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## **Outlook and Issues Concerning the Domestic and International Renewable Energy Market and Hydrogen in 2022**

**<Summary >**

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### Global renewable output to continue growing by 8% a year for 2022

1. Global energy output declined by just under 1% in 2020. However, despite similar declines in all other energy sources, renewables increased 6% year over year. Global renewable output for the year was 7,440 TWh, bringing the share of renewables in global electricity generation to 28% from the 2019 level of 26%.
2. Although total electricity demand in 2021 is expected to grow by around 6%, renewable output would also rise 6% to bring annual output close to 8,000 TWh. A similar or even more increase is expected for 2022. The share of renewables in global electricity generation is thus likely to approach 30% in 2022. However, an unexpected rise in electricity demand for 2021–2022 could stunt renewables share growth as power output from non-renewables will also increase.

### Renewable generation capacity to grow even faster for 2021–2022

3. Despite the ongoing effects of the COVID-19 pandemic worldwide, 2020 was a record year for global renewables deployment. At 260 GW, 2020 far outpaced 2019's 180 GW, which itself was a new high. 2021–2022 is expected to see renewable power generation capacity deployed at a level that exceeds 2020. Fueling this acceleration is rising investor interest in renewables on account of the declaration of carbon neutrality goals, plans for renewables deployment, and policies to promote renewables by major countries, as well as a market environment that supports the deployment of renewables, one aspect of which is private enterprises' procurement of renewable electricity through means such as PPA.

4. 2020 saw China's share of annual growth in renewable generation capacity exceed 50% for the first time. With China stepping up its renewables deployment as it seeks to achieve carbon neutrality by 2060, 2021–2022 is set to see this single country account for nearly 50% of global growth in renewable generation capacity.
5. During 2021–2022, solar PV will come to account for 60% of annual growth in renewable generation capacity. In the 2010s, the growth of renewables saw the market gradually shift away from wind and toward solar PV. The 2020s will now be a time of even greater growth for solar PV.

#### Renewables market trends in Japan

6. In FY 2020, close to 6 GW of capacity was deployed as commercial solar PV facilities came online. This dropped to 5 GW in FY 2021, however, with a decline in FIT certifications. 2022 is expected to remain at a similar level due in part to uncertainty surrounding the transition to an FIP scheme. Meanwhile, onshore wind has seen new deadlines set for the start of operations and FIT certification expiration for projects that have received FIT certification but not yet commenced operations. Deployment could increase significantly 2021 onwards as operations gradually commence. However, offshore wind will yet not grow appreciably in the short-term market by 2022.
7. Renewable capacity, excluding large hydro more than 30 MW, would grow to 95 GW by the end of FY 2022, producing 183 TWh of electricity during FY 2021. Adding large hydro more than 30 MW into this, the share of renewables in total in electricity generation would reach 22.4% in FY 2022.
8. The 6th Strategic Energy Plan establishes 36–38% as the new FY 2030 target for renewables as a share of the energy mix. The 125 GW of renewable generation capacity, including large hydro, in 2020 needs to be increased to around 200 GW by FY 2030. This will require continuing renewables deployment at a pace of 7.5 GW annually, which exceeds the annual 7.1 GW average for the last five years. Target achievement will significantly depend on the effectiveness of policies going forward.
9. There are four pressing issues for renewables in Japan: (1) Deployment of considerable amount of renewable capacity to achieve the new 2030 targets, (2) Reduction of renewable generation costs, which still remain higher than the international average, (3) Overcoming power grid restrictions potentially holding back large-scale renewables deployment, (4) Increasing flexibility in the electricity systems in preparation for higher share of variable renewables

in the near future.

10. FIP scheme will be implemented for selected new renewable projects starting in FY 2022. Under the FIP scheme, renewable power producers have to sell electricity to the wholesale electricity market by themselves and be required to conduct balancing according to estimates and accept responsibility for imbalances. This will be a major turning point towards renewable integration in the market.

### Hydrogen trends

11. While predicting clean hydrogen production volume is difficult to do for the short-term (through 2022), in light of all projects currently being planned, hydrogen production could reach 17 Mt-H<sub>2</sub> a year by 2030. This breaks down to 8 Mt-H<sub>2</sub> a year for green hydrogen and 9 Mt-H<sub>2</sub> a year for blue hydrogen.
12. 13 nations had formulated national hydrogen strategies as of the end of 2021, a number that is expected to hit 20 over the next several years. The world's nations are increasingly realizing the importance of the role that hydrogen will play in achieving carbon neutrality.

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