

2018 Energy Outlook in Japan and World

Ken Koyama, PhD
Chief Economist, Managing Director
The Institute of Energy Economics, Japan

The new year 2018 opened after the Trump tornado shook the world in 2017. How will this year be? Based on seven outlooks that the Institute of Energy Economics, Japan, released on December 19 last year, I would like to summarize the energy outlook for Japan and the world in 2018.

First, we predict that the supply-demand balance in the international oil market will go in the direction heading for equilibrium or tightening slightly. Oil demand will increase by 1.5 million bpd from the previous year on global economic expansion. U.S. oil production will grow by 1 million bpd due to growing shale oil output. However, production in other non-OPEC oil producing countries will slacken. As OPEC and some non-OPEC oil producing countries sustain their coordinated production cut, the market will go in the direction of rebalancing slowly. The benchmark Brent crude oil price will average \$65/bbl in 2018. If shale oil production expands faster than expected in response to oil price hikes since last October or if destabilizing factors arise in the global economy, however, crude oil prices may come under downward pressure. Conversely, crude oil prices may rise above the forecast average if geopolitical risks or supply disruptions emerge in the Middle East, Venezuela or any other oil producing region.

Second, the international gas and LNG market will continue to see a loose supply-demand balance in 2018. While LNG demand in 2018 will increase by 14.8 million tons from the previous year with growth centering on Asia, LNG supply capacity will grow by 26.3 million tons on the successive launches of production under new projects. Spot LNG prices reflecting the supply-demand balance will average \$6.4/MMbtu, slightly lower than in the previous year. Given crude oil price hikes, however, Japanese LNG import prices indexed mostly to crude oil prices will average \$9.7/MMbtu in 2018, rising from \$8.1/MMbtu in the first 10 months of 2017. On the demand side, LNG demand expansion in China will attract attention since China became the world's second largest LNG market after Japan in 2017. Depending on demand expansion in Asia including China and on troubles with supply projects, spot LNG prices could rise on a temporary supply-demand mismatch.

Third, the Japanese electricity market will see spot electricity transactions continue increasing. As various factors offset each other, spot electricity prices will remain around the present level of around 8 yen/kWh. After the full deregulation of electricity retail in April 2016, the rate of switching from traditional electric utilities to new retailers rose to 12.1% in August 2017 in terms of

all users including large-lot users. Particularly, Tokyo, Kansai and Hokkaido posted remarkable rises in the rate. As competition has intensified, retailers' profit margins have narrowed, making the business environment severer for new market entrants. As renewable energy power generation has expanded rapidly, limited capacity for connecting renewable energy facilities to electric grids has become a constraint in some regions. In this respect, Kyushu Electric Power Co. is growingly expected to restrict renewable power output in FY2018. Detail designs and systems will have to be developed in FY2018 for a "baseload power source market" and a "non-fossil value trading market" for non-FIT electricity to be introduced in FY2019 and for "capacity market" to be launched in FY2020. In FY2018, a system to subject bilateral electricity trading through grid interconnection lines to trading via the exchange will start along with a "non-fossil value trading market" for FIT electricity.

Fourth, the global renewable energy market will continue expanding steadily in 2018. As renewable power generation costs have fallen rapidly as seen in overseas projects subject to competitive bidding, we predict that global renewable energy power generation capacity will increase from 2,130 GW at the end of 2016 to more than 2,400 GW at the end of 2018. Driving the expansion will be Asia including China and India. As wind, solar and other intermittent renewable energy generation expands, initiatives to increase flexibility for stabilizing electricity systems will become a global challenge. While renewable energy generation capacity will continue expanding in Japan, costs of renewable energy will remain higher than international levels. In a bid to reduce costs, Japan implemented the first competitive bidding for large-scale solar PV generation in 2017. However, successful bids failed to add up to the scheduled capacity level for the bidding. As the second and third biddings are planned for FY2018, sufficient efforts are required to increase the number of participants to promote competition.

Fifth, international discussions and negotiations on climate change are being conducted after the U.S. Trump administration offered to withdraw the United States from the Paris climate agreement that has already taken effect. Preparations for enforcing the Paris agreement are planned to end by the 24th Conference of Parties to the United Nations Framework Convention on Climate Change in December 2018 in Poland's Katowice. Given a mountain of problems including funding issues and the assessment of efforts to cut CO₂ emissions proposed by developing countries, it may be difficult for the preparations to be completed as scheduled. In the United States that has declared to exit from the Paris agreement, federal discussions and initiatives as well as state- and company-level climate change countermeasures will attract attention. The launch of a nationwide emissions trading system in China, the largest CO₂ emitter in the world, will also attract attention. We will have to take note of policy, technology and market trends in 2018 involving the promoted diffusion of electric and other advanced vehicles in which interests are growing globally in respect to climate change and air pollution countermeasures.

Sixth, the restart of nuclear power plants in Japan will continue to attract much attention. The number of restarted nuclear power plants stood at five at the end of 2017. In addition, Units 3 and 4 of Kyushu Electric Power's Genkai Nuclear Power Station and Units 3 and 4 of Kansai Electric Power Co.'s Ohi Nuclear Power Station are in the final examination stage toward their

restart. However, no other nuclear power plants are scheduled to be restarted within FY2018. In December 2017, the Hiroshima High Court ordered an injunction to suspend operation of Unit 3 of Shikoku Electric Power Co.'s Ikata Nuclear Power Station, indicating that a judicial decision could affect the restart of nuclear power plants. In November 2017, the Japan Atomic Power Company filed an application with the Nuclear Regulation Authority for extending the service life of the Tokai No. 2 Power Station. The acceleration of examinations on nuclear power plants' conformity with safety regulations and the extension of their service lives will grow even more important along with transparent, consistent examinations based on scientific grounds.

Seventh, Japan's primary energy supply in FY2018 will decline by 0.3% from the previous year to 465 million tons of oil equivalent due to economic growth's deceleration from previous year's 1.8% to 1.1% and continuous energy conservation efforts. While primary energy supply will decline, renewable energy expansion and the restart of nuclear power plants will enhance a general shift to non-fossil energy. Japan's energy-related CO₂ emissions in FY2018 will decrease by 10.6% from FY2013 to 1.104 billion tons. Electricity sales in Japan in FY2018 will rise by 0.2% from the previous year, while gas sales will increase more steadily by 1.4% to hit a record high for the third straight year. Meanwhile, oil demand will drop by 2.3% to a level close to 170 million kiloliters for the sixth straight year of decline.

I would like to follow up on the Japanese and global energy situations in 2018 through this special bulletin.

Contact: report@tky.iej.or.jp

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