

Stabilizing Expectations and Confidence with Greater Reform and Innovation to Accelerate Green Transition¹

Liu Shijin² CF40 Advisor

Abstract: *In 2020, President Xi Jinping set forth the dual carbon goals, driving the rapid rise of China's low-carbon and green industries. China has since become the world's largest producer and consumer of renewable energy. Green innovation has spurred substantial green investments, becoming a key driving force for investment, innovation, and economic growth both in the current phase and for the foreseeable future.*

This year, global elections could introduce uncertainty and disruptions to the worldwide efforts against climate change. China should actively respond to the targets proposed at COP28 by enhancing the growth targets of renewable energy and accelerating the pace at which new technologies and industries replace traditional ones. In the face of challenges in the development of new energy, it is essential to implement the guidelines set out in the Third Plenary Session, further regulate market competition, improve total factor productivity, so as to create a policy framework and institutional environment conducive to the development of both domestic and international new energy industries.

I. The Dual Carbon Goals Drive Innovation and New Growth Momentum

Nearly four years ago, President Xi Jinping introduced the goals of achieving carbon peaking and carbon neutrality, known as the “dual carbon” goals. The announcement of these goals has led to changes in China beyond expectations. Looking back, four years ago, few people could articulate the concept of “carbon

neutrality”. Today, if one is still unfamiliar with carbon neutrality, they are undoubtedly falling behind, as a growing number of experts, or those claiming to be experts in this field have emerged. What is particularly significant is that China has not only advocated for this cause but has also taken concrete actions to pursue it vigorously. A series of innovation-driven, low-carbon, and green industries have rapidly risen. China has become the world's largest producer and consumer of renewable energy, leading globally in areas such as cumulative installed capacity of renewable energy, equipment manufacturing, green investment, and market development. As illustrated in Figure 1, China's clean energy investments have ranked among the highest in the world over the past few years.

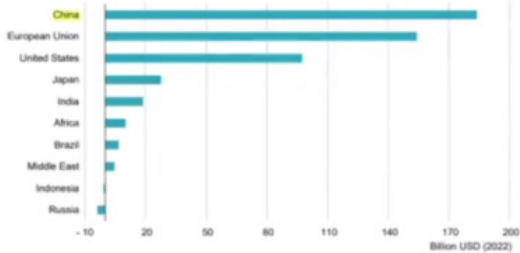
For many years, China has led the world in wind, solar, hydropower, and biomass energy generation. In the production of key components for renewable

¹ This article is based on the remarks delivered by the author at the session Report Release of The Bund Green Finance Report during the 6th Bund Summit on September 7, 2024. It was translated by the Secretariat of CF40 and not reviewed by the author. In case of any discrepancy or ambiguity between the English and Chinese versions, the Chinese version shall prevail.

² The author is the former Vice Minister of Development Research Center of the State Council, the Deputy Director of the Economic Affairs Committee of the 13th National Committee of the Chinese People's Political Consultative Conference, and Chinese Chief Advisor for the China Council for International Cooperation on Environment and Development.

Figure 1: Increase in China's Annual Clean Energy Investment (2019-2023)

From 2019 to 2023, China's annual clean energy investment had increased by more than \$170 billion



energy, China's global market share has consistently exceeded 70%. Notably, the "New Three" (new energy vehicles, lithium batteries and photovoltaic modules) surpassed 1 trillion yuan in exports last year—a figure unimaginable just three years ago.

Even more critical is the profound shift in mindset. For a long time, people viewed environmental protection and carbon reduction as conflicting or even mutually exclusive with economic growth, something that had to be done out of necessity. Today, this perception has transformed into a relationship of mutual promotion and win-win outcomes. The key variable in this shift is innovation. The fundamental solution for humanity's response to climate change lies in the comprehensive and systematic "technological replacement". Developing new technologies requires investment, which in turn stimulates growth and drives further innovation. This is the deeper logic behind the changes. Innovation, along with the rise of low-carbon and green industries, is the fundamental strategy to address climate change and is essential to resolving various conflicts and untangling complex relationships.

Two important concepts here are endogenous green technology and corrective governance technology. Corrective governance technology refers to remedial measures taken while maintaining the existing technological system, characterized by the approach of "emit first, manage later". Endogenous green technology, on the other hand, uses low-carbon, zero-carbon, and negative-carbon technologies to significantly reduce carbon emissions while maintaining the same output compared to traditional high-carbon production methods. For instance, coal-fired power emits 1,000 grams of carbon per kilowatt-hour, solar

power emits 30 grams, and wind energy just 10 grams. By switching from coal-fired power to solar or wind energy, carbon emissions are reduced by 970 grams or 990 grams respectively. This means generating the same amount of electricity with just 3% or 1% of the carbon emissions, exemplifying endogenous green technology.

Currently, under the traditional coal-fired power generation technology system, initial measures often involve coal-saving technologies, followed by the adoption of carbon capture and storage, which are considered corrective governance technologies and are challenging to reduce in cost. In contrast, technologies like solar and wind power, which have very low carbon emissions, fall under endogenous green technology, where the costs of carbon reduction are low, approaching zero. In the early stages of the green transition, the production costs of solar and wind energy were high, while their carbon reduction costs were low, resulting in a higher overall cost and creating a "green premium". Traditional coal-fired power generation, with its low production costs but high carbon reduction costs, held a overall cost advantage. However, as the pace of innovation in green technologies accelerates, a new pattern has emerged that exceeds expectations. From 2010 to 2020, the costs of solar photovoltaic energy dropped by nearly 90%, onshore wind energy decreased by nearly 70%, and offshore wind energy fell by nearly 60%. Currently, the costs of wind and solar power generation are approaching or are lower than those of coal-fired generation, and when factoring in carbon reduction costs, they have a clear competitive advantage.

Endogenous low-carbon green technologies possess certain advantages, such as rapid technological progress, significant potential, and a notable cost reduction driven by economies of scale. The industry chain and other supporting conditions are well-developed, providing strong resilience and resistance to shocks. Enterprises, especially private ones, are the main innovators, demonstrating high innovation vitality and quick response times. For example, the top ten companies in various sectors of China's new energy

industry are predominantly private enterprises.

A significant change in China's green transition over the past few years is the shift from a focus on energy conservation and emission reduction through adherence to existing technologies and production systems to a reliance on the comprehensive expansion of new technologies and the innovation of production systems. This shift represents a transition from corrective governance technologies to endogenous green technologies, moving from "emit first, manage later" to low-carbon, green technology and production systems. Green finance and transition finance must focus on identifying and distinguishing between corrective governance technologies and endogenous green technologies to prevent "fake transitions". Supporting endogenous green technologies will substantially promote innovation, mitigate risks, reduce costs, and accelerate the green transition process.

II. Upholding the Dual Carbon Goals to Stabilize Long-Term Expectations

At the COP28 conference held last December, the goal of "transforming away from" fossil fuels was proposed for the first time. This year is a global election year, which may introduce uncertainty and disruptions to the worldwide efforts against climate change. Goals determine expectations; addressing global climate change carries immense externalities, and the certainty of these goals is crucial. If established goals waver or regress, many ongoing initiatives may come to a halt, potentially wasting previous efforts.

Compared to ten or twenty years ago, addressing climate change and achieving carbon neutrality is no longer just theoretical discussion. Significant human, material, and financial resources—amounting to trillions in research and industrial investment—have already been committed. If long-term targets are shaken, regressed, or even abandoned, the implications extend beyond ideology and values; they involve substantial interests. A shift or retreat from these targets poses a fundamental question about whether

numerous countries and even the global economy will move forward, regress, or fall into crisis. China is leading the way in this regard, and it is especially critical for the country. Discussing climate change and carbon neutrality is easy during calm times; the real test of determination and confidence emerges when faced with difficulties and challenges. Therefore, strategic stability on this issue is essential; any wavering or retreat offers no viable path forward.

The COP28 has proposed the goal of tripling renewable energy capacity and doubling energy efficiency by 2030, which is achievable. In April this year, the retail and wholesale penetration rates of new energy vehicles (NEVs) in China both exceeded 50%. And in July, the monthly penetration rate also surpassed 50%. In fact, government departments previously set a target of achieving a 50% penetration rate for NEVs by 2035, which has now been reached 11 years ahead of schedule. Does this suggest that the goals set by relevant departments were overly conservative? Not necessarily. When that target was proposed, it was viewed as somewhat ambitious. Entrepreneurs in the NEV sector initially found it hard to envision reaching the current level of development. Once on the path of innovation, many developments can indeed exceed expectations.

China should actively respond to the targets proposed at COP28, and the growth indicators for renewable energy should be correspondingly raised. The speed of new technologies and industries replacing existing ones should also accelerate. This will help enterprises achieve economies of scale, reduce costs, and increase investment in research and development. Currently, with the booming new energy and NEV industries, significant capacity has been input, necessitating rapid expansion to achieve economies of scale and provide more investment for research and development. Companies in this field cannot afford to wait ten or twenty years for expansion. Given the current stage of industrial development, acceleration is essential; otherwise, many companies will face existential crises and struggle to survive. We can anticipate that the growth rate of NEVs and the entire low-carbon green

industry may surpass initial projections, and this possibility certainly exists.

III. Addressing Development Challenges Through Comprehensively Deepening Reform and Accelerated Innovative Development

Undeniably, the development of new energy faces numerous problems and challenges, some of which are severe and urgent. These include the instability of new energy supply, limitations in consumption and delivery, difficulties in integrating distributed energy into the grid, challenges with short-circuits distributed-power trading, market “involution”, declining prices, and the impacts of international trade protectionism—these are all issues arising from development. The historical experience since the reform and opening up remains valid; the challenges of development can only be addressed through further reform and opening up, and better, faster development. Slow or stagnant growth presents a much larger issue.

Regarding the issue of market “involution”, some international observers claim that China’s new energy industry suffers from serious overcapacity. If “involution” is understood as overcapacity, it is important to note that a characteristic of market economies is a certain degree of overcapacity. Some countries do not recognize China’s status as a market economy, while simultaneously arguing that there is severe overcapacity in China; this contradiction lacks logical consistency. We must first acknowledge that China operates as a market economy and then address why the new energy industry has thrived in China. In fact, this is where China’s strengths lie—thanks to its vast market

scale, strong industrial support, robust engineering capabilities, and particularly the entrepreneurial spirit and market vitality. Chinese entrepreneurs, at least in the new energy sector, have not been complacent; instead, they are vigorously competing and leading the way. This means that the international community must recognize that China’s competitive advantages in the market are an objective reality.

In fact, the influx of players, competitive elimination, the emergence of leading enterprises, and the concentration of market share are normal processes in market competition and are essential steps in the formation of competitive advantages for businesses. It is crucial to prevent or avoid improper government intervention and unfair competition from certain market participants that disrupt market order. The government should play a better role by unwaveringly upholding the dual carbon goals, timely introducing quantitative carbon reduction targets at all levels, and systematically collecting and promptly releasing information related to investments, production, and consumption in the new energy industry. This will aid investors, producers and consumers in making informed decisions.

We should thoroughly study and implement the guidelines set forth in the Third Plenary Session, further regulate market competition, prevent “bottoming out” competition that distorts factor prices, and correct various preferential policies that hinder fair competition. Most importantly, we need to improve total factor productivity and create a policy framework and institutional environment conducive to the development of both domestic and international new energy industries. 🏗️