



# IEEJ e-NEWSLETTER

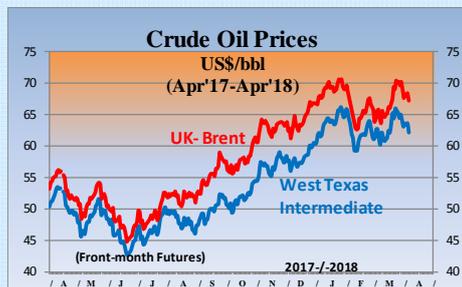
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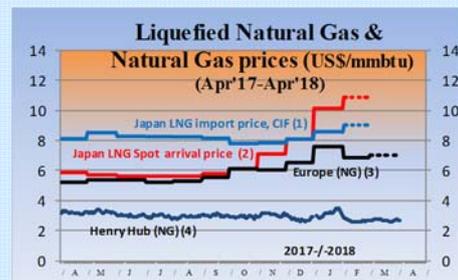
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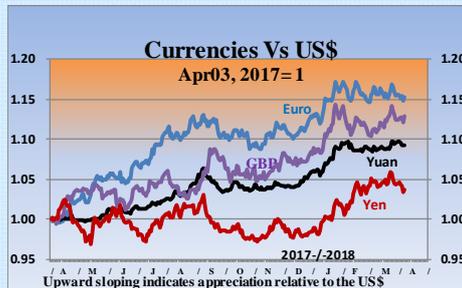


Source: DOE-EIA, Financial Times, NASDAQ



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 Energy Policies**

On March 26, the 25th Strategic Policy Committee Meeting was held to discuss measures for achieving the energy mix for 2030.

#### **2. Developments in Nuclear Power**

As efforts to restore public trust in nuclear power, the Nuclear Energy Subcommittee presented the direction of such efforts, including establishing a new organization for self-directed safety improvement efforts in the industry and providing support based on region-specific circumstances.

#### **3. Recent Developments in the Oil and LNG Markets**

The focus of the oil market is shifting to the sustainability of the rebalancing, which is likely to be affected, in the short term, by the US production hike and drop in Venezuela's output, financial market trends, and the situation in the Middle East.

#### **4. Update on Policies Related to Climate Change**

The Joint Meeting of the Central Environment Council's Global Environment Committee and the Industrial Structure Council's Global Environment Subcommittee, as well as a standalone meeting of the latter, was held to consider the progress of the Global Warming Countermeasures Plan and the Keidanren's Commitment to a Low Carbon Society.

#### **5. Update on Renewable Energies**

The Subcommittee on Mass Introduction of Renewable Energies and the Next Generation Electricity Network is aiming to ease constraints on the grid connection of renewable energies by revising the current operational rules on transmission lines. The discussion must be closely monitored.



## 1. Developments in Energy Policies

**Akira Yanagisawa**, Senior Economist  
Energy and Economic Analysis Group  
Energy Data and Modelling Center

On March 26, the 24th Strategic Policy Committee Meeting was held to discuss measures for achieving the energy mix for 2030.

As the schedule going forward, the organizers explained that the achievements of the Round Table for Studying Energy Situations based on a long-term perspective up to 2050 will be discussed in the next meeting, after which the views of the Strategic Policy Committee will be finalized from May through June. Perhaps influenced by this explanation, many of the views presented by members sounded like conclusions, as though the meeting was the final meeting.

Committee Member Keigo Akimoto presented a view which neatly summarized all the opinions: (1) The policy to respond flexibly to uncertainty is appropriate. (2) Efforts to appease all sides will impair cost-effectiveness. (3) The ratio of renewable energies in Europe is not as high as it appears except in small countries, and Japan's target renewable energy ratio for 2030 is not particularly low. (4) Efforts should be made to limit the amount of FIT purchased at 3.7 trillion yen, rather than 4 trillion yen. (5) It is important for the hydrogen energy business not to be carried away by the boom and then lose momentum. (6) Obtaining hydrogen from renewable energies might seem good, but water electrolysis using surplus electricity lowers the facility utilization rate and is costly.

Many members commented on nuclear, as expected. Committee Member Kazumi Nishikawa said that the stance of the Nuclear Regulation Authority not to declare that a power plant is safe even after it has passed the safety assessment, and not to be involved in whether or not a power plant may restart, is making the policy direction unclear. He also said that the government should come forward regarding the nuclear fuel cycle and nuclear backend measures.

While many members agreed that the current energy mix need not be revised, Committee Member Kikuko Tatsumi pointed out that only three out of 145 opinions sent to the "opinion box" for the public were in support of nuclear power. Further, Committee Member Takeo Kikkawa said that he is against not revising the current energy mix as the ratio is too high for nuclear and coal and too low for renewables.

IEEJ Chairman & CEO Masakazu Toyoda commented as follows:

(1) Despite challenges, the efforts for achieving the energy mix are advancing steadily. (2) High cost is a challenge for renewable energies. The public should be reminded that the surcharge is not the current amount of two trillion yen per year, but a cumulative total of 51 trillion yen. (3) High-cost renewable energies and low-cost nuclear complement one another. (4) Nuclear has risks concerning the judiciary, local governments, and human resources. Particularly, regarding the judicial risk, the global standard (that the judiciary respects the decision of regulatory authorities regarding safety) should be shared with the public with the help of international organizations. (5) There are concerns regarding the Middle East and the impact of US policies. Japan should respond proactively. (6) Japan should learn from the successes and failures of European countries and the US in pursuing system reforms, and avoid setting prices at which fixed costs cannot be recouped.



## 2. Developments in Nuclear Power

**Tomoko Murakami**, Manager  
Nuclear Energy Group, Strategy Research Unit

Based on the Strategic Policy Committee's reference at the end of 2017 to the "importance of enhancing efforts to restore public trust in nuclear power," the Nuclear Energy Subcommittee of the Advisory Committee for Natural Resources and Energy has met twice every month since the beginning of 2018. Based on the discussions so far, the 17th meeting on March 20 presented the direction of future efforts for restoring public trust. The key points were as follows:

- Establishing a new organization for self-directed safety improvement efforts in the nuclear power industry
- Enhancing emergency preparedness and post-accident response, and providing assistance on region-specific challenges due to suspension of construction and decommissioning
- Enhancing the provision of policy information based on scientific data as well as dialogues

Among them, regarding voluntary safety improvement efforts in the industry, the Federation of Electric Power Companies of Japan (FEPC) announced in its press release dated March 16 that an office for preparing a new organization to enhance voluntary safety improvement efforts in nuclear power will be established around April 2018 as a forum for representatives of the industry, including utilities and manufacturers, to discuss issues and disseminate information. According to the FEPC, the new organization will utilize the expertise and resources of the entire nuclear power industry to engage in dialogue with the regulator, and implement effective measures for the sites. The need for the industry to be represented by an organization with one voice that can communicate with both society and the regulator has long been pointed out. However, what the utilities and existing related organizations were unable to do cannot be achieved overnight simply by establishing a new organization. The relevant parties in the industry must make great efforts not within the meeting rooms but in the real world..

On March 10, Electricite de France (EDF) announced that it has agreed with Nuclear Power Corporation of India Limited on the framework for promoting the plan to build six EPRs (Evolutional Pressurized Reactors manufactured by Framatome, 1600 MW), including the provision of equipment and the roles of the relevant parties of the two countries. EDF will be entirely in charge of procurement and construction for the first two plants, and will transfer technology to Indian suppliers for the third plant onwards. This will help build the foundation of the nuclear industry in India. On March 1, Russia's state-run nuclear power company Rosatom, India's Department of Atomic Energy, and Bangladesh's Ministry of Science and Technology agreed to cooperate on the construction of Bangladesh's Rooppur Nuclear Power Plant (VVER, a Russian LWR). Through the cooperation, which includes training Bangladeshi personnel in the nuclear area and supplying Indian materials, equipment, and technology, India has managed to enter an emerging market while receiving technologies from European countries and America. The international market must be closely monitored to see whether India will become the fourth international supplier from Asia following Japan, South Korea, and China.

On March 22, the Hiroshima High Court dismissed Shikoku Electric's request to suspend the temporary injunction to halt Ikata Unit 3. In the first interrogation on the objection to the temporary restraining order scheduled for April 23, attention must be paid to the treatment of volcanic risk, which was the main factor behind the decision to halt operation. Regarding the restarting of power plants, Kansai Electric's Ohi Unit 3 resumed power generation on March 16, as did Kyushu Electric's Genkai Unit 3 on March 23. Even though Genkai Unit 3 stopped generation on March 30 due to a small leak from an Air-bleeder Pipe of Deaerator and under inspection, their continued smooth operation and contribution to the 3E policy are highly expected.



### 3. Recent Developments in the Oil and LNG Markets

**Tetsuo Morikawa**, Senior Economist, Manager  
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After falling to \$62/bbl for Brent in early February, due to plummeting stock prices and concerns over supply easing, oil prices returned to \$70/bbl at the time of writing (March 23). Behind this trend lies the market consensus that the joint production cut will continue, as well as the depreciation of the US dollar. Industry stocks of OECD countries stand at 2.87 billion bbl as of January 2018, which is only 44 million bbl (2%) more than the past 5-year average which OPEC and non-OPEC participants in the joint production cut are aiming at .

Thus, we can assume that rebalancing has progressed substantially by the end of 2017, and the market seems to be shifting attention to the sustainability of the rebalancing. In this context, supply-demand factors such as the scale of the increase in the US production and Venezuela's production decrease, as well as non-supply-demand factors such as financial markets and the Middle East situation, are important. Needless to say, the key focus of attention is the increase in production in the US. The IEA estimates that US production will grow from 14.15 mb/d in February 2018 to 14.7 mb/d as an annual average for 2018 and to 16.9 mb/d in 2023. Driving this growth is shale oil, which the IEA expects will grow by 3.32 mb/d by 2023. Despite uncertainties including the drop in Venezuela's production and the increase in demand, the increase in shale oil output will continue to suppress higher oil prices not only in the short term but also in the medium term up to 2023.

Amid such fundamentals for supply and demand, oil prices will continue to react nervously to financial markets and the situation in the Middle East. Despite the robust real economy, there is a real possibility that monetary tightening in Europe and the US and the Trump Administration's economic sanctions against China could cause further turmoil of stock markets and possibly a slowdown of the global economy, indirectly causing oil prices to fall. On the other hand, uncertainties in the Middle East, including the comment by Prince Muhammad bin Salman that Saudi Arabia might acquire nuclear weapons and the anti-US rallies in the area following the relocation of the US embassy to Jerusalem scheduled for May, put upward pressure on oil prices.

Meanwhile, spot LNG prices continue to decline in the international LNG market. After rising to as high as \$11/mmbtu around the turn of the year, the spot LNG price of Northeast Asia has fallen to as low as \$7/mmbtu with the end of the demand season. Supplies from Papua New Guinea have stopped due to the earthquake on March 15, but there is no visible impact on spot prices. As the supply glut continues, Tokyo Gas and Malaysia LNG renewed a long-term contract on March 14, reportedly "in line with the Survey on LNG trades report by the Japan Fair Trade Commission," which implies the abolition of the destination clause. It is hoped that such efforts will improve the liquidity of the Asian LNG market and result in the formation of an LNG index for Asia.



## 4. Update on Policies Related to Climate Change

**Takahiko Tagami**, Senior Coordinator, Manager  
Climate Change Policy Research Group  
Global Environment and Sustainable Development Unit

On February 28, the Joint Meeting of the Central Environment Council's Global Environment Committee and the Industrial Structure Council's Global Environment Subcommittee was held to consider the progress of policies and measures in FY2016 in the Global Warming Countermeasures Plan. The progress of the Plan was first considered in May 2017 for the progress in FY2014 and FY2015, and this meeting was the second one. The Plan sets a target to reduce energy-related CO<sub>2</sub> emissions to 927 million tonnes in FY2030 from 1,235 million tonnes in FY2013. In the meeting, a preliminary value of 1,144 million tonnes was reported for FY2016, equivalent to a 29.5% progress towards the 2030 target.

In terms of the progress of each policy and measure, the electric power sector cut CO<sub>2</sub> emissions by 43 million tonnes by FY2016, or 22.9% of the expected reduction of 188 million tonnes between FY2013 and FY2030. Regarding reducing CO<sub>2</sub> by maximizing the electric power output of renewable energies, emissions were reduced by 26.65 million tonnes by FY2016, accounting for 29.1-32.6% of the expected reduction of 81.76-91.59 million tonnes between FY2013 and FY2030.

In this joint meeting, IEEJ Chairman & CEO Masakazu Toyoda commented as follows: (1) Insufficient progress regarding nuclear power must be stated in writing. (2) Renewable energies are making steady progress, but actions against its increasing cost must be considered, particularly the increasing burden on households. (3) Regarding the Joint Crediting Mechanism, Japan's role is to offer new ideas such as contributing to global commons, rather than avoiding the double accounting of credits between the concerned countries.

On the same day, ahead of the joint meeting, the Industrial Structure Council held a Global Environment Subcommittee meeting to follow up on the Keidanren's Commitment to a Low Carbon Society and consider the progress in FY2016. The meeting is usually held jointly with the Central Environment Council's Expert Committee for Following Up on the Keidanren's Commitment to a Low-Carbon Society, but not this time, due to scheduling issues with members of the Central Environment Council. The progress of the Commitment was first considered in November 2015 for the progress in FY2013, and this meeting was the fourth one.

The Subcommittee meeting reported that out of the 41 sectors under METI's jurisdiction which have set up a Commitment, 21 sectors had already surpassed the 2030 target by FY2016, of which 15 sectors are planning to revise or to consider revising their 2030 targets in FY2018. Commitments for 23 sectors include contributing to reductions outside Japan, of which 12 sectors quantify their contribution. Further, 25 sectors are committed to the development and deployment of innovative technologies, out of which 9 sectors quantify their commitment.

IEEJ Chairman and CEO Masakazu Toyoda commented that in addition to raising and revising the targets, an international comparison of the energy efficiency of industry should be updated and provided for more sectors.



## 5. Update on Renewable Energies

**Yoshiaki Shibata**, Senior Economist, Manager  
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New and Renewable Energy & International Cooperation Unit

In December 2017, the Subcommittee on Mass Introduction of Renewable Energies and the Next Generation Electricity Network was established across and under the Committee on Energy Efficiency and Renewable Energy and the Electricity and Gas Industry Committee of the Advisory Committee for Natural Resources and Energy to discuss the direction of mass introduction of renewable energies and the next-generation electricity network that supports it.

The key issue in approaching the mass introduction of renewable energies and the power network is network constraints. Challenges concerning network constraints can be classified roughly into three groups: (1) securing capacities for adjustment to deal with fluctuations in renewable power output (fluctuation-related constraints), (2) controlling excess power output to balance the supply and demand of electricity (supply-demand balance-related constraints), and (3) securing the transmission capacity necessary for connecting the renewable electricity (transmission capacity constraints). Currently, the Subcommittee's discussions are focused on easing transmission capacity constraints, the third point.

In Japan, renewable capacities soared with the introduction of the FIT system and exceeded the connectable volume specified by existing rules, making it difficult to connect additional renewables. Thus, the transmission system needs to be improved. However, as such enhancement requires both time and money, a review of the operational rules to maximize the use of existing facilities is being considered as a first step. There are three main approaches.

First is the rationalization of the postulated current. According to the existing operation rules for transmission systems, the connection capacity of a transmission system is calculated based on the electric current generated when all the connected power sources generate electricity at the rated capacity. However, in reality, the power sources do not all generate power at the rated capacity at all times. Revising the rules in line with the actual operation of power sources will open up additional capacity for use.

Second is N-1 power control (instantaneous power limit at the time of an N-1 fault). Currently, to ensure a stable supply, enough capacity is secured to keep the transmission system running in the event of a transmission line failure (N-1 fault). N-1 power control is a mechanism which allows renewable power sources to use that capacity during normal operation, but when an incident occurs, renewable power is limited (stopped) instantaneously, putting priority on the emergency purpose of the network.

Third is non-firm connection. Currently, power generation and transmission are ensured by reserving transmission capacity for each power source in advance. Non-firm connection is a new approach to connection which allows power sources that do not have a reserved slot to connect to the transmission system if and when capacity is available. Naturally, the power source will be subject to output control when the transmission system is congested.

These three measures are founded on the idea generally referred to as Connect & Manage, in which renewable energies are connected first, while also fully utilizing any gaps in transmission capacity. Similar systems are implemented in countries such as Britain, Ireland, and Germany for connecting renewables to the grid. To establish Connect & Manage in Japan, the Subcommittee has agreed to begin working toward rationalizing the anticipated current and implementing N-1 power control as early as possible. Attention must be paid to the discussions on the detailed system design going forward.



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