

2025 Global and Japanese Energy Outlook

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The international energy situation has remained turbulent. How will the situation be in the new year 2025? In the following, I would like to share my views on the comprehensive outlook for the global and Japanese energy situations in 2025, based on 11 energy market forecasts for 2025 published by the Institute of Energy Economics, Japan, on December 24 last year:

In 2025, the international oil market will see a supply surplus thanks to an increase in U.S. and other non-OPEC oil production. Without the impact of various disruptive factors, benchmark Brent crude oil prices may fluctuate around \$65 per barrel. However, the international oil market in 2025 may see price-boosting factors such as the incoming U.S. Trump administration's potential enhancement of sanctions on Iran and a possible decline in Iranian oil exports as well as price-lowering factors including China's economic slowdown risk. Depending on the impact of these factors, crude oil prices may fluctuate significantly. Attention should be paid to the future international oil situation and crude oil prices.

The global LNG market in 2025 will enter the threshold of a period for supply expansion towards 2030. In 2025, it will be interesting to see how the U.S. and other LNG projects will be launched and how this will contribute to the expansion of the Asian market if supply expansion exerts downward pressure on LNG prices. Given that the incoming U.S. Trump administration, or Trump 2.0, promotes the expansion of LNG exports in pursuit of energy dominance, the United States may request Japan and Europe to increase LNG imports to help reduce U.S. trade deficits. As is the case with the past Japan-U.S. strategic energy partnership, Japan needs to explore Japan-U.S. LNG cooperation with a view to the growing Asian market under Trump 2.0.

In the international coal market, trends in the Chinese and Indian markets, which have an overwhelming presence, will hold the key to 2025. In both countries, coal demand will increase. As they give priority to domestic production, however, their imports will depend on the balance between demand and domestic production. In particular, whether the global steam coal imports may peak in 2025 due to the possible slowdown in imports by China and India after the recent growth deceleration will attract attention. On the supply side, the policies of Australia and Indonesia are important. I would like to pay particular attention to the federal election in Australia and its impact on coal and other energy policies.

As for climate change, the 30th Conference of Parties to the United Nations Framework Convention on Climate Change, or COP30, to be hosted by Brazil will be the focus of attention. However, the United States will not prioritize climate change policy under Trump 2.0, affecting the momentum of international negotiations. Developed countries' financial support worth \$300 billion for developing countries that was finalized at COP29 will also become more uncertain under Trump 2.0. Discontent among developing countries will increase, leading the North-South confrontation to

intensify. As developed countries' influence on climate change negotiations declines, China's presence may increase. I would like to pay attention to European climate change policy trends, including the results of the German general election scheduled in February and its impact.

Japan's electricity market has secured short-term supply capacity and the minimum electricity reserve margin following supply-demand crunches in 2022. Over the medium to long term, however, electricity demand is expected to increase due to digital and green transformation, indicating that how to secure a stable electricity supply has become a major challenge. In 2024, the Organization for Cross-regional Coordination of Transmission Operators, in Japan, forecast an electricity demand increase towards 2030, instead of an earlier predicted decline. This represents a kind of paradigm shift. In the midst of the electricity market liberalization, Japan is exploring policies and systems to secure sufficient electricity supply capacity and decarbonized electricity sources.

In today's global renewable energy market, the increase in power generation capacity has remarkably concentrated in China and solar photovoltaics. China accounts for 60% of the growth in global renewable energy power generation capacity against 40% for the rest of the world, while dominating supply chains for solar PV, which captures most of the growth in the rest of the world. This indicates that growth in global renewable energy power generation capacity depends very much on China, both directly and indirectly. Today's trend of emphasis on economic security will lead to the diversification of renewable energy supply chains. However, the diversification will not be easy in reality.

Although the potential supply capacity for CO₂-free hydrogen has expanded thanks to the rapid progress in the consideration of relevant projects amid a global boom, the CO₂-free hydrogen market is at a plateau amid the absence of growth in purchase commitments due to high costs. It will be interesting to see whether market growth will be triggered by large-scale support measures that will gain momentum from 2025 under the green transformation initiative in Japan and the Inflation Reduction Act in the United States. As Japan has proceeded with the development of policies and systems for supporting CCS (Carbon Capture and Storage), progress in coordination and negotiations in Japan and overseas is expected towards final investment decisions on specific projects. In 2025, I would like to see if specific projects will be realized to open up new development possibilities for both hydrogen and CCS.

Hopes are globally growing for nuclear energy to resolve the challenge of balancing energy security and decarbonization. As expectations for electricity demand to increase are rising further amid the promotion of a new information revolution, interest in nuclear energy is also growing further. In the United States, where the information revolution is progressing faster than in other countries, major information technology companies are moving to utilize nuclear energy to secure electricity supply. Japan needs to learn lessons from the United States as a forerunner and prepare for the future. In Japan, boiling water reactors were restarted in 2024 for the first time after the Fukushima accident. Both the public and private sectors are required to enhance comprehensive efforts including not only the restart of other nuclear power plants but also their replacements and the promotion of nuclear back-end policy.

As expectations for energy efficiency improvement are very high, an ambitious goal of doubling the global energy efficiency improvement rate towards 2030 has been advocated to achieve the target of limiting global warming to 1.5°C. However, the reality is very challenging. Global investment in energy efficiency improvement in 2024 is estimated to have declined by 7% from the previous year. In 2025, how to enhance energy efficiency while taking into account economic realities will be questioned.

The Japanese economy is expected to grow 1.1% in fiscal 2025, driven by capital investment and private consumption. Although an increase in industrial activities will boost energy demand, temperature factors and improved fuel efficiency will work to reduce Japan's energy consumption by 0.2% year-on-year to 404 million tons of oil equivalent. While non-fossil energy consumption such as renewable energy and nuclear continues to expand, oil consumption will post a year-on-year decline of about 2% and natural gas consumption a 3% fall. Coal consumption will increase by 1% due to an industrial demand increase through crude steel production expansion. As a result, Japan's energy-related CO₂ emissions in FY2025 will decrease by 1% year-on-year to 872 million tons. It should be noted that Japan's CO₂ emission reduction is almost on track to achieve the FY2030 target so far due primarily to slow economic growth and sluggish industrial activities.

In late 2024, the Japanese government drafted the Seventh Strategic Energy Plan as an energy policy framework that will respond to the new and extremely severe situation surrounding Japan towards FY2040. As Japan's electricity demand is expected to increase under green and digital transformation initiatives, the draft calls for expanding renewable energy to the largest power source (accounting for 40-50% of the power generation mix in FY2040) and making the maximum use of nuclear energy. Although nuclear energy's share of the power generation mix is left unchanged, at around 20% from the current Plan, nuclear power generation is projected to increase substantially in line with the overall electricity demand expansion. The draft includes "Strategic Plan B" for a scenario in which LNG consumption in FY2040 will increase to 74 million tons due to a delay in the development of innovative technologies. In 2025, the government will have to materialize and elaborate policies to achieve the future energy portfolio indicated by the draft Strategic Energy Plan.

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