

2017 Energy Outlook for Japan and the World

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The 2017 New Year opened after 2016 ended as the year of surprise. How would this year be? Based on seven outlooks that the Institute of Energy Economics, Japan, released on December 22, I would like to summarize energy outlook for Japan and the world in 2017.

First, the international oil market will slowly go in the direction of rebalancing in 2017. While global oil demand this year will increase by 1.2 million barrels per day, non-OPEC oil supply will slacken under low prices. Toward the second half of the year, particularly, oversupply will be gradually removed. If an agreement between the Organization of the Petroleum Exporting Countries and non-OPEC oil producing countries on coordinated production cuts late last year turns out to be successful, the rebalancing will be accelerated. Given that whether oil producing countries would comply with their production quotas is uncertain, however, no optimism can be warranted. In such supply and demand environment, crude oil prices will moderately increase. The key West Texas Intermediate futures price will average \$54 per barrel in the first half of this year and \$59/bbl in the second half. However, crude oil prices could continue volatile fluctuations depending on oil producing countries' compliance with production quotas, U.S. shale oil production under the new Donald Trump administration, and political and economic conditions in major countries such as the United States and European countries.

Second, the international gas/LNG market will remain oversupplied in 2017. While LNG demand will expand mainly in Asia in response to price drops, oversupply will accelerate on the launch of LNG production under large-scale LNG projects for which investment decisions were made amid high LNG prices in the past. Such situation will continue beyond 2017. As Asian LNG prices are mostly indexed to crude oil prices, however, Asian LNG prices will rise in line with moderate crude oil price hikes as described above. The imported price of LNG in Japan will increase from \$6.8 per million British thermal units in the January-October 2016 period to \$7.7/MMBtu in 2017. Adversely, however, spot LNG prices which reflect the supply-demand balance will fall to around \$6/MMBtu. Oil-indexed LNG prices' deviation from spot prices could trigger debate on the Asian LNG pricing approach between the market stakeholders.

Third, changes could arise in regard to Japan's electricity market reform. After last April's full deregulation of electricity retail market, the total share for all customers (both large-lot and other users) switching from traditional electricity suppliers rose by 2.7 percentage points from March 2016 to 7.9% in August. Amid the changing market environment, areas where new electricity market

entrants increase remarkably could change. A government panel will continue to consider institutional revisions to promote the electricity system reform. While discussions will continue on wholesale market vitalization measures (including a baseload electricity market and a cross bidding system), a capacity market, a non-fossil electricity value market and other new institutions, how to secure consistency between new institutions will be a key challenge in policy discussions in 2017. The gas market will be fully deregulated in April 2017. As new entrants in the gas retail market are required to secure competitive LNG procurement, it may be challenging for any entity to enter the gas retail market. Attracting attention will be how competition pressure would arise through the gas retail deregulation. We must also pay attention to the deregulation's influences on LNG procurement and trading as well.

Fourth, renewable energy will continue robust expansion in 2017. As renewable energy power generation costs have declined rapidly in overseas markets, global renewable energy power generation capacity is likely to increase by 120-130 GW during 2017 to top 2,200 GW at the end of the year. Driving renewable energy expansion will be Asia, including China and India. While renewable energy continues expanding, many regions are adopting quantitative control on renewable generation capacity under competitive auction and other systems with the quantitative expansion under feed-in-tariff and other incentives fading away. While renewable generation costs are expected to decline further over a medium term, Japanese renewable generation costs are still two to three times as high as the global average. Equipment distribution and installation problems peculiar to Japan must be resolved to lower costs. Japan will revise the operation of the FIT system to hold down surcharge growth accompanying a rapid increase in solar photovoltaics generation. Japan and the world will be required in 2017 to promote renewable energy while pursuing economic rationality.

Fifth, every participating country to the Paris Agreement will start full-fledged efforts to prevent global warming this year after the Agreement took effect in November 2016. However, the absence of any clear direction in U.S. climate change policies under the incoming Trump administration has led to uncertainties about global climate change policies. Attracting global attention are policy developments under the incoming U.S. administration known for its negative stance on the Paris Agreement and the Obama administration's legacy including the Clean Power Plan. Very important in China will be energy initiatives regarding climate change under the 13th five-year plan and a nationwide emissions trading system starting in 2017.

Sixth, the most important point regarding nuclear energy in Japan will continue to be how nuclear power plants will be restarted. Around February this year, the Osaka High Court is expected to give a ruling on Kansai Electric Power Co.'s suit seeking to repeal the Otsu District Court's injunction against the operation of Units 3 and 4 at the company's Takahama nuclear power station. The decision could exert various effects on the future restart of nuclear plants and will attract much attention. Also attracting attention this year will be nuclear plant operators' decision on whether to apply for the extension of operations for existing reactors that went online nearly 40 years ago. Outside Japan, China will continue new nuclear plant construction. China will boost its nuclear power generation capacity beyond 43 GW in March 2018, replacing Japan as the third largest nuclear power generator in the world. Aggressive international expansion by the Chinese and

Russian nuclear industries will also attract attention from those in nuclear industry circles.

Seventh, primary energy supply in Japan in FY2017 will decline for the fourth straight year to 468 million tons of oil equivalent (down 9% from FY2010) despite an economic pickup. While the total primary energy supply will decrease, non-fossil energy's share of primary supply will increase due to the expansion of renewable energy and the restart of nuclear power plants. As a result, Japan's energy-related carbon dioxide emissions in FY2017 will fall to 1,105 million tons, slipping below the level before the 2011 Great East Japan Earthquake. Electricity and gas sales in FY2017 will increase for the second straight year, while oil demand will fall for the fifth consecutive year to 172 million kiloliters. Attention should be paid to how the restart of nuclear power plants would influence overall energy supply and demand and how the renewable energy expansion would increase economic costs.

Through this bulletin, I would like to follow up on how energy situations in Japan and the world would be in 2017.

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