

Importance of Japan's Energy Strategy Responding to Turbulent Situation

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For Japan, which features an extremely low energy self-sufficiency rate, securing a stable energy supply has always been a top priority. Today, Japan, which occupies the position of the world's fifth largest energy consumer, depends heavily on fossil fuels consisting of oil, coal, and natural gas for more than 80% of its energy supply. Because of its lack of domestic fossil fuel resources, Japan imports almost all of its fossil fuels for its consumption. As a result, its energy self-sufficiency rate is as low as just above 10%, indicating a remarkably vulnerable energy supply and demand situation among developed countries. Japan is also one of the world's leading CO₂ emitters because it consumes a massive amount of energy centered on fossil fuels. As one of the developed countries, Japan is required to take responsibility for addressing climate change issues to serve global interests. As long as Japan lacks abundant, inexpensive domestic energy resources and relies on securing energy supply from the international market, it is destined to be exposed to fluctuations in international energy prices and sensitive to the outflow of national wealth due to payments for massive energy imports and the impact of energy price hikes on its consumers and economy.

For this reason, Japan has given policy priority to its energy strategy. In the face of a truly national crisis caused by the first oil crisis in 1973, particularly, Japan has positioned energy security as a top priority challenge and developed an all-out national strategy. In the 1990s, global warming attracted global attention, prompting Japan to enhance its climate change countermeasures, including those to achieve a legally binding greenhouse gas emission reduction target under the Kyoto Protocol. At the same time, the liberalization and deregulation of the energy market emerged as an important challenge. Japan then promoted liberalization and competition in oil, electricity as well as gas markets in that order. In the 1990s, crude oil and other energy prices were generally stable at low levels, with interest in energy security declining relatively. Since 2000, however, crude oil prices have been on an upward trend in line with China's massive energy consumption growth, leading energy security to attract global interest again.

Against this backdrop, Japan enacted the Basic Act on Energy Policy in 2002, setting forth three energy policy pillars: "securing a stable supply (energy security)," "environmental suitability," and "utilizing market mechanisms (economic efficiency)." Since the first letter of each pillar is "E", it has become customary to refer to Japan's energy policy pillars as the "3E's". After the Fukushima nuclear plant accident, "safety" was added to the pillars, leading to the S+3E's slogan. The Basic Act on Energy Policy requires the government to formulate a "Strategic Energy Plan" that outlines Japan's target energy supply and demand structure and summarizes policies to achieve the target while being updated every three years. Since the formulation of the first Strategic Energy Plan in 2003, it has undergone a series of revisions. In October 2021, the cabinet approved the current sixth Strategic Energy Plan. While setting out the S+3E's slogan, the current plan gives top priority to the goals of cutting GHG emissions in 2030 by 46% from 2013 and reaching carbon neutrality by 2050 in response to the carbon neutrality trend that swept the world in 2020.

Since the formulation of the sixth Strategic Energy Plan, however, Japan's domestic and international situation has undergone dramatic changes. Under the new situation, Japan will begin discussions toward the formulation of the next seventh Strategic Energy Plan this year. As is the case with the current plan, it is essential for the next plan to strengthen efforts to combat climate change. At last year's 28th Conference of the Parties to the United Nations Framework Convention on Climate, known as COP28, it was confirmed that the world will be required to reduce GHG emissions in 2035 by 60% from 2019 in order to achieve the goal of limiting global temperature rise to 1.5°C. With this goal in mind, countries are required to formulate voluntary GHG emission reduction targets, known as NDC, for 2035 and submit them by around February 2025.

However, discussions on the next plan are certain to emphasize energy security. This is because the discussions are required to respond to the significant destabilization of the international energy market caused by the Ukraine crisis, which came after the formulation of the current plan, and the resulting emphasis on energy security. Furthermore, the electricity supply-demand crunch that occurred in 2022 in Japan has greatly increased the awareness of the importance of a domestic stable energy supply. There is also another extremely important change in the international situation. It is the deepening division of the world, symbolized by the escalation of the U.S.-China confrontation. As a result, the emphasis on economic security has led to a paradigm shift from free trade and the international division of labor to domestic production and the development of supply chains among allies and strategic partners. There is also an emerging trend in which it is important for national governments to take the lead in implementing national growth strategies and industrial policies for national survival and development, rather than just leaving everything to market forces. In formulating the next Strategic Energy Plan, it is essential to respond to these new circumstances.

Japan is thus required to enhance energy security and promote decarbonization in the divided world and severe geopolitical environment. Complicating the situation is the fact that even developed countries are no longer tolerant of rising energy costs and prices, with society being vulnerable to energy cost hikes. As a result, each country is required to curb or minimize energy cost hikes based on its respective conditions. To do so, each country must not only reduce costs for each energy source and technology but also pursue the best mix of energy sources and technologies to minimize costs. In pursuing the best mix, each country must seek to minimize costs from a macroscopic and panoramic perspective in light of the new situation. In considering the best mix of power sources, for example, we should not only focus on the unit power generation cost (like LCOE) but also take into account costs for power storage systems, supplementary fossil-fired power generation, and enhanced grids to integrate variable renewable energy sources into the overall power system, as well as economic security costs regarding growing demand and some specific countries' market dominance for critical minerals that will be increasingly required for renewable energy power generation, power storage systems, and electric vehicles.

It is clear that the utilization of nuclear energy is the most important point for minimizing costs based on the situation in Japan. This is because Japan can pursue the 3E's most efficiently if it restarts nuclear power plants and fully utilizes existing nuclear capacity while securing safety and gaining public understanding and acceptance. Robust discussions on the position of nuclear energy towards the future beyond 2050 are also an important challenge that cannot be avoided in the formulation of the new Strategic Energy Plan.

In view of the importance of clean energy investment and innovation, which are indispensable for the energy transition, Japan must materialize initiatives to integrate its energy

strategy with its long-term growth strategy and industrial policy in discussions on the new Strategic Energy Plan. All major economies are emphasizing growth strategies and industrial policies for embarking on the energy transition. As Japan has achieved industrial and economic development by enhancing energy measures over the past half-century following the first oil crisis, it is hoped that the discussions on the new plan will serve as a foundation to support Japan's future development. While the new plan, as well as the past ones, depicts an ideal or target picture of Japan's future energy situation, Japan must exercise strategic thinking about how to cover the deviation of reality from the ideal picture. Fossil fuels, including liquefied natural gas, may be required to cover the deviation. It will be important for Japan to formulate a strategic plan to secure a stable energy supply with full awareness of the potential deviation in the long energy transition path.

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