

Deepening Cooperation on Energy Transition to Drive the Process of Carbon Neutrality Cooperation among China, Japan, and South Korea

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At the beginning of this year, China Institute for Reform and Development (CIRD) released the 2023 China Reform Annual Report titled "Structural Transformation," which includes a chapter specifically analyzing the energy structural transformation in the process of China's economic transformation. China's energy transformation is not only of significant importance for its own development but also has a crucial impact on the carbon neutrality cooperation process in the Northeast Asia region.

First, carbon neutrality cooperation has become a key field of trilateral collaboration among China, Japan, and South Korea. Northeast Asia is one of the most dynamic regions in the world economy with a high demand for energy. The combined GDP of China, Japan, and South Korea accounts for 20% of the world's total and 70% of Asia's total. Moreover, these three countries are among the world's top 10 carbon-emitters, they have a growing common aspiration for energy transformation and sustainable energy security, and have all launched medium - and long-term national strategies to strengthen green development.

China, Japan and the South Korea are among the top carbon-emitting nations globally. According to the data of the World Bank, in 2020, the carbon emissions of the three countries will be 10.945 million tons, 1.044 million tons and 570 million tons respectively, ranking first, fifth and seventh in the global carbon emissions. Their total carbon emissions contribute to 37.22% of the global total. In terms of per capita carbon emissions, China, Japan, and South Korea exceed the global average of 4.29 tons per person, with 7.76 tons/person, 8.03 tons/person, and 10.99 tons/person, respectively. According to the Global Climate Risk Index 2021, Japan, China and South Korea rank 4th, 32nd and 60th respectively in the climate risk Index, with the three countries warming at a rate significantly higher than the global average for the same period. Given their significant carbon footprints, these countries share a common interest in carbon neutrality and collectively influence global progress.

Second, the energy transition determines the progress of carbon neutrality. Examining China's practices, it is evident that China has made notable progress in achieving carbon neutrality through energy transition, serving as a valuable reference for other major economies to explore carbon neutrality.

At the micro level, the proportion of green energy in residential transportation has significantly increased. At the macro level, the share of clean energy continues to rise. In 2021, the share of non-fossil energy production, including primary electricity and other energy sources, has reached 20.3% in China. The proportion of clean energy production, including non-fossil and natural gas, increased from 6% in 1978 to 26.4% in 2021. In 2020, China's installed capacities for wind power, solar power, and nuclear power reached 280 million kilowatts, 250 million kilowatts, and 50 million kilowatts, respectively, accounting for 16.82%, 11.51%, and 2.27% of the total. By the end of 2020, China's hydropower, wind power, photovoltaic power, and biomass power had ranked first globally for 16, 11, 6, and 3 consecutive years, respectively. Therefore, China's success in advancing the dual-carbon process lies in the transformation of its energy structure, ensuring economic growth while reversing the trend of rapid carbon emissions growth.

Third, seizing the trend of China's economic transformation to carry out energy transition cooperation is key to advancing carbon neutrality cooperation among China, Japan, and South Korea. Overall, fossil fuels account for over 80% of the primary energy consumption in all three countries. Consequently, they collectively face the realistic challenge of reducing dependence on high-carbon fossil fuels and vigorously promoting the development of non-fossil, especially renewable energy. This is a comprehensive undertaking involving various policies and systems. From a practical standpoint, one of the crucial aspects of promoting carbon neutrality cooperation among these three countries is to seize the trend of China's economic transformation and engage in energy transition cooperation.