibaba-baidu-in-greenpeaces-china-tech-industry-ranking/>

[36] <https://sustainability.alibabagroup.com/en>

[37] See commentary in footnote 23 above.

9. What are the key contracts you typically expect to see in a new-build renewable energy contract?

The contracts involved in a typical renewable energy project with the participation of a foreign investor include a concession agreement, an engineering, procurement and construction contract³⁸, a power purchase agreement, a supply and installation agreement, a grid interconnect and dispatch agreement, a feed-stock agreement (biomass projects) and an operation and maintenance agreement³⁹. As mentioned above, foreign investment in renewable energy is encouraged and indeed the position has been further enhanced in the 2020 Foreign Investment Catalogue. That said, the Chinese SOEs at national and local levels and local Chinese private enterprises dominate the development and operation of renewable energy projects owing to the strong policy, financial incentives, and cheap loans made available to them for nearly two decades, which effectively squeezed out most foreign investors.

In addition, some renewable energy projects may also have the following contracts:

- emissions reductions sale and purchase agreements (“ERPAs”)⁴⁰;
- GEC⁴¹ sale and purchase agreements;
- iRECs⁴² sale and purchase agreements or a virtual power purchase agreement.

[38]

<https://renewablesnow.com/news/china-energy-engineering-takes-part-in-epc-deal-for-big-renewables-hybrid-746805/>

[39]

<https://www.irena.org/-/media/Files/IRENA/Agency/Events/2019/Sep/Colombia/Presentation-on-renewable-energy-PPA-design-and-documentation-standardisation-Serkan-Ata-IRENA.PDF?la=en&hash=592F1BE307F4A231B74EB1C9EA59B48D9B564785>

[40] These ERPAs may be for voluntary carbon market emissions reductions or compliance market emissions reductions such as the Chinese Certified Emissions Reductions, see Articles 29 and 42(4) of the Measures for the Administration of National Carbon Emissions Trading (Trial Implementation) and footnote 51 below.

[41] See commentary on GECs under the response to Question 6 above.

[42] See commentary on iRECs under footnote 21 above.

10. Are there any restrictions on the export of renewable energy, local content obligations or domestic supply obligations?

China is one of the largest suppliers of renewable energy equipment in the world. Chinese companies are also undertaking many renewable energy projects in foreign countries, such as, under the Belt and Road Initiative.

There are no restrictions on the export of renewable energy from China. However, China export control rules in relation to technology⁴³ may affect the export of renewable energy installation components, control systems, software, and technology from China to other countries.

The central government does not impose local content obligations or domestic supply obligations on renewable energy projects and the NEA has introduced measures that prohibit local government from imposing local supply obligations on energy projects. For example, in October 2014, the NEA issued a notice which prohibits

local governments from requiring businesses to source photovoltaic panels locally when allocating resources in relation to solar power stations⁴⁴.

[43] Catalogue of China’s Technologies Prohibited and Restricted from Export (《中国禁止出口限制出口技术目录》) regulates the export of large-scale power equipment design technology and subjects certain technology exports to the licencing of the Ministry of Commerce, such as, technologies relating to military or dual use items (both civilian and military), which may include semiconductors contained in control systems that may require export licences under the Export Control Law.

[44] 国能新能[2014]477号

11. Does the regulatory regime include any specific decommissioning obligations? How do these obligations differ across solar, hydropower, wind, geothermal and biomass?

There are no specific decommissioning obligations imposed on the renewable energy projects. However, the electric power business permit required for a renewable energy project generally specifies a term of the operation. Upon expiration of the term of the permit, the project must either apply for a renewal or be decommissioned.

Nevertheless, certain projects may be subject to rectification under new policies. For example, under the Opinion on Further Improving Classification and Restructuring of Small Hydro Power Stations⁴⁵, certain small hydro energy stations might have to be demolished or rectified, including those located in nature reserves which significantly impact rare aquatic organisms or cause significant environmental impacts to nearby river sections.

The decommissioning of the components of certain renewable energy projects are subject to other requirements. For example, solar panels and wind blades have to be recycled under the Circular on Issuing the Implementation Plan for Accelerating the Comprehensive Utilization of Industrial Resources⁴⁶.

[45] 水电[2021]397号

[46]

<https://news.metal.com/newscontent/101745986/circular-of-eight-departments-including-the-ministry-of-industry-and-information-technology-on-issuing-and-issuing-the-implementation-plan-for-accelerating-the->

comprehensive-utilization-of-industrial-resources

12. Could you provide a brief overview of the major projects that are currently happening in your jurisdiction?

See answer to question 14 below.

13. Who are the key players that are driving the green renewable energy transition in your jurisdiction?

The key players driving the green energy transition include the regulators mentioned in the question 2 above, financial institutions, SOEs, major technology companies, and private companies in the clean and renewable energy sector. While the government is heavily involved in the overall plan for renewable energy transition through detailed policies, regulations, and rules, the implementation of the plan involves a wide range of stakeholders.

Notably, the Guiding Opinions on Building a Green Financial System were issued jointly by the People's Bank of China, the MOF, the NDRC, the MEE, the China Banking Regulatory Commission, the China Securities Regulatory Commission, and the China Insurance Regulatory Commission in 2016⁴⁷, and set out a framework of a green financial system to:

- vigorously develop green credit;
- encourage the stock market to support green investments;
- establish green development funds and mobilise social capital through the Public-Private-Partnership model;
- develop green insurance;
- support local governments in developing green finance;
- promote international cooperation for green finance; and
- prevent financial risks and strengthen organisation and implementation.

[47] 银发[2016]228

14. Please can you give a summary of the key renewable projects in the pipeline in your jurisdiction?

The FYP plans for the construction of "modern energy systems" and includes⁴⁸:

- building hydropower bases on the lower

reaches of the Yarlung Tsangpo River;

- constructing clean energy bases⁴⁹ in the upper and lower reaches of the Jinsha River, the Yalong River basin, the upper reaches of the Yellow River, and the Ordos Loop which includes the Hexi Corridor, Xinjiang, Hebei, and Songliao;
- building offshore wind power bases in Guangdong, Fujian, Zhejiang, Jiangsu, and Shandong;
- constructing pumped-storage hydropower stations in Fuyu, Pan'an, Tai'an Phase II, Hunyuan, Zhuanghe, Anhua, Guiyang, and Nanning; and
- carrying out research on large-scale energy storage projects for the Yellow River cascade power stations.

In 2021, Sinopec as one of the SOEs involved in the renewable energy industry, started constructing China's first megatonne carbon capture utilisation and storage project at the Qilu Petrochemical plants and launched the Xinjiang Kuche Green Hydrogen Demonstration Project which involves building 300 MW of solar PV powered electrolyzers to produce an annual output of 20,000 tonnes of hydrogen starting mid-2023⁵⁰.

[48] See page 17 of "十四五" 现代能源体系规划; https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/202203/t20220322_1320016.html

[49] See Table 6 Modern energy system construction projects and Figure 1 Deployment schematic for large clean energy bases under Article XI, Section 3 of the FYP. Clean energy bases are effectively renewable energy installation clusters, consisting of hydropower, wind power and solar power.

[50] See page 20 of IEA (2022), Tracking Clean Energy Innovation: Focus on China, IEA, Paris <https://www.iea.org/reports/tracking-clean-energy-innovation-focus-on-china>

15. What are the key issues facing the renewables industry in your jurisdiction across solar, hydropower, wind, geothermal and biomass?

The key issues impacting the renewables industry are:

- problems caused by earlier policy, such as, non-optimal feed-in tariff that resulted in excessive installed wind and solar energy capacity and administratively managed power distribution, electricity prices, and dispatch,

rather than market driven prices and dispatch;

- cheap coal fired power and the continued addition of coal fuelled power capacity despite policy commitments to reduce and eventually eliminate coal fired power;
- the progress on the reduction and eventual elimination of wind and solar power curtailment;
- the benefits and challenges posed by the China National Emissions Trading Scheme (“China ETS”)⁵¹, namely, with no absolute cap on emissions and the free allocation of allowances to key emission entities, do not currently encourage sustained and large scale fuel switching from fossil fuel to renewable energy. If an absolute emissions cap is imposed and allowances are sold by auction, then there would be a strong impetus for participants to switch to renewable energy, driven by the China ETS;
- the need to continue with reforms to liberalise the Chinese electricity market to increase the uptake and trading of GECs and electricity;
- the need to ensure there are increased and effective power transmission connections to renewable energy installations; and
- the success of the Chinese government in attracting more foreign renewable energy developers and investors to participate in the development of new and cutting-edge technologies, and the green power and carbon trading markets.

As China’s economy is still growing strongly with significant heavy industry, such as, the emissions intensive steel and cement industries, the planned construction of clean energy bases (renewable energy clusters) and new power transmission capacity in the FYP⁵² will help reduce the emissions intensity of steel and cement production even if less emissions intensive steel and cement production technologies are not introduced quickly enough due to immature or excessively expensive new production technologies. However, if these new technologies or alternative production methods are not ready by the time of the planned phasing-out of existing carbon intensive industrial capacity during the FYP period (2021-2025), even if clean energy bases and new transmission capacity are deployed as planned, this may make it more difficult to meet the country’s target for peak carbon dioxide emissions by 2030 and carbon neutrality commitment by 2060⁵³.

[51] Measures for the Administration of National Carbon Emissions Trading (Trial Implementation) which came

into force on 1 February 2021:

https://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html

[52] See footnote 49 above.

[53] <https://climateactiontracker.org/countries/china/>

16. How has the consequences of the Covid-19 pandemic particularly impacted the renewables industry?

The Chinese government has had to divert substantial financial resources to fight the COVID-19 pandemic. COVID lock down restrictions have disrupted the supply and demand of renewable energy, had a negative impact on manufacturing facilities, and slowed down the transition to green energy. At the same time, the effort to stimulate its economy has caused China to increase coal use, resulting in an increase in carbon emissions. Nevertheless, China has successfully increased electricity generation from renewables in 2020 and 2021 (see response to question 1 above).

17. How do you think the impact of foreign investment and changes in regulation will affect investment in the renewables industry?

Foreign investment in PRC is comprehensively regulated. The Foreign Investment Law and Implementing Rules of the Foreign Investment Law became effective on 1 January 2020. Under the Catalogue for the Encouragement of Foreign Investment Industries (2020) and Special Administrative Measures (Negative List) for Access of Foreign Investments (2021 Edition), foreign investment in clean and renewable energy is encouraged in general⁵⁴, including:

- the construction and management of large hydropower stations and pumped storage power stations with the main purpose of power generation; and
- the construction and management of renewable energy power plants, such as, solar energy, wind energy, magnetic energy, geothermal energy, tide energy, and biological mass energy.

[54] Except for the construction or operation of nuclear power plants.

18. How has your jurisdiction performed against its commitments as part of the Paris Agreement?

The Strategy⁵⁵ commits the country to tackle climate change under the terms of the Paris Agreement⁵⁶ by setting out a target to peak its carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060. Specific commitments under the Strategy include:

- by 2030, the proportion of non-fossil energy in energy consumption is to reach about 25%, and total installed wind and solar power capacity is to reach over 1.2 billion kilowatts;
- by 2030, energy efficiency in key industries is to reach the advanced international level, the “two wings” drive of low-carbon and digital economy is to be realised, and the manufacturing organisation and production methods will be fundamentally transformed;
- by 2025, 100% of new buildings in cities and towns will implement green building standards;
- by 2030, the proportion of clean and renewable energy-powered vehicles will reach about 40% of all the vehicles sold in that year, the carbon emission intensity of converted turnover of commercial vehicles will decrease about 9.5%; and
- by 2030, China’s forest coverage rate will reach about 25%, and forest stock volume will increase by 6 billion cubic meters over 2005 level.

China has been rigorously implementing these commitments by formulating detailed policies and taking action for the country across industry sectors by:

- launching the China ETS⁵⁷ which covers the power sector and commenced operation on 16 July 2021;
- accelerating the generation and consumption of renewable energy; and
- introducing market reforms, including electricity spot markets and green power trading.

[55]

<https://www.climatepolicydatabase.org/policies/mid-century-long-term-low-greenhouse-gas-emission-development-strategy> ;
https://www.mee.gov.cn/ywdt/hjywnews/202110/t20211029_958240.shtml

[56]

<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

[57] See footnote 51 above.

19. How has the government used COP26 as an opportunity to drive the green energy transition?

In the run up to COP26, the Chinese government commenced the operation of the China ETS and issued the Strategy which made the 2060 national carbon neutrality commitment. COP26 was a major impetus for the government to put the China ETS into operation and set out its latest long-term climate action and renewable energy plans. COP26 will also have given impetus to the completion of the draft Energy Law⁵⁸ and greater urgency to the preparation of the Climate Change Law. COP26 has also driven international co-operation, specifically between the United States and China, to accelerate the transition to a global net zero economy and the development of renewable energy policies and technologies⁵⁹.

[58] See responses to Questions 6 and 7 above.

[59] US-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s (“Joint Declaration”): <https://www.state.gov/u-s-china-joint-glasgow-declaration-on-enhancing-climate-action-in-the-2020s/>

20. How is the government stepping up its commitment as a part of the COP26 agreement?

China published the Strategy in late October 2021, just before the COP26 Conference. Since the issue of the Strategy and the Joint Declaration post-COP26, on 29 January 2022, the NDRC and NEA jointly issued the FYP Energy that set out their action plan in the energy sector to meet the national climate change commitments in further detail⁶⁰, including the plan to increase the share of energy generated from non-fossil fuel sources by 2025 to 20% of the country’s energy consumption and 39% of the energy generated.

[60] See Page 7 of the FYP Energy

http://www.gov.cn/zhengce/2022-03/24/content_5680965.htm

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