

## **Challenges for Energy Transition to Balance Decarbonization with Enhanced Energy Security**

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It has been a long time since energy security enhancement became a top priority for the world due to the chaotic international energy situation under the Ukraine crisis. As seen just after the first oil crisis a half century ago, Japan and other countries have been strongly promoting initiatives to secure stable energy supply. Still, however, decarbonization initiatives to prevent climate change and conserve the global environment have remained important. Although a comeback to coal and other short-term measures to secure stable energy supply has been realized, the European Union's REPowerEU plan and other policy initiatives to strike a balance between the phase-out of dependency on Russia (energy security enhancement) and decarbonization have become a key global challenge. On the other hand, it is important for countries around the world to understand the division of the world and growing geopolitical tensions as background factors for considering energy security and decarbonization initiatives, and studying and implementing countermeasures.

In such a situation, the eighth IEEJ/APERC International Energy Symposium took place at Grand Prince Hotel Takanawa on April 27. The symposium is an annual flagship event for the Institute of Energy Economics, Japan, and the Asia Pacific Research Center, which has been held since the first one in 2016 that marked the 50th anniversary of the IEEJ and the 20th anniversary of the APERC. After the fifth to seventh ones that were held on an online basis due to the COVID-19 pandemic, the eighth one took a hybrid form including the first face-to-face meeting in four years and online participation. In the latest symposium titled "Challenges for Carbon Neutrality and Energy Security – Searching for a realistic and pragmatic pathway," participants vigorously discussed the up-to-date topic. The symposium comprised Session 1 on "Smooth and orderly energy transition policies to balance out use of fossil fuels," Session 2 on "Bolstering supplies of critical materials for decarbonization technologies" and Session 3 on "Asia's initiatives for zero carbon emissions." In these sessions, prominent experts and government officials made presentations followed by panel discussions. In the following, I would like to spell out key points that I was inspired by the symposium to consider, instead of summarizing symposium discussions.

Issues discussed in Session 1 regarding fossil fuels' relationship with energy transition are essential for energy transition in a sense. Transition means a constructive change from the existing holistic system to an entirely different system. It is important for the existing holistic system to be dominated by fossil fuels. Given economic and population growth trends in developing countries that have become the leader of global energy consumption, as well as long service lives for global energy supply chains, infrastructure and equipment, fossil fuel consumption, though falling in developed countries, may fail to decline in developing countries. Global fossil fuel consumption is thus expected to remain firm. While energy efficiency improvements and non-fossil energy consumption are promoted strongly, cleaner fossil fuels will be selected, with fossil fuels being decarbonized. As fossil fuel consumption remains firm, stable supply of fossil fuels accounting for a

key part of overall energy supply will stay significant. How to secure investment for stabilizing fossil fuel markets including the upstream sector will be the key to facilitating the future energy transition. Attention should be paid to whether the Group of Seven leaders at their Hiroshima Summit would reaffirm the significance of gas sector investment compatible with climate goals for initiatives to strike a balance between energy security enhancement and decarbonization.

In today's world, how to minimize a cost hike accompanying energy transition is extremely important for energy transition. If a cost hike for preventing climate change and enhancing energy security is very high, society may have difficulty absorbing the impact of such cost hike. In the world where energy prices have shot up under the Ukraine crisis, even developed countries have refrained from passing such market-based price hikes on to consumers directly and introduced energy subsidies to protect consumers or low-income earners. Given that developed countries with higher average income levels than in developing or emerging countries take such measures, it is conceivable that a cost hike accompanying energy transition may have even stronger regressive effects in developing or emerging countries. If this is taken into account, it may not be strange that countries will choose different options for and give different priorities to energy transition in line with their various national conditions. It is reasonable for countries to pursue common goals through various pathways. If Japan restarts idled nuclear reactors and prolongs their service lives to effectively utilize existing nuclear power generation capacity while securing safety, for instance, it may efficiently reduce CO<sub>2</sub> emissions, cut electricity costs and stabilize electricity supply. As how to reduce a cost hike accompanying energy transition becomes a global challenge, countries may be required to take various measures in line with their various national conditions.

Regarding costs accompanying energy transition, we are increasingly required to pay attention to factors that had not been considered in the past. One of such factors is that costs for integrating solar photovoltaics and wind power as intermittent renewable energy sources into the electricity system should be considered separately from falling costs for solar photovoltaics and wind power generation that is expanding into a mainstay electricity source. An even newer factor is that strategic consideration should be given to costs accompanying the tightening supply-demand balance for critical minerals and the heavy dependence on limited supply sources for them. As the world has shifted to the age of its division and geopolitical tensions from that of free trade and the international horizontal division of labor, priority is given to economic security and supply chains for critical materials, goods and resources. As indicated by discussions at one of the three sessions in the symposium, how to secure stable critical mineral supply has become a key challenge for future energy transition.

The above means that energy transition talks should cover not only narrowly defined energy costs but also total system and economic security costs for more comprehensive and strategic analyses. Initiatives to minimize energy transition costs should be based on such analyses. The energy transition challenge will become more complicated in the future.

However, countries in the world should pursue the principle of pursuing common goals while admitting their diversity. If developed countries condescendingly force a single prescription for energy transition on developing countries, it may hamper the smooth global energy transition and deepen the division of the world. I hope that Japan will take leadership in promoting talks on the abovementioned challenges at the coming G7 summit.

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