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Energy Policy Challenges after COP28

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The 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) on December 13 concluded and published the first global stock take (GST) to assess progress in global efforts toward the goals of the Paris Agreement on the prevention of climate change. The conclusion came at the end of the COP28 that started in Dubai, the United Arab Emirates, on November 30 to tackle the first GST as its top priority.

The first GST noted that the world would have to cut greenhouse gas emissions in 2030 by 43% from 2019 and those in 2035 by 60% and achieve net-zero CO_2 emissions in 2050 in order to meet the Paris Agreement goal of limiting global warming to 1.5°C. It also pointed out a large gap between reality and the ideal path to achieving the 1.5°C goal, warning that even if Nationally Determined Contributions (NDCs), which represent voluntary GHG emission reduction goals submitted by countries to the United Nations, were realized, a global GHG emission reduction from 2019 would be limited to some 5% in 2030.

The GST called for further global efforts to fill the gap, including initiatives to triple renewable energy power generation capacity and double energy efficiency by 2030. The COP28 agreed on “a just, orderly, and equitable transition from fossil fuels” which was taken up by media as the most divisive and controversial topic for the GST.

There is some ambiguity regarding the above-mentioned targets for renewable energy capacity and energy efficiency, such as the lack of specifics including clear base years, a clear definition of renewable energy, and a breakdown of the global targets. Although the transition from fossil fuels was given as an explicit direction, the degree and intensity of the transition are left uncertain. A "just, orderly, and equitable transition" cannot be disregarded. However, these agreements reached at the GST as the biggest challenge for the COP28 are an important achievement and will have weight in the international community.

Based on the GST agreements, countries will be required to submit their respective next NDCs regarding GHG emission reduction and other goals for 2035 to the United Nations. The submissions are expected to come by February 2025, at least nine months before COP30. It will have an important impact on the future climate change and energy policies of each country. In Japan, for example, it will inevitably have a major impact on discussions on the next Strategic Energy Plan, which is expected to begin next year.

This year, the word "global boiling" danced on the front pages, with abnormal weather such as extreme heat attracting attention as a global phenomenon, leading to a spread of awareness that climate change is an urgent challenge. When energy problems in the world are considered, however, it is important to secure a stable supply of energy, which is an indispensable strategic commodity that

supports people's lives and the economy. However, Russia's invasion of Ukraine in February 2022 has sharply destabilized the international energy market, leading energy security to once more become a top energy policy priority. It should also be noted that at a time when Middle Eastern energy resources grew important as an alternative to Russian resources, the situation in the Middle East became unstable in the wake of the surprise attack on Israel by Hamas on October 7, attracting global interest as a risk factor that could potentially threaten the stability of the Middle East and its energy supply. After all, energy security is the most fundamental or important priority in energy policy.

In the future, therefore, Japan and other countries around the world will be required to make full-fledged efforts to balance the enhancement of energy security and the promotion of decarbonization to prevent climate change. Of course, balancing energy security and decarbonization has long been widely recognized as a direction to be pursued. Now, however, balancing has become a more difficult challenge at a higher level. For one thing, it is important to take on the challenge of promoting a deeper GHG emission reduction in pursuit of carbon neutrality by 2050, while securing a stable energy supply. Another important background is that society may be more sensitive and less tolerant to energy costs and price hikes that may emerge as we move forward with this challenge.

Even in developed countries such as Japan, the current reality is that energy subsidies are introduced to cope with soaring energy prices. In Europe, the United Kingdom has recently postponed a ban on the sale of internal combustion engine vehicles and the construction of new oil boilers and other energy-related measures that could lead to higher costs. Given such a situation in developed countries, it is not difficult to imagine that the impact of soaring prices and costs may be greater and more serious in developing and emerging countries with lower income levels.

In this sense, the first step in following a rough path to achieving both energy security and decarbonization may be to properly persuade society as a whole that the path will entail energy costs and price hikes. If the world is to protect the stable supply of energy supporting people's lives and the economy under a complex international situation for the global interest of protecting the global environment and preventing climate change, it is inevitable that costs will be incurred. It is important for society as a whole to understand and be prepared for this and work for the global interest.

The second step should be to make the utmost efforts to minimize and contain cost hikes as much as possible, if cost hikes are unavoidable in a sense. In such a case, it is basically important to pursue cost-cutting efforts for expected technologies and options individually. From a more holistic and comprehensive perspective, it is important for countries or actors to make maximum and optimum use of all available significant options while understanding that their availability differs by country or actor. Countries or actors should seek the most cost-effective combination or portfolio of renewable energy, nuclear and other energy options in consideration of their availability and costs.

Furthermore, it is necessary to pay attention not only to the supply cost for each energy option but also to the cost of the energy system as a whole when considering the overall concept of cost minimization. When the optimal power mix is considered, for instance, it has often been necessary to focus on the power generation cost (levelized cost of electricity known as LCOE) for each power source. When power generation from naturally variable renewable energy sources such as solar and wind power increases, however, it is necessary to consider costs to enhance power storage and grid equipment to integrate such intermittent power sources into the grid. As the world's division becomes more serious and economic security is emphasized, furthermore, attention should be paid to the importance of costs related to securing a stable supply of critical minerals, for which demand is increasing due to the acceleration of demand for renewable energy, energy storage, and electric

vehicles. Optimization that encompasses these comprehensive cost concepts is an important challenge for the future. Balancing energy security and decarbonization is indeed the most important future challenge. We should be prepared to follow a rough path to the balancing.

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