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Reconstruction of Energy Policy in Japan after Fukushima

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Abstract

The Fukushima nuclear accident caused a significant impact on energy policy in Japan. The government of Japan started a fundamental reconstruction of its Strategic Energy Plan. The basic target of energy policy in Japan is stated as “S+3Es”, where S stands for Safety and 3Es stand for Energy security, Environmental protection, and Economic efficiency. 3Es remain unchanged as before while S is particularly emphasized after the accident in a sense that nuclear power cannot be accepted without the public trust on safety. Most difficult part in the reconstruction of the Strategic Energy Plan is power generation mix because nuclear power was expected to supply around 50% of electricity in 2030, which is absolutely impossible after Fukushima. How to fill the gap? There are three ways: 1) Further energy savings: we should explore more savings taking into account behavioral change using ICT as well as efficiency improvements; 2) More renewables: FIT policy was introduced while we must resolve power system stability issue to introduce a big scale of intermittent power.; and 3) Clean use of fossil fuels: notably natural gas, clean coal technologies including CCS, and international deployment of Japanese efficient technologies of fossil fuel use. Public opinions are diversified, but, the importance to mobilize demand side resources is shared.

The shutdown of nearly all nuclear power reactors in this summer has raised concerns in Japan whether utilities can secure enough supply capacity to meet peak electricity demand. There has been some trials to mobilize the demand side of energy system, for example, a system for nega-watt trading to cut off the demand peak through energy use management on the demand side or the activation of supplementary power sources on the part of the users. Creation of such a smart energy network, using the battery and control technologies in which Japan is strong, can also be effective in reducing the costs of introducing renewable energy in power grid and can be turned into one of the nation's future growth strategies.