

Renewable Energy Policy Challenges in 2024
—Expansion of Renewable Energy Concentrated in China and Focused on
Solar Power—
<Summary>

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Further acceleration in the increase in renewable energy generation capacity through 2024

1. Global renewable energy generation capacity is expected to accelerate further in 2023 and 2024, with adoption advancing at a high level of 450-500 GW per year, significantly exceeding the 300 GW per year increase in 2022. The annual rate of increase rose from about 8% per year before 2020 to 10% per year after 2020 and will accelerate further to about 13% per year in 2023 and 2024. Amidst growing interest in global energy security and decarbonization, the momentum for growth in the renewable energy sector will be thrown into sharper relief.
2. Particularly in China, the annual rate of increase in 2023 and 2024, compared to 2022, will double for solar power and increase by 50% for onshore wind power; this is a significant increase when compared to the rest of the world (excluding China). China is becoming a driving force behind the rise of renewable energy worldwide.
3. Solar power will make up more than 70% of the global increase in renewable energy generation capacity in 2023 and 2024, indicating a pronounced trend of a heavy emphasis on solar power. On the other hand, wind power, which makes up a large percentage of equipment production outside of China, will see sluggish growth due to the strong impact of soaring material prices and rising interest rates.
4. Naturally variable renewable energy (VRE) sources, such as solar and wind power, will make up 95% of the global increase in renewable energy generation capacity in 2023 and 2024, and the adoption of VRE will progress further.

More prominent concentration of renewable energy generation-related industries in China

5. China will make up 60% of the total growth in renewable energy worldwide in 2023 and 2024. Moreover, 80% of the world's solar panels are produced in China, and the heavy emphasis on solar power in the growth of renewable energy will lead to further

concentration in China even in the aspects of renewable energy facilities supply. There may be growing global interest in the implications of such concentration in China.

6. Renewable energy generation capacity for the world, excluding China, will increase at an annual rate of 9% in 2024. On the other hand, renewable energy generation capacity will grow significantly in China at a much higher annual rate of 20%.
7. The background factors contributing to the rapid growth of renewable energy in China include the government-driven adoption of renewable energy under the 14th Five-Year Plan, the relatively small impact of soaring global raw material prices due to the complete domestic supply-chain, and greater cost advantage of solar power generation due to the 30% to 40% fall in solar panel prices compared to 2022 as a result of increased solar panel production within China.

Potential for renewable energy to make up the top share of global power output in 2024

8. As a result of the increase in renewable energy generation capacity, the share of renewable energy (including hydropower) in the world's total power output is expected to increase up to a maximum of about 34% in 2024. Hence, there is a possibility that renewable energy may overtake coal, which had been the largest power generator previously, and take the top place for the first time. The share of naturally variable renewable energy (VRE) of solar and wind power, combined, is expected to grow to 16%, and there is an increasingly real possibility that the implementation of measures to integrate VRE, which have a large share, will become a medium- to long-term challenge.

Trends in Japan's renewable energy market

9. Renewable energy generation capacity, excluding large-scale hydropower of 30 MW or above, will reach 107 GW by the end of FY2024. The power output for renewable energy, based on this definition, will reach 212 TWh in FY2024. If large-scale hydropower of 30 MW or above is included, the share of renewable energy in total power output is expected to reach 24.6% (hydropower: 7.6%, non-hydropower: 16.7%) in FY2024.
10. The annual rate of increase in the amount of renewable energy adopted in Japan peaked in FY2014 and has since remained on a long-term trend of decline. The volume of increase in FY2024 is expected to remain at the same level as the previous fiscal year at about 6.5 GW per year. While this is a different situation from the acceleration in the adoption of renewable energy worldwide, Japan is expected to be on track to achieve its renewable energy target for 2030 if it maintains this adoption level.

Challenges and measures accompanying the adoption of renewable energy in 2024

11. Challenges accompanying the adoption of renewable energy in 2024, which are shared by countries around the world, include rising production and installation costs of renewable energy facilities due to global inflation and rise in interest rates, project delays due to the wait for connection to the power grid, delays in approval processes by administrative agencies, and ensuring the flexibility of the power grid accompanying the increase in VRE share, among other challenges. To address rising costs due to inflation, in the short-term, it is necessary to raise bidding prices and make subsequent adjustments for inflation to contract prices such as PPA. On the other hand, there is also a need to pay close attention to society's tolerance for the rise in energy prices. With regard to waiting for the connection to the power grid, the primary factor is that long-term investment in the power grid is not keeping pace with the rapid growth of renewable energy. Therefore, it is essential to formulate and implement long-term power grid improvement plans with a view to expanding renewable energy, as well as provide policy support to promote long-term investment toward achieving that. With regard to ensuring the flexibility of the power grid accompanying the increase in VRE share, it is necessary to maintain demand and supply regulating power sources, provide policy support for the improvement of power storage systems, and establish policies to promote the proactive use of DR.
12. Challenges that confront Japan in 2024 include the decline in the number of locations to install renewable energy generation facilities, building consensus with the community on renewable energy projects and the approach to coexistence with the local community, and the need to establish new renewable energy business models such as FIP and PPA in a post-FIT environment.

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