

Renewable Energy Policy Challenges in 2025

— The Growing Presence of Solar Power, and its Overconcentration on China — <Summary>

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Increase in global renewable energy generation capacity will reach 670GW in 2025

1. Global renewable energy generation capacity increased rapidly in 2023, climbing by 1.6 times compared to the previous year to 550GW per year, but the annual increase is expected to continue to set new records of 650GW per year in 2024 and 670GW per year in 2025. The annual rate of increase will remain at a high level of 16% in 2024 and 14% in 2025.

Solar power will make up close to 80% of the global increase in renewable energy generation capacity in 2025

2. Solar power will make up close to 80% of the global increase in renewable energy generation capacity in 2025, and the overconcentration of solar power will become more prominent. Forming a backdrop to that is a worldwide decline in solar panel prices resulting from excess production in China, which has meant that even under inflation, the decline of solar power generation costs has progressed. On the other hand, wind power generation, for which the percentage of related production that takes place outside China is relatively high, will see sluggish growth as costs rise accompanying soaring material prices for both onshore and offshore wind power, and rising interest rates. Although both are renewable energies, solar power and wind power differ starkly.
3. Natural variable renewable energy (VRE: solar and wind power) will account for almost all (97%) of the global increase in renewable energy generation capacity in 2025, and the influx of VRE to the world's electric power systems will advance further.

The convergence on China, both in terms of the adoption of renewable energy and the supply of renewable energy facilities, will strengthen further in 2025

4. China's share as a component of the global annual increase in renewable energy generation capacity is increasing every year, and the country will account for 60% or

- more of the capacity growth in 2025. For the most part, this convergence on China will move ahead for almost all renewable energy power sources—solar (63%), offshore wind (63%), biomass (59%), onshore wind (58%), and hydropower (42%).
5. China's annual rate of increase in renewable energy generation capacity is conspicuously high—20% per year compared to around 9-10% per year for the world as a whole excluding China. Incidentally, there is a possibility growth in the U.S.' renewable energy generation capacity will slow due to the impact of the change in government there.
 6. China accounts for 83% of solar panel production, and accompanying the emphasis on solar in renewable energy growth the convergence on China will strengthen further, not just in terms of the adoption of renewable energy but also in terms of the supply of renewable energy facilities. In the future, there is a possibility a similar situation will emerge for wind power also. The issue of overconcentration on China, coupled with a similar situation that exists for key minerals, is attracting attention from a global economic security standpoint.

Potential for renewable energy to account for the leading share of global power output in 2025

7. As a result of the increase in renewable energy generation capacity, renewable energy's share (including hydropower) of the global power output is expected to grow to around 35% in 2025. There is a possibility renewable energy will overtake coal, which has accounted for the top share up to now, and seize the lead place for the first time. The share of naturally renewable variable energy (VRE) of solar and wind power combined is expected to grow to 18%, and there is a real possibility that securing flexible resources for power grids to enable this high share of VRE to be integrated will emerge as a medium- to long-term challenge.

Annual increase of around 6GW expected for Japan's renewable energy generation capacity

8. Renewable energy generation capacity, excluding large-scale hydropower of 30MW or above, will reach 113GW by the end of FY2025. The power output for renewable energy based on this definition will reach 225TWh in FY2025. If large-scale hydropower of 30MW or above is included, the share of renewable energy in total power output is expected to reach 25.7% in FY2025.
9. The increase in the amount of renewable energy adopted in Japan in FY2025 is expected to remain at around 6GW per year, the same level as in the previous fiscal year. The annual rate of increase peaked in FY2014 and will slow to 6% in FY2025.

This is a somewhat low level when compared to the 9-10% rate of increase for the world as a whole excluding China. Japan will need to adopt renewable energy at a greater rate than it currently is if it is to achieve its renewable energy target for FY2030 of having renewable energy account for a 36-38% share of its power output as a whole.

Challenges and measures accompanying the increased adoption of renewable energy in 2025

10. In 2025, challenges accompanying the increased adoption of renewable energy, which are shared by countries around the world, can be cited as selecting support policies for accelerating the adoption of renewable energy; the growing number of projects not operating as they await connection to power grids or government approval; the clustering of renewable energy facility supply on certain countries; loss of diversity in renewable power sources as a result of the focus on solar, where prices continue to drop; and ensuring the flexibility of power grids accompanying the increase in VRE, among other challenges. The primary factor behind the wait for the connection to power grids is that long-term investment in power grids is not keeping pace with the rapid growth of renewable energy. Long-term improvement of power grids based on renewable energy growth, and policy support to promote long-term investment in that, will therefore be essential.
11. Challenges that confront Japan in 2025 can be cited as including the decline in the number of locations to install renewable energy generation facilities; building consensus with local communities on renewable energy projects, and the approach to coexistence with local communities; the wait for connections arising from grid constraints; and the need to establish new renewable energy business models such as FIP and PPA in a post-FIT environment.

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