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Renewable Energy Trends under COVID-19 and European Energy Policy

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On July 14, the Institute of Energy Economics, Japan, held its 435th meeting on research works in an online format, dealing with research reports titled “2020-2021 Renewable Energy Trends: How Would COVID-19 Influence Renewable Energy?” and “COVID-19 and European Energy and Environment Policy.” These two presentations were followed by a question-and-answer session. As indicated by the title, the former report discussed global renewable energy expansion and relevant challenges under the COVID-19 pandemic. The latter took up the so-called green recovery plan and new energy security challenges in Europe plagued with the pandemic. In the following, I would like to make my personal comments on renewable energy challenges and European energy and environment policy, based on the reports and discussions at the meeting.

First, the renewable energy report emphasized that while global energy and electricity demand has declined under the COVID-19 pandemic, renewable energy supply has exceptionally expanded and increased its presence in the energy mix. Renewable energy including hydro is expected to raise its share of global power generation sharply from 26.0% (including 5.3% for wind, 2.7% for solar photovoltaics and 2.4% for biomass/geothermal energy) in 2019 to around 30% in 2020 due to an electricity consumption plunge under the pandemic and an increase in wind and solar PV power generation.

Why is renewable energy power generation expanding substantially despite the electricity demand plunge? Because renewable energy supply has some unique features explained in the following. First, solar PV and wind power generation capacity has expanded thanks to robust investment in the recent past. Second, renewable energy has been subjected to incentives such as power-feeding priority and renewable-energy purchasing requirements under the so-called feed-in-tariff system. Third, solar PV and wind have been in advantageous positions under the “merit order system” used on European and U.S. competitive wholesale power markets. These features have played a key role in expanding renewable energy’s share of power generation. Even amid the electricity demand plunge, renewable energy’s privileged and advantageous positions allow renewable energy supply capacity expansion to lead to an increase in actual supply. As a result, other electricity sources are being replaced by renewable energy in the market.

This may mean that the extremely sharp expansion of renewable energy’s share in 2020 would end up as a temporary phenomenon under the COVID-19 pandemic, while renewable energy capacity maintains an uptrend. Although renewable energy supply would continue to increase, supply from other electricity sources would depend on how much overall electricity demand would grow. Renewable energy’s share would be affected by any increase in supply from other electricity sources.

At the same time, however, how much renewable energy and other electricity sources would grow would depend on various factors including decarbonization and energy security initiatives, prices of power generation fuels, technological development, and power generation costs of each technology.

Although renewable energy supply is set to increase, these factors would exert influence on how fast renewable energy expansion would be. Particularly, a key point would be how strong national renewable energy promotion policies would be. While wind and solar PV power generation costs are touted as falling rapidly, how to secure the attractiveness of these renewables for investors would be important for expanding and maintaining investment in them. The FIT system, though attractive for investors, has produced a problem for consumers and the macro economy due to rising renewable energy surcharges on power bills. Based on the experience, it may be right to pursue economically rational promotion of renewable energy, which could in turn affect the attractiveness of investment in renewables.

Regarding the attractiveness of renewable energy investment, there is the problem of the so-called “the cannibalism effect” in which renewable energy expansion could lead to a substantial fall in wholesale power prices to the disadvantage of renewables’ value. From the viewpoint of consumers and the macro economy, the substantial expansion of intermittent renewables such as wind and solar PV would lead costs for their integration into grid networks to increase and affect overall electricity supply costs. It may become even more important for an adequate renewable energy promotion policy to take these problems into account.

The promotion of renewable energy has become a pillar of the Green Deal that the European Union has positioned as a key part of its plan for recovery from the COVID-19 disaster. Green Deal initiatives and their fate are attracting global attention. Originally, the Green Deal was positioned as the EU’s long-term growth strategy. Key energy-related elements such as renewable energy, hydrogen, energy efficiency improvements and clean mobility were expected to drive EU economic growth. Given the coronavirus disaster’s enormous economic, social and human damage, however, Europe and the EU have given top priority to recovery from the disaster for the immediate future. The Green Deal has taken a position as a key means for the recovery. Whether the Green Deal initiatives would make smooth progress and great achievements would have great influence on the EU’s recovery and decarbonization and be important for whether the Green Deal would become a model for global application. On the other hand, enormous damage from the coronavirus disaster would bring about some challenges including a decline in the Green Deal’s centripetal force and the relativization of the decarbonization agenda through growth in the significance of economic recovery, survival and safety.

While the IEEJ report on the EU at the latest online meeting provided a comprehensive picture of challenges regarding the EU green recovery plan, many questions on hydrogen strategies came from participants in the meeting. In Europe, the EU and Germany, for example, have announced their respective hydrogen strategies, leading hydrogen’s significance to be highlighted in long-term energy and environment strategies. Hydrogen is being positioned as an indispensable factor for realizing the EU’s energy and environment strategies through 2050. Participants in the meeting understood that hydrogen attracts attention in Europe. Given that there are cost reduction, infrastructure development and many other economic, social and technological challenges to be resolved for the substantial expansion of hydrogen use and that the resolution is likely to take some three decades, however, participants questioned why the EU positions hydrogen as a pillar of its growth and recovery strategies. They also questioned how the EU’s private business with real business existing assets is tackling the hydrogen expansion plagued with long-term challenges.

I feel that these questions are reasonable. An answer to these questions is related to political and social environments where the EU has strongly pushed decarbonization initiatives. The answer is that the EU members have shared the consciousness that hydrogen use would be a “must” added to all other means to achieve net zero greenhouse gas emissions by 2050. This means that the

decarbonization vision would not be conceivable without large-scale hydrogen use. If so, hydrogen initiatives must be put into growth strategies and taken by the industry sector as a key challenge to tackle from now on. How the EU would promote hydrogen and how the EU business sector would tackle hydrogen use may continue to attract global attention.

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