

Present Energy Mix Situation and Challenges in Japan

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In the second week of September, I had opportunities to make presentations and have discussions with various people on Japan's energy mix at various locations in Japan.

After six months of deliberations at the Long-term Energy Supply and Demand Outlook Subcommittee of the Advisory Committee for Natural Resources and Energy, the Ministry of Economy, Trade and Industry in July decided and released a long-term energy supply and demand outlook indicating the target energy mix picture Japan will pursue for FY2030. As is well known, the outlook features an electricity mix for FY2030 in which renewable energy will account for 22-24% of total electricity generation, nuclear energy for 20-22%, liquefied natural gas for 27% and coal for 26%.

The long-term energy supply and demand outlook has been put forward as a desirable perspective that envisages the simultaneous achievement of the so-called 3Es -- economic efficiency, energy security and environmental protection -- by lowering electricity costs, raising Japan's energy self-sufficiency rate and offering a greenhouse gas emission reduction target as ambitious as Western targets, while giving top priority to safety in nuclear power generation. But a deep analysis of the electricity mix indicates various challenges to be solved for the realization of the desirable perspective. It has been pointed out since its release that the perspective could not be realized naturally or easily. It has also been noted that the balanced and simultaneous achievement of the 3Es would be challenging as the 3Es can trade off with each other.

Discussions in the week led me to recognize anew various challenges involving the realization of the desirable perspective. One of the biggest challenges may be related to nuclear power generation. Nuclear power generation serves effectively as a domestically produced energy source, emits no carbon dioxide at power generation stage and provides massive electricity efficiently and stably at competitive prices, making great contributions to the 3Es. But nuclear safety is the biggest concern. It is an important challenge to restore or establish the reliability of and public confidence in nuclear energy policy.

When the long-term energy supply and demand outlook was decided, no nuclear power plant was in operation in Japan. After a far-longer-than-expected screening and checking process, the No. 1 reactor of Kyushu Electric Power Co.'s Sendai nuclear power station restarted on August 11, putting an end to the absence of nuclear power generation in Japan at last. From the viewpoint of

achieving the 3Es, it is hoped that the Sendai No. 1 reactor would steadily accumulate good operational performance, with progress being made in plans for other nuclear reactors to follow suit.

Over the nuclear plant restart, however, there are complicated problems including coordination between local governments hosting nuclear power plants, and their residents and neighboring local governments, in the presence of various views about safety concerns, the potentially enormous damage of disasters and nuclear fuel cycle problems such as how to handle spent nuclear fuel. The week's discussions prompted me to reaffirm that there are complex conditions and challenges regarding the nuclear restart's contributions to the 3Es and progress in the restart of other candidate plants.

As noted in the long-term energy supply and demand outlook, more specific and detailed consideration and initiatives are decisively important. It is also indispensable to gain various citizens' understanding. Faithful, easy-to-understand communications based on objective and neutral facts will be required to prevent national discussions on energy, which is important for the Japanese economy and national livelihood, from being unilateral, biased or lacking composure. It may not be easy for Japan to overcome the dichotomy over nuclear energy to simultaneously achieve the 3Es and S (safety). Those who are involved in energy and nuclear policy must redouble their efforts to realize the desirable perspective.

Through the discussions in the week, I also felt that how to manage and overcome the trade-off relationship between the 3Es has emerged as a problem, as symbolized by problems including how to position coal and coordinate it with other energy sources in the energy mix.

Coal power generation is excellently competitive as a baseload power source. As the electricity market will be deregulated further, market players may naturally select coal power generation to survive and win in an increasingly competitive environment. Pursuing economic efficiency under market principles leads to inclining toward coal. As a matter of course, the problem is that the pursuit of economic efficiency can conflict with environmental protection as another of the Es.

In order to achieve its target of reducing greenhouse gas emissions in FY2030 by 26% from FY2013, Japan will have to enhance energy conservation, use renewable and nuclear energy and restrict coal power generation's share of power output to 26%. The problem is how Japan could impose the restriction and secure market players' compliance with it in an electricity market that is being increasingly deregulated. Conceivable measures may include power generation business operators' implementation of voluntary action plans, as well as the restriction on small inefficient coal power plants under the energy conservation act and the replacement of outdated fossil power plants with more efficient coal plants. But it may be difficult to achieve environmental targets in a fully liberalized market. How to position nuclear power generation in a liberalized market would also be a big problem. The problem will specifically emerge and become subject to consideration in the future. It may become a major challenge for Japan in trying to simultaneously achieve the 3Es.

Finally, I also felt through the discussions that various challenges regarding the nuclear restart and market deregulation problems have increased uncertainties for market players. It may be an important challenge for market players to secure flexibility in dealing with uncertainties. As far as electricity supply and demand are concerned, expectations may grow on greater flexibility regarding LNG procurement, given the characteristics of other electricity sources. Various domestic challenges regarding the energy mix may exert influences on Japan's international strategies including LNG procurement conditions.

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