



IEEJ e-NEWSLETTER

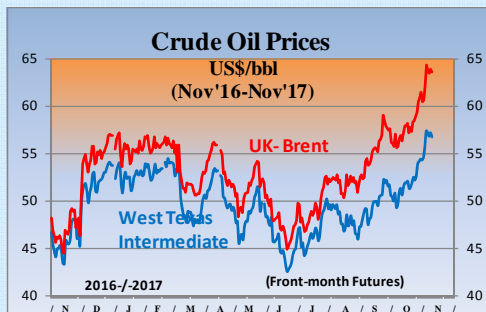
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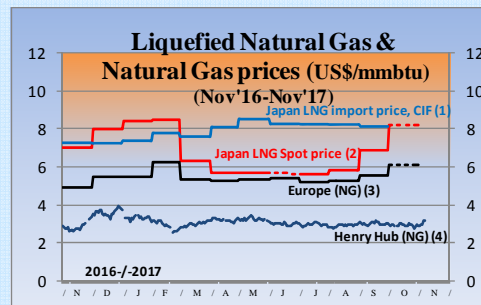
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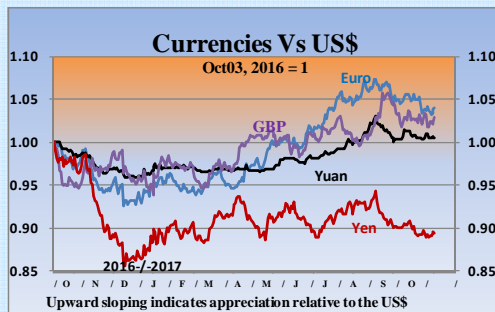


Source: DOE-EIA, NASDAQ

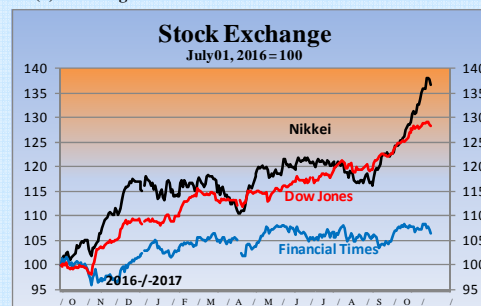


Sources:

- (1) Ministry of Finance "Japan Trade Statistics"
- (2) Ministry of Economy, Trade and Industry (contract month basis)
- (3) Estimated by World Bank and World Gas Intelligence
- (4) DOE-EIA, NYMEX (Front-month Futures)
- (5) Investing.com



Source: x-rates.com



Source: Financial Times

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Summary

【Energy Market and Policy Trends】

1. Developments in Nuclear Power

The South Korean presidential office decided to continue the construction of Shin Kori Units 5 and 6 based on the conclusion of the public debate committee. The debate on whether to depend on nuclear in the future will continue. Attention must be paid to the result of this debate involving public participation.

2. Recent Developments in the Oil and LNG Markets

Oil prices are rising moderately, but could struggle to reach the next level. The discussions at the LNG Producer-Consumer Conference emphasized the importance of developing new demand and improving market liquidity.

3. Update on Policies Related to Climate Change

On October 4 and 5, the fourth annual meeting of the ICEF was held in Tokyo. Further, on October 10, the Working Group on Classification Standards for Thermal Power held its first meeting of FY2017.

4. Developments in New and Renewable Energies: Formulation of the Basic Hydrogen Energy Strategy

The Basic Hydrogen Energy Strategy is led by Prime Minister Abe and is due to be formulated within this year. Attention must be paid to the presentation of the long-term vision that will integrate the individual efforts of different government bodies.



1. Developments in Nuclear Power

Tomoko Murakami, Manager
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On October 22, the South Korean presidential office announced the view of President Moon Jae-In that construction of Shin Kori Units 5 and 6 will be restarted. The decision is based on a survey of 471 randomly selected citizens on whether to resume construction of the units, which had stopped after President Moon declared plans in June to abandon nuclear power. In the survey, 59.5% voted Yes to restarting while 40.6% voted No. Accordingly, on October 22, the Public Debate Committee, which was established to deliberate the issue, released a recommendation to restart the construction.

In addition to restarting plant construction, the Committee is also reviewing how large South Korea's nuclear capacity should be going forward. Of the 471 citizens who took the survey, 53.2% said that dependence on nuclear power should be reduced in the future, exceeding those who wanted to maintain the current level (35.5%) or increase dependence on nuclear power (9.7%). Based on this result, President Moon remains positive about lowering the dependence on nuclear power and the shutdown of Ulsan Unit 1, the second commercial nuclear power plant to start operation in South Korea (1983).

In a country that has consistently promoted nuclear power, it is interesting to note that several hundred citizens participated in a debate, albeit short, on the future of the country's nuclear power and energy mix. Those who participated will naturally feel some responsibility for the result. There are many points that Japan can consider regarding its policy discussion and decision-making processes.

A policy discussion on nuclear power is also underway in Japan, although in a different form. On October 17, a series of opinion exchange meetings on the "Nationwide Map of Scientific Features for Geological Disposal" a map indicating the suitability of areas for geological disposal of high-level radioactive wastes, started in Tokyo. Whereas such meetings so far only featured explanations by operators and the government, this meeting includes a time slot in which several dozen participants are divided into small groups and can directly ask questions and present opinions on geological disposal and radioactive wastes to the operator (NUMO) and government officials in charge. The meeting will be held in 46 prefectures except Fukushima over the next few months.

At the opening of the Tokyo session, Director Hirokazu Kobayashi of the Radioactive Waste Management Policy Division, Agency for Natural Resources and Energy, commented that "the (disposal) project will not go well if only a handful of regions show understanding and agree to accommodate the facility. It is important for the whole nation to embrace this important issue." On September 13, at the session of the Social and Environmental Division in the Fall Meeting of the Atomic Energy Society of Japan, former Specially Assigned Professor Naoki Yamano of the Research Institute of Nuclear Engineering, University of Fukui proposed "risk communication with the participation of local communities," which is an approach to deepen the exchange of opinions by repeating activities in small groups. More of these interactive discussions are expected to help solve issues in nuclear policy, which has been criticized as "an apartment without a toilet."



2. Recent Developments in the Oil and LNG Markets

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Oil prices are rising moderately. Brent bottomed out in early June at \$44/barrel and is around \$58/barrel as of late October. Behind this price hike were robust demand, joint production cuts by OPEC and non-OPEC countries, sluggish growth in the output of American oil, a moderate decrease in inventory, and so-called Middle East geopolitical risks (specifically, a possible revision of the Iran nuclear deal by the Trump administration and the advance of Iraqi forces into Iraqi Kurdistan). However, the market does not necessarily expect prices to keep rising. Some believe that prices will enter the "shale band," a price range in which a hike in shale oil production is induced, once \$60/barrel is exceeded. Further, while many believe that the joint production cut will be extended again at the OPEC meeting on November 30, if the cut does not meet market expectations in terms of amount and duration, oil could be sold on the basis of disappointment. Oil prices are not likely to rise to a new level unless inventories decrease faster or geopolitical risks deteriorate.

On October 18, the LNG Producer-Consumer Conference was held in Tokyo with more than 1,000 participants. As the supply glut continues, the discussions centered on achieving healthy development of the LNG market by developing new demand and improving market liquidity, as was the case last year. In this respect, it is notable that METI Minister Hiroshige Seko announced plans to establish a 1 trillion yen fund to support LNG investment in Asia and to foster 500 LNG-related personnel over the next five years. It is important to expand the use of LNG, meet the needs of new LNG importing countries, and achieve stable upstream development by investing in experts who will contribute to technology and the formulation of safety standards and regulations on LNG usage, and not only in production facilities, terminals, gas pipelines and other infrastructure.

Following Japan Fair Trade Commission's comment in June that the destination clause may constitute a breach of the Antimonopoly Act, a series of comments demanding the abolition of the clause were released by the governments and firms of importer countries. In time for this Conference, the governments of Japan and India signed a memorandum of cooperation on establishing a flexible global LNG market. This memorandum also indicates the intent to improve market flexibility through the abolition of the destination clause.

In January 2017 Japan finally began to import LNG from the US Gulf. As President Kakimi of JERA has said, American LNG has the potential to fundamentally transform the market structure. In the Conference, the achievements of The Future of Asian LNG, a joint study by IEEJ and US think-tank Energy Policy Research Foundation Inc, were also presented. The joint study included policy proposals on mitigating risks related to US LNG export regulations, achieving efficient navigation through the Panama Canal, and the support by the governments of Japan and the US in expanding the Asian market, as well as abolishing the destination clause. This year marked the sixth Conference, with the attendance of the entire community involved in the export and import of LNG, including governments and companies. The Conference seems to have become widely popular among LNG market stakeholders, and is expected to contribute to the development of the LNG market through constructive discussions.



3. Update on Policies Related to Climate Change

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On October 4 and 5, the fourth annual meeting of the Innovation for Cool Earth Forum (ICEF) was held in Tokyo. The ICEF is an international conference established at Japan's initiative to discuss innovations for climate action. More than 1,000 experts from industry, government, and academia of about 80 countries and regions engaged in discussions. The statement from the Steering Committee presented at the closing session emphasized "that innovation and its diffusion for reducing greenhouse gas emissions is becoming increasingly important considering current and future unpredictability of a political will directed toward climate change mitigation." The statement also said it is "important to accelerate industrial sector actions which contribute to reducing CO₂ emissions and to also announce their contributions to encourage stakeholders' supports such as investments by the financial sector."

Roadmaps for innovation were presented for distributed solar and storage in 2015 and for ZEB/ZEH (net Zero Energy Building and House) and CO₂ utilization in 2016. At this year's Forum, draft CO₂ utilization roadmap 2.0 and energy storage roadmap were released. Further, 12 concurrent sessions were held to discuss subjects including CO₂ utilization, CCS, hydrogen and fuel cells, and nuclear energy, as well as social system innovation in the energy sector (blockchain), managing energy demand and supply, and the role of diversity: challenges for climate change (the roles of young people and women). IEEJ Chairman and CEO Masakazu Toyoda participated in the CO₂ utilization session to present the status of research and development on CO₂ utilization in Japan, and emphasized the importance of supporting research and development and international cooperation.

On October 10, the Working Group on Classification Standards for Thermal Power of the Advisory Committee for Natural Resources and Energy held its first meeting of FY2017 to understand the progress of thermal power efficiency indices and discuss the prospects for achieving them. In FY2015, the Working Group assigned each power producer Index A, which is obtained by dividing the power producer's thermal generation efficiency for coal, gas, and oil by their respective target values (e.g. 41% coal, 48% gas) and weight-averaging the quotients based on their ratios in the power output; the target level was set at 1 or higher. The power producers were also assigned an Index B, which is the weighted average of the thermal generation efficiency for each fuel by their respective power output; the target level was set at 44.3% or higher. In case of mixed combustion with biomass, the energy content of biomass was removed from the energy input, the divisor in calculating generation efficiency.

The regular reporting in FY2017 shows that out of 54 power producers, 18 companies achieved both Indices A and B while 21 achieved neither of them. Further, among those that achieved both Indices A and B, the six power producers which burn biomass with fossil fuels had significantly high values of 2 or higher for Index A and 100% or higher for Index B. Members expressed concern that if mixed combustion of biomass increased, some thermal power plants would remain inefficient, resulting in an increase in fossil fuel input and thus preventing achievement of the energy mix for 2030. Going forward, the Working Group will consider the progress in achieving the thermal generation indices and how to configure a scheme for collaboration among power producers, and is due to reach a conclusion in January 2018.



4. Developments in New and Renewable Energies: Formulation of the Basic Hydrogen Energy Strategy

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New and Renewable Energy Group

New and Renewable Energy & International Cooperation Unit

The IEEJ is studying the utilization of CO₂-free hydrogen obtained by combining fossil fuels with CCS in resource-rich Middle Eastern countries, not only for reducing GHG emissions but also as a means for efficiently using fossil fuels which may become stranded assets due to a long-term decline in demand. In Japan, which is leading the use of hydrogen, specific actions are being taken to formulate the basic strategy for it.

Discussions on the basic hydrogen energy strategy (tentative title) began at the 10th meeting of the Council for a Strategy for Hydrogen and Fuel Cells held by the Ministry of Economy, Trade and Industry (METI). The strategy is scheduled to be formulated within this year as instructed by Prime Minister Abe at the first meeting of Cabinet members involved in renewable energies and hydrogen energy in April. The Prime Minister's instructions for Japan to build a hydrogen energy society ahead of other countries were: (1) Develop a scheme to accelerate the construction of hydrogen stations to spread the use of fuel-cell vehicles, and promote deregulation, and (2) formulate a common scenario as a base for collaboration among various stakeholders, headed toward building an international hydrogen supply chain covering production, transportation, and consumption and full-scale introduction of hydrogen power generation. Accordingly, instead of discussing individual technologies, the Council established two major directions for considering the basic hydrogen energy strategy.

First, "Work needs to be done to integrate the scenarios and action plans of different fields based on a shared future vision and time frame." Efforts for building a hydrogen energy society are currently being pursued individually by METI, the Cabinet Office, MEXT, MLIT, and the Environment Ministry. For instance, METI covers the overall process from the production of hydrogen to its transportation, storage, and utilization, but the Cabinet Office and MEXT deal particularly with the utilization of ammonia, whereas the Environment Ministry focuses on the production and utilization of hydrogen from regional renewable energies. The formulation of the strategy is expected to coordinate these individual activities and improve the efficiency of the overall effort for building a hydrogen energy society.

Second, "With major countries starting to announce ambitious initiatives and visions for 2050 following the effectuation of the Paris Agreement, for Japan to look toward 2050, the basic strategy should be positioned as the overall direction and vision that the public and private sectors should share toward 2050, while taking into account the Strategic Road Map for Hydrogen and Fuel Cells targeted mainly for around 2030." Building a hydrogen energy society involves challenges that take time, including developing new technology, replacing existing technologies and energies, ensuring economic rationality, and contribution as a climate action, as well as deregulation. Accordingly, it requires a long-term perspective toward 2050 is appropriate.

While it is important to integrate individual efforts and present the long-term picture, the discussions on a hydrogen energy society should not be limited to hydrogen. As hydrogen can be utilized in a wide range of areas including power generation, transport, industry, stabilization of the power grid, and heat demand, and its introduction involves reforms of existing energies, technologies, and infrastructure, it is essential to envision the ideal energy system and clarify the role and position of hydrogen in it. Attention must be paid to what sort of basic hydrogen energy strategy will be formulated.



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