

Supporting the green economy for the national economy -China as a Model-

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Abstract:

The green economy is economic activity “that results in improved human well-being and social equity while significantly reducing environmental risks and resource scarcity”. This economic model obeys the rules, principles and criteria of sustainable development. Other economic models can sometimes be described as gray or black; leading to pollution, waste and/or exhaustion of non-renewable resources, and destruction of the environment, or red in the case where we profit from the sale of weapons for example. Above all, the green economy is linked to respect for nature and seeks to maintain natural capital in balance ; not to consume more resources than what ecosystems, the Earth and the Sun can provide , while maintaining ecosystem services equitably available for all and for future generations).

Keywords: Green Economy, Ecosystems, Principles of Green Economy, China’s Green Economy.



Introduction:

Economic activity in any country depends on the available natural resources, and the environment is considered the most important source of these resources. The environment also plays an intermediary role in the disposal of waste resulting from economic activities, and therefore any damage to the environment as a result of misuse of economic resources will affect economic activity.

Traditional production systems have resulted in many problems, including the depletion of available economic resources, especially resources from traditional energy sources, which negatively affects the share of these resources for future generations, in addition to many other problems resulting from traditional energy sources, such as the high percentage of carbon emissions. The emergence of many crises, such as: the food, water, climate, and global warming crises. These problems have prompted many countries and international organizations to think about applying the green economy, in addition to trying to link the application of the green economy in many fields to achieving sustainable development.

The green economy currently represents the central issue for the economies of most countries in that it aims to improve human well-being and achieve social justice, in addition to reducing environmental risks. The green economy is considered a model of economic development based on the concept of sustainable development, by focusing on the environmental aspects of the economy.

In light of the above, the research problem can be formulated in the following question:

How does the green economy contribute to protecting the environment?

On this basis, this topic will be addressed through two chapters:

Chapter One: Basics of the Green Economy**1- The concept of green economy:**

Definitions of the concept of green economy have varied according to countries, international organizations, and specialists in this field and the most important definitions can be highlighted as follows:

► The economy is defined as: “an economy based on low carbon emissions, efficient use of resources, and comprehensive social development. Income and employment growth is managed in a green economy by private or public investments, aiming to reduce carbon emissions and reduce pollution, and support the efficient use of resources and Energy, and prevent the loss of vital systems services and biodiversity, and this can only be achieved through reforming policies and legislation regulating this.”

► The French Institute for Statistics and Economic Studies defines green economic activities as: “those productive activities that preserve the environment through the rational use of natural resources on the one hand, and because their practice has fewer negative impacts on the environment on the other hand.”

► According to the United Nations Environment Program (UNEP), a green economy means: “an economy that results from improved human well-being and social equality,

while significantly reducing environmental risks and scarcity of natural resources, and is based on giving equal weight to economic development, social justice, and environmental sustainability.”

► During the Rio + 20 conference: possible directions for implementing the concept of the green economy were identified, with an emphasis on the need to continue promoting sustainable development by focusing on the main problems, namely eliminating poverty, ensuring justice within and between generations, improving economic efficiency, and increasing equity in access to... On the resources. There is no doubt that the main reason behind the emergence and development of the concept of the green economy is the move towards a more integrated and comprehensive approach to integrating the environment into economic processes.

► The spread of the concept of the green economy expresses a new perspective on the interrelationship between the economic dimension and the environmental dimension of sustainable development, and even the social dimension, as it aims to reduce poverty and achieve well-being. It also supports the achievement of sustainable development by adopting a new conceptual framework that does not replace sustainable development, but rather achieves integration between its dimensions.

2. Principles of green economy:

- A. The Green Economy Alliance worked with various organizations to formulate nine principles for the green economy, which are mainly represented in:
- B. Achieves sustainable development;
- C. Delivers fairness (principle of justice);
- D. Creates true prosperity and well-being for all (principle of dignity);
- E. Improves the natural world, Earth's integrity, planetary boundaries (precautionary principle);
- F. Inclusiveness and participation in decision-making (principle of inclusion);
- G. Builds economic, social and environmental resilience (resilience principle);
- H. Recognizes sustainable consumption and production (efficiency principle);
- I. Responsibility (governance principle);
- J. Invests in the future (the principle of communication between generations).

3. Characteristics of the green economy:

The green economy is characterized by a set of characteristics, the most important of which can be summarized as follows:

- ▷ The green economy is a means to achieve sustainable development, and is not a substitute for it.
- ▷ The green economy facilitates the integration of the four dimensions of sustainable development, which are the environmental, social, economic, technical or administrative dimensions.
- ▷ The need to adapt the green economy to national priorities and circumstances.
- ▷ The necessity of applying the principle of shared responsibilities between the relevant state agencies for the voluntary transition towards a green economy.

- ▷ The green economy should not be used as a means to impose trade restrictions, conditions on aid or debt relief. The green economy should address trade distortions, such as environmentally harmful subsidies.
- ▷ The green economy must recognize national sovereignty over natural resources.
- ▷ The green economy must be based on resource efficiency and sustainable consumption and production patterns.

4. Objectives of the green economy:

The most important strategic objectives of the green economy are as follows:

- The green economy enhances the pursuit of poverty alleviation: The strategy concerned with the green economy can contribute to achieving green growth and benefit the environment by renewing and enhancing natural capital, in addition to alleviating poverty. There are a number of economic sectors with The importance is related to alleviating the burden of poverty and moving to a green economy, and strengthening the agricultural sector makes it a sustainable sector that contributes to alleviating the severity of Poverty through equality and fairness in the distribution of produced foods. The phenomena of hunger, poverty, health and the environment can be closely linked to the practices used in agriculture and the output derived from them. Therefore, sustainable agriculture has significant potential to improve the quality of life in rural communities.
- The green economy has the potential to create additional employment: The United Nations Environment Program's report on the green economy predicts that investments in the green economy until 2050 will achieve employment gains beyond what a business-as-usual scenario could achieve, and they will be achieved. New employment opportunities in sectors such as renewable energy, transportation, sustainable agriculture and textiles.
- The green economy enhances resource efficiency and energy security: Increasing the supply of energy through renewable sources reduces the risks of high and unstable fossil fuel prices, in addition to providing mitigation incentives. The current energy system built on fossil fuels is the source of climate change, Stimulating the efficient use of energy and resources in all aspects of economic sectors is a pivotal goal of the transition to a green economy.
- The green economy brings environmental benefits: The current levels of waste are linked to the strength of income. As income levels rise, the world is expected to produce about 13.1 billion tons of jets in 2050, which is 20% more than the amount produced in 2009.

The transition to a green economy can lead to a significant reduction in greenhouse gas emissions.

- The green economy recognizes the value of natural capital and invests in it: Biodiversity contributes to human well-being and provides economies with valuable resource inputs, regulatory services, and access to a safe working environment, Natural resources such as forests, lakes, wetlands and river basins represent essential components of natural capital at the ecosystem level, and they are general for the forest in ensuring the stability of the water cycle and its benefits for agriculture and homes, the carbon cycle, its role in overcoming the climate, soil fertility, and its value in crop production. The microclimate needed for safe residence, and the fisheries needed to obtain protein, are all important elements of a green economy.

6. Green economy indicators:

According to the basic information of the ministerial consultations submitted to the Global Ministerial Environment Forum 2011 regarding green economy indicators, it defined them into three indicators, which are as follows:

- ◆ Economic indicators: such as the share of sectoral or aggregated investments that contribute to the efficient use of resources and energy or to reducing waste or pollution, or the share of sectoral or aggregated output or employment, that meets the established criteria for sustainability.
- ◆ Environmental indicators related to economic activity: such as the efficiency of resource use or the extent of pollution intensity, either at the sectoral economic level or at the overall economic level, and these indicators can be expressed, for example, in the amount of energy or water used to produce a unit of gross domestic product.
- ◆ Aggregate indicators on the path of progress and social well-being: such as macroeconomic aggregates that express the consumption of natural capital, including those indicators proposed in frameworks for environmental and economic accounting, or proposed within the initiative called “Beyond GDP,” which can To express the health dimension and various other dimensions of private and social well-being.

7. Incentives for transitioning to a green economy:

The incentives for transitioning to a green economy are as follows:

- ▶ Paying attention to rural development with the aim of alleviating poverty in rural areas: as the green economy contributes to alleviating poverty through wise management of natural resources and ecosystems, and this will achieve benefits from natural capital and we can deliver them to the poor;
- ▶ Paying attention to water, not polluting it, and striving to rationalize it: Improving water efficiency and use can significantly reduce its consumption, and improving methods for obtaining water will contribute to providing groundwater inside wells and also preserving surface water.
- ▶ Supporting the mass transportation sector: Reducing energy price subsidies by 25% will save more than \$100 billion within three years, and this amount can be transferred to greening energy and transitioning to it in the field of transportation.
- ▶ Addressing the problem of solid waste and trying to recycle it: As the production of phosphoric acid and fertilizers, the production of concentrated metals, and the concentrated use of fertilizers in agriculture, industrial and traditional tanneries, the pharmaceutical industry and the manufacturing industry (more than 50% of these wastes are dumped in water and the outgoing emissions Some of them lead to water pollution, but if they are disposed of properly by burying them in a sanitary landfill or trying to recycle them, they will lead to a cleaner environment and reduce toxic emissions.
- ▶ Working to increase sustainable investments in the field of energy and measures to raise energy efficiency: The transition to a green economy will lead to a significant reduction in greenhouse gas emissions. In the investment plan, in which 2% of the gross domestic product continues to be allocated to major sectors of the green economy More than half of that investment is made to increase energy efficiency, expand production, and use

renewable energy materials. The result is a 36% reduction in the intensity of energy use globally.

8. Challenges of the green economy:

There is no doubt that an issue of this complexity and complexity, with so many far-reaching consequences, is daunting and difficult to trace with ease, but the certain truth is that the path must be walked, even if the initial steps forward are slow.

However, there are some challenges facing countries during their transition to a green economy and reliance on clean, green energy. The challenges are as follows:

- ◆ Lack of good and precise planning in the field of development policies.
- ◆ Some areas lack access to health services and clean water, and inefficient use of fresh water and energy sources.
- ◆ An imbalance in the division of jobs, with an excess number of employees in some departments and a lack of human resources in other departments, which leads to widespread unemployment.
- ◆ The spread of poverty at rates that may be alarming in some countries.
- ◆ The shift towards a green economy may force countries to abandon economic activities that have high returns but harm the environment.
- ◆ The high cost of environmental degradation in some countries.

Axis II : The Green Economy in China

China has made incredible progress after the reforms and approval of the liberalization policy. But the intense quest for rapid economic expansion has produced a number of ecological and social issues.

The IoT significantly influences current enterprises, business structures, and operations. It is causing the current phase of the industrial revolution. This new technology development will be integrated across a variety of industries, including farming, city planning, energy management, and more, in addition to manufacturing . A detonation of technical, economic, and global advantages will result from this progress. It will boost global GDP and provide individuals with new commercial, technological, and job options everywhere. The IoT is expected to raise average earnings and living conditions, just as previous revolutions did, mostly in industrially developed countries. Since the IoT is a relatively new technical innovation, there hasn't been much academic study on its (possible) economic and environmental effects outside of certain management consulting literature. However, a significant body of research exists on the economic and environmental effects of ICT.

1.China's Green Economy

Green development is an all-round revolutionary change in our values, and in how we work, live, and think. China has applied systems thinking to the whole process of economic and social development and eco-environmental conservation and protection. It has taken a sound approach to the relationships between development and protection, between overall and local interests, and between the present and the future. It has taken a scientific, moderate, and orderly approach to the use of territorial space, and promoted a sound economic structure that facilitates green, low-carbon, and circular development. It has fostered an institutional system that combines both constraints and incentives to coordinate industrial restructuring, pollution control, eco-environmental conservation, and climate

response. China has endeavored to cut carbon emissions, reduce pollution, expand green development, and pursue economic growth. It has prioritized eco-environmental protection, conserves resources and uses them efficiently for green and low-carbon development. It has developed spatial configurations, industrial structures, and ways of work and life that help conserve resources and protect the environment, and promoted greener economic and social development in all respects.

In the run-up to the COP26 summit in early November 2021, China released two key policy documents, further cementing its decarbonization commitments. The two documents, titled the Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy (“Working Guidance”) and the Action Plan for Reaching Carbon Dioxide Peak Before 2030 (“Action Plan”) also form the basis of China’s climate policy framework for reaching its carbon reduction targets, known as the “1+N” policy framework.

The “1” part of the policy framework refers to the Working Guidance, which acts as the country’s overarching guiding principles for reaching its climate goals, while the “N” stands for an unspecified number of auxiliary policy documents targeting specific industries, regions, fields, and goals. The Action Plan is the first and most important “N” document that has been released.

Both the Working Guidance and the Action Plan are “top-level design documents” that will collectively guide China’s decarbonization efforts. But the Action Plan goes far beyond topline goals – it provides an extensive overview of the areas of China’s economy that will gradually be reduced or shifted to sustainable energy and methods, including heavy industry, agriculture, transportation, and the circular economy.

In addition to the Action Plan, the National Development and Reform Commission (NDRC) has explained that the “N” part of the framework will also include decarbonization action plans for specific industries and regions, as well as supporting policies that regulate scientific and technological support towards decarbonization, carbon sink capacity, carbon accounting, decarbonization inspection and assessment, and fiscal and financial support towards decarbonization, etc. At the Two Sessions in 2022, the NDRC provided more details about the “1+N” plans to be drafted in 2022.

According to reports, detailed decarbonization action plans can be expected for multiple sectors, including energy, industry, transportation, iron and steel, nonferrous metals, petroleum, petrochemicals, natural gas, urban and rural development, agriculture and rural areas, and building materials. Through the “1+N” climate policy framework, China wants to coordinate and consolidate the economy-wide carbon reforms.

Figure 1.China Decarbonization Policy



Source :<https://www.china-briefing.com/news/what-is-chinas-green-and-low-carbon-plan-and-why-is-it-relevant-to-foreign-investors/>

2. Building a beautiful cities and homes in China

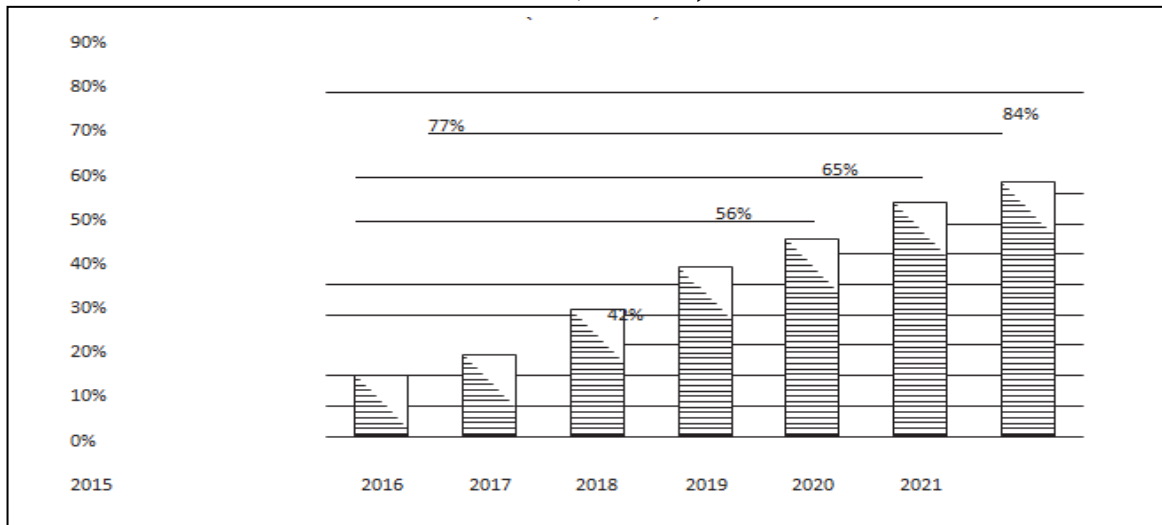
Urban and rural areas are the carriers of human settlements and activities. China integrates the philosophy of green development into urban and rural construction, and promotes beautiful cities and beautiful countryside initiatives. With priority given to environmental pollution control, China strives to improve the living environment to build a beautiful home featuring lush mountains, green fields, singing birds, and blossoming flowers.

Building beautiful cities featuring harmony between humanity and nature. China has placed great emphasis on urban eco-environmental conservation and has adopted a people-centered approach to urbanization. It has made sound plans for spaces for working, living and eco-environmental conservation, and has worked to make cities livable, resilient and smart.

The aim is to build cities into beautiful homes where humanity and nature coexist in harmony. In pursuing urbanization, China respects and accommodates the requirements of nature. It has made use of mountains, waters, and other unique landscapes to integrate cities into nature, so that urban dwellers can enjoy the view and are reminded of their rural origins.

Efforts have been made to expand urban eco-environmental space through construction of national garden cities and forest cities, as well as parks and greenways in cities. With increased greenery coverage, the urban ecoenvironment has been effectively restored. From 2012 to 2021, green coverage of built-up urban areas increased from 39 percent to 42 percent, and the per capita area of park greenery has increased from 11.8 square

Figure 2. Annual increase in green building areas as a proportion of new urban building areas in China (2015-2021)



Source : China International Book Trading Corporation: The State Council Information Office of the People's Republic of China, Foreign Language Press, January 2023, p16.

3. China's broader plan for a green, low-carbon, and circular economy

In February 2022, the State Council released the Guiding Opinions of the State Council on Accelerating the Establishment and Improvement of a Green, Low-carbon and Recycling Economic System ("Guiding Opinion"), which sets broader goals for China to transfer to a green economy.

Other than working points related to carbon reduction, the Guiding Opinion pays attention to the efficient use of resources other than energy and their discharge of pollutants as well as the general development of the environmental protection industry. Some examples are stated below. For water resources, the Guiding Opinion proposes to:

- ▷ promote efficient water-saving technology in agriculture;
- ▷ improve the charging policy for sewage treatment in manufacturing;
- ▷ develop contract water conservation management services;
- ▷ lay out sewage recycling facilities in urban areas;
- ▷ improve the trading mechanism for water use rights; and
- ▷ carry out the pilot program of resource tax collection and transformation of water resource fees into taxes.

For pollutant discharge, the Guiding Opinion proposes to:

- ▶ accelerate the implementation of pollutant discharge licensing system;
- ▶ strengthen the management of hazardous waste in industrial production; and
- ▶ develop third-party environmental pollution treatment and environmental custody services for better environment treatment results

To achieve these goals, the Guiding Opinion suggests that China must first make breakthroughs in key areas, such as conservation and environmental protection, clean production, and clean energy, before comprehensively driving the green upgradation of its primary, secondary, and tertiary industries and infrastructure. Also, emphasis is laden on

the importance of innovation and the market's guiding role, indicating that green tech and private entities will be expected to play an important part in China's green transition.

To achieve China's green and low-carbon transition goals, policymakers have identified specific tasks.

Table 1. China's broader plan for a green, low-carbon, and circular economy

Improving the production system	Promoting green upgrading of industries
	Accelerating green development of agriculture
	Improving the level of green development of the service industry
	Expanding green and environmental protection industries
	Improving the recycling level of industrial parks and industrial clusters
	Building a green supply chain
Improving the circulation system	Creating green logistics
	Strengthening the recycling of renewable resources
	Establishing a green trade system
	Promoting the consumption of green products
Improving the consumption system	Advocating a green and low-carbon lifestyle
	Promoting the consumption of green products
Accelerating the green upgrading of infrastructure	Advocating a green and low-carbon lifestyle
	Promoting the green and low-carbon transformation of the energy system
	Promoting the construction and upgrading of urban environmental infrastructure
	Improving the green development of transportation infrastructure
Building a market-oriented green technology innovation system	Improving urban and rural living environment
	Encouraging research and development of green and low-carbon technologies
	Accelerating the transformation of scientific and technological achievements
Improving the system of laws, regulations, and policies	Strengthening the support of laws and regulations
	Improving the price mechanism for green charges
	Increasing fiscal and tax support
	Vigorously developing green finance
	Improving green standards, green certification system, and statistical monitoring system
	Cultivating green trading market mechanism

Source : <https://www.china-briefing.com/news/what-is-chinas-green-and-low-carbon-plan-and-why-is-it-relevant-to-foreign-investors/>

4. China Renewable Energy

China's non-fossil fuel energy sources now exceed 50% of its total installed electricity generation capacity, state media outlet Xinhua said on Monday, citing an official at state planner the National Reform and Development Commission.

Non-fossil fuel power sources, such as wind and solar power, account for 50.9% of the country's total installed capacity, marking the early completion of a government target proposed in 2021, under which renewable capacity was planned to exceed fossil fuel capacity by 2025.

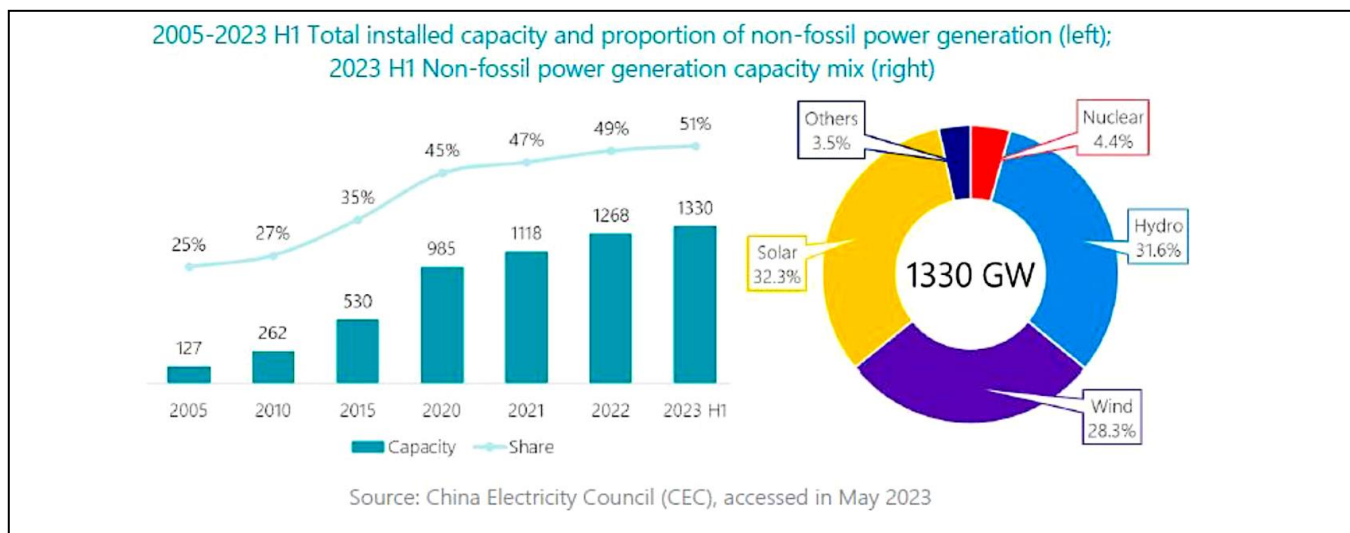
By the end of 2022, China's installed power generation capacity was 2,564.05 GW, according to data from the National Bureau of Statistics (NBS).

China has devoted significant resources to the construction of renewable energy capacity in recent years, building large wind, solar and hydro plants in the west of the country as it seeks to meet a target of peak carbon emissions before 2030.

However, inconsistent utilisation of the resources means that China's energy consumption mix remains weighted toward fossil fuels, principally coal.

Coal accounted for 56.2% of total energy consumption last year, versus 25.9% from renewable which includes nuclear energy, the NBS data showed.

Figure 3. China Renewable Energy



Source :<https://www.solarpaces.org/chinas-51-renewable-energy-target-was-achieved-early/>

5. Energy Production and Consumption

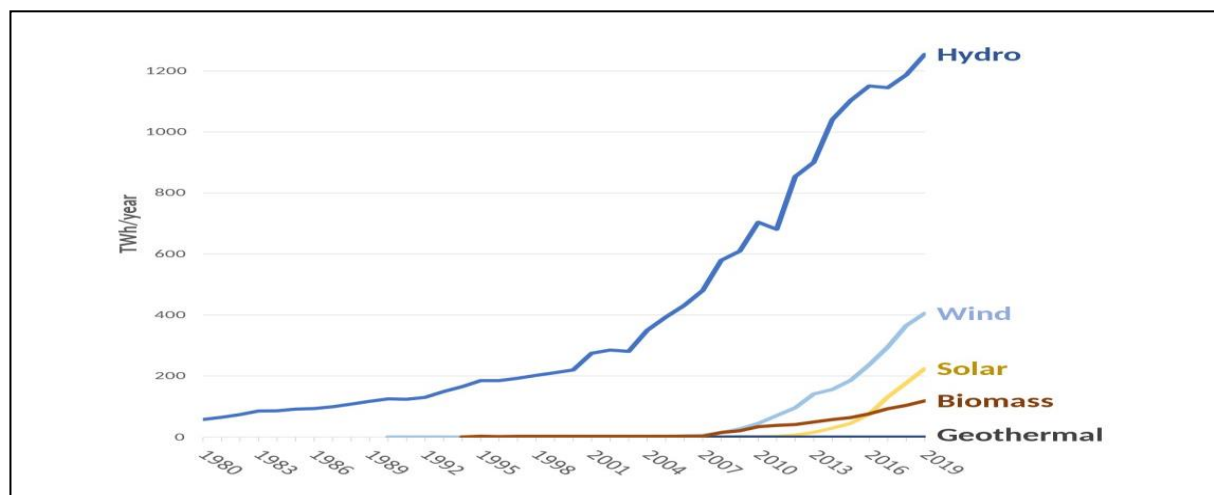
In 2020, 84.33% of Chinese primary energy consumption relied on fossil fuels, and 56.56% of it relied on coal, down from 70% in 2011. These energy production processes generated approximately 9.9 billion tonnes of CO₂, up from 8.1 billion tonnes in 2010 and accounting for 30.9% of global emissions.

In 2021, China produced 7.727% of its energy from hydroelectric, 2.32% from nuclear, and 7.141% from other renewable energy sources, from 2.25%, 8.468%, 5.77%, relatively, in 2020.

Chinese energy experts estimate that by 2050 the share of electricity from coal will decline to 30%–50%, and that the remaining 50%–70% will come from a combination of oil, natural gas, and renewable energy sources, including hydropower, nuclear power, biomass, solar energy, wind energy, and other renewable energy sources.

In 2018, transportation's share of energy consumption in China was 10.0%, consuming 436.2 million tons carbon equivalent, up by 7.6% in 2009 and 58.6 Mtce in 1995. The growth rate of the percentage, meanwhile, have seen a steady decline from 2010 to 2018, down from 10.8% to 3.5%.

Figure 4. China Renewable Electricity Production

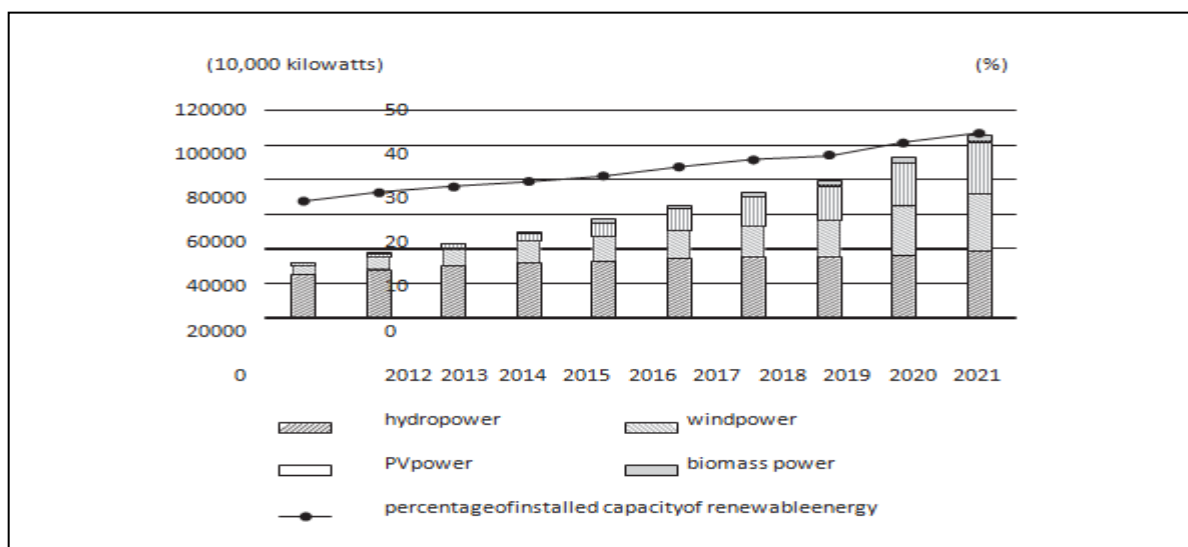


Source : <https://www.undp.org/china/publications/issue-brief-chinas-14th-five-year-plan>

Advancing the clean and efficient use of fossil energy. To promote the clean and low-carbon development of coal-fired power, China has up-graded coal-fired power plants to conserve resources, reduce carbon emissions and make their operation more flexible, and transformed heating facilities. It has implemented stricter energy-saving standards for newly- installed coal-fired generating units.

The efficiency and pollutant control levels of these units are on par with the most advanced international standards. China has promoted clean end-use energy by replacing coal with natural gas, electricity, and renewable energy. It has actively supported clean heating in winter in northern China. It has made the use of natural gas more efficient in urban areas, as well as in industrial fuel, power generation, and transport, and promoted natural gas combined cooling, heating, and power (CCHP). It has launched a campaign to upgrade the quality of refined oil products. In less than 10 years China achieved the upgrading that took developed countries 30-plus years, and its refined oil products are now of the best quality by international standards. As a result, vehicle pollutant discharge has been effectively reduced.

Figure 5. China's installed capacity of renewable energy and percentage in the country's overall installed capacity (2012-2021)



Source : Chin International Book Trading Corporation: The State Council Information Office of the People's Republic of China, Foreign Language Press, January 2023, p29.

Conclusion

China has embarked on a new journey to build itself into a modern socialist country in all respects and advance the rejuvenation of the Chinese nation. Harmony between humanity and nature is an important feature of China's modernization. The just-concluded 20th CPC National Congress has made strategic plans for China's future development which will help to create a better environment with greener mountains, cleaner water, and clearer air.

China will keep to the path of green development, continue to build an ecocivilization, and strive to realize development with a higher level of quality, efficiency, equity, sustainability and security.

We will make "green" a defining feature of a beautiful China and allow the people to share the beauty of nature and life in a healthy environment.

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