



# IEEJ e-NEWSLETTER

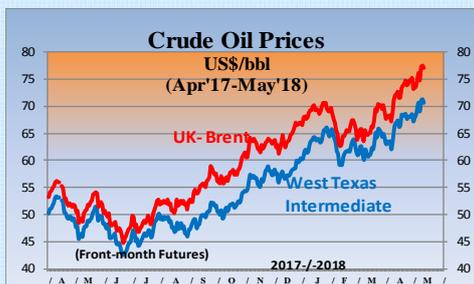
No. 135

(Based on Japanese No. 176)

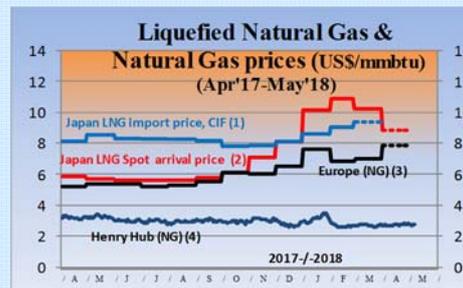
Published: May 14, 2018

The Institute of Energy Economics, Japan

(As of May 11, 2018)

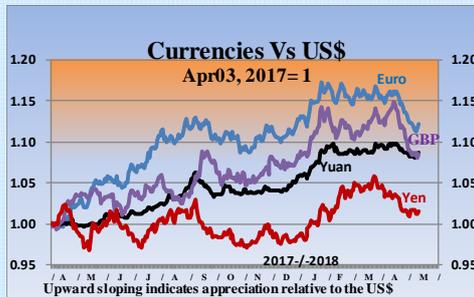


Source: DOE-EIA, Financial Times, NASDAQ



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

## Contents

### 【Energy Market and Policy Trends】

#### Summary

1. Developments in Energy Policies
2. Developments in Nuclear Power
3. Recent Developments in the Oil and LNG Markets
4. Update on Policies Related to Climate Change
5. Recent Developments in the Electricity Market



## Summary

### **【Energy Market and Policy Trends】**

#### **1. Developments in Energy Policies**

On April 10, the 9th Round Table for Studying Energy Situations was held. A proposal containing a multi-track scenario and the handling of renewable energies as a key power source were discussed.

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

US FirstEnergy Solutions filed for Chapter 11 bankruptcy after petitioning US Energy Secretary for measures for long-term continued operation of its four nuclear power plants which are struggling amid the competition.

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

Brent surpassed \$70 due to geopolitical risks and the tightening supply-demand balance. Spot prices and long-term contract prices for LNG could deviate further toward this summer.

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

The International Maritime Organization (IMO) adopted the Initial Strategy which aims to reduce GHG emissions from international shipping by 50% by 2050 from 2008 levels and phase them out as soon as possible in this century.

#### **5. Recent Developments in the Electricity Market**

Electricity Supply Plans for FY2018 revealed the risk of a supply-demand crunch in the summer of FY2021. Learning from the supply-demand problem last February, the continuation of oil-fired thermal power plants utilizing a bidding system for power sources should be considered.



## 1. Developments in Energy Policies

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

On April 10, the 9th Round Table for Studying Energy Situations was held to finalize the policy proposal.

Since commencing on August 30 last year, the Round Table has been discussing the direction of the long-term energy policy up to 2050 primarily based on reports from overseas experts. This time, a draft policy proposal was presented based on the discussions. The proposal sets the direction of decarbonization toward 2050, albeit without mentioning any numerical targets for GHG reduction by 2050 such as 50% or 80%<sup>1</sup>, while recognizing the great uncertainty of the energy situation. While the media actively reported that “renewable energies are becoming a key power source,” the draft proposal did not focus solely on this topic, but instead stated that “all possible options will be pursued.” Note that the actual wording of “becoming a key power source” was “aim to become an economically-independent and decarbonized key power source.”

Not all the points included in the draft proposal were new. However, they reflect efforts to take a broader view, perhaps as neither the targets nor their deadlines are in the near future. They also suggest a focus on the role of technology. For example, the proposal points out the importance of “technology-based self-sufficiency rate,” which is the amount of domestic energy consumption covered by energy supplied with domestic technologies, as well as the conventional self-sufficiency rate of energy resources. It also stresses the need for disruptive technological innovation, revealing that an ambitious 2050 scenario cannot be achieved based merely on conventional “economies of scale” of producing more to lower the price, or improving effectiveness based on the traditional learning curve.

Although not stated, it is important to understand that as a result of adopting an “ambitious, all-direction, multi-track scenario aiming for energy conversion and decarbonization” that pursues every option, some options may not reach fruition. This possibility must be acknowledged in advance as a contingency for addressing uncertainty. However, the acceptable cost (insurance burden) should be considered not only in the context of energy, but also in comparison with other major government expenditures such as social security and infrastructure development, or with challenges in the broader economy, society, and people’s lives that need to be resolved. Unfortunately, the reality is that available resources in the mature society of Japan are limited, and constraints are expected to become tighter.

Based on this proposal, the Strategic Policy Committee of the Advisory Committee for Natural Resources and Energy will meet on April 27 to discuss the revision of the Strategic Energy Plan (as of April 25 at the time of writing.)

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<sup>1</sup> Meanwhile, the Fifth Basic Environment Plan approved by the Cabinet on April 17 implies maintaining the 80% reduction target, though indirectly, by citing the expression “aim to reduce GHG emissions by 80% by 2050” stated in the Global Warming Countermeasures Plan.



## 2. Developments in Nuclear Power

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

On April 2, the Turkish Atomic Energy Authority issued a construction license for the country's first nuclear power station, Akkuyu Unit 1 (Rosatom VVER, 1200 MW), and construction fully started the following day, April 3. Turkish Prime Minister Recep Tayyip Erdogan and Russian President Vladimir Putin both participated in the groundbreaking ceremony via video conference, emphasizing that the groundbreaking is a historic moment for the development of the Turkish economy and bilateral energy cooperation. The plant is scheduled to start operation in 2023, and the process should help inform Turkey's other new-build project, the Sinop project, in which Japanese corporations are participating.

The environment remains severe for the nuclear business in the US. On March 28, FirstEnergy Solutions (FES), the generation and retail subsidiary of FirstEnergy which is based in the Midwest including Ohio, announced plans to close its four nuclear power plants at three power stations, namely Davis Besse, Perry, and Beaver Valley Units 1 and 2, all by 2021. The company gave the reason for closing as "the inability to obtain sufficient results in capacity auctions in the liberalized market run by independent grid operator PJM, low wholesale electricity prices, and lack of growth in electricity demand in the future." FES also said that it would seek legal remedies for the four plants until their planned closure date, and indeed, petitioned US Energy Secretary Rick Perry on March 29, the following day, to take appropriate measures under the Federal Power Act to enable PJM to keep these power plants operating in the long term considering their contribution to the security of the energy market. After taking these measures, FES filed for Chapter 11 bankruptcy on March 31. The four plants might remain open if FES were to recover in the future, but this would require a major improvement in market conditions, which FES cited as the reason for closure.

Meanwhile, on April 12, New Jersey passed a bill which includes "Zero Emission Credit (ZEC)," a financial assistance program for nuclear power plants in the state. To be eligible for ZEC, each of the state's four operating power plants including Salem Units 1 and 2 needs to pay a registration fee of up to \$250,000 and disclose their financial information to prove that they are not receiving assistance under any federal system or any other state. Operators must note that financial support comes with "conditions" such as these, and even if they do receive assistance, they cannot survive in a competitive environment if they are not cost competitive.

In Japan, a steam leak from a deaerator air extraction pipe occurred in Kyushu Electric's Genkai Unit 3 which resumed power generation on March 25. After replacing the pipe and conducting safety checks, the plant started load-following operation on April 18. Similarly, operators aiming to resume power generation after a long outage should learn from this event and respond calmly to any sort of trouble.



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

**Yoshikazu Kobayashi**, Senior Economist, Manager  
Gas Group Fossil Fuels & Electric Power Industry Unit

Is an era of 70-dollar oil arriving? After reaching \$70/bbl in January this year for the first time in three years, Brent headed downward and remained in the \$60 range, but then returned to \$70 in April. The international oil market is strengthening, with WTI marking \$67/bbl for the first time since December 2014.

The current hike in oil prices was caused by the rise in geopolitical risk mainly in the Middle East: the political situation continues to worsen as Yemeni Houthis intermittently bomb Saudi oil tankers, oil infrastructure in Jizan, an industrial city near the Saudi border with Yemen, and government buildings in Riyadh, while the US, Britain, and France launch military attacks on Syria over the use of chemical weapons. The dismissal of a series of cabinet-level officials such as State Secretary Tillerson by the Trump administration is amplifying the geopolitical concerns of market players by increasing the uncertainty of US diplomatic policies. The U.S. departure from Iranian nuclear deal, needless to say, further worsens the visibility of the region's geopolitics.

Though obscured by these geopolitical events and attracting little attention, the rebalancing of supply and demand is progressing. The International Energy Agency has stated that it is only a matter of time before the five-year average oil inventory of the OECD, which OPEC and non-OPEC regard as the target for their joint production cut, is reached. While OPEC and non-OPEC members are yet to revise the current joint production cut, an extension of the cut after reaching the five-year average would continue to prop up oil prices. Moreover, a US decision to leave from the Iran nuclear deal will force Iran to cut its oil exports again, further reducing the production of OPEC as a whole.

In the international LNG market, China's demand remains robust, importing approximately 12.7 million tonnes of LNG in January-March this year, up 63% year-on-year, according to survey firm ICIS. Initially, China's LNG imports were expected to be calmer this year than last year. However, as the January-March levels show, the country's demand is robust and increasing.

The spot LNG market of Northeast Asia has fallen to the lower \$7/mmbtu range while oil prices continue to rise. This could generate a large gap between oil-linked long-term LNG prices and spot LNG prices in the summer. It is not clear whether such price gaps will remain going forward, but depending on how the situation develops, the gaps could lead to a revision of long-term contract prices and expansion of the spot market.



## 4. Update on Policies Related to Climate Change

**Takahiko Tagami**, Senior Coordinator, Manager  
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Global Environment and Sustainable Development Unit

The Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) convened in London from April 9 to 13 to adopt the Initial IMO Strategy on Reduction of GHG Emissions from Ships. In 2015, international shipping accounted for 2.3% of global energy-related CO<sub>2</sub> emissions, and, according to an IMO estimate, emissions will increase by 50-250% by 2050. The six flag states of Panama, China, Liberia, the Marshall Islands, Singapore and Malta account for more than half of the CO<sub>2</sub> emissions from international shipping. Meanwhile, regarding international aviation, the International Civil Aviation Organization (ICAO) had agreed in October 2016 to a global market-based measure scheme.

The Initial Strategy sets out a vision for aiming phase out GHG emissions from international shipping as soon as possible in this century. Levels of ambition directing the Initial Strategy are as follows: (1) to reduce the carbon intensity of ship through the implementation of further phases of the energy efficiency design index (EEDI) (fuel consumption standard) for new ships, (2) to reduce carbon intensity of international shipping by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008, (3) to peak GHG emissions from international shipping as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008 whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of CO<sub>2</sub> emissions reduction consistent with the Paris Agreement temperature goals. Further, regardless of the IMO's principle of non-discrimination of flag state, the Initial Strategy included the principle of common but differentiated responsibilities in consideration of the impacts of means on developing States. MEPC will continue to develop a programme of follow-up actions to the Initial Strategy.

Pacific island states including the Marshall Islands demanded a complete decarbonization of international shipping by 2035. The EU similarly supported reducing emissions by 70-100% by 2050 from 2008 levels (though Malta, etc. opposed), while the European Parliament approved the proposal to include international shipping in the EU ETS (European Union Emission Trading System) if IMO does not approve an ambitious emissions reduction target. Meanwhile, Brazil, India, Saudi Arabia and others opposed any absolute emissions cap, projecting an increase in maritime trade. Japan as chair proposed a compromise resolution of a 50% reduction by 2050 from 2008 levels, which was approved.

IMO implemented the EEDI in 2013 for both new and existing ships to make new ships 30% more energy-efficient by 2025 than those built in 2014. Further, it has made it mandatory for ships to install a system for collecting data on fuel oil consumption (Mandatory data collection system), which will start collecting data from 2019.

Ahead of the implementation of the 0.5% limit on sulfur in fuel oil in 2020, this MEPC meeting approved draft amendments to the International Convention for the Prevention of Pollution from Ships (MARPOL) to prohibit the carriage of non-compliant fuel oil on board a ship and agreed to develop a ban on heavy fuel oil for use and carriage as fuel by ship in the Arctic waters.



## 5. Recent Developments in the Electricity Market

**Junichi Ogasawara**, Senior Economist, Manager  
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Fossil Fuels & Electric Power Industry Unit

On March 30, 2018, the Organization for Cross-regional Coordination of Transmission Operators, Japan (OCCTO) released its Aggregation of Electricity Supply Plans for FY2018. The supply plan for the previous fiscal year stated that the mid- to long-term supply capacity would be sufficient even though in some areas the reserve rate may fall short of the 8% needed for stable supply, as other areas have enough margin to cover the shortfall via connection lines. However, the new supply plan indicates that the reserve rate will fall below 8% over a wide area from Honshu to Kyushu in the summer of FY2021.

With the fall in supply capacity due to successive revisions of new constructions and closures of thermal power plants since the previous fiscal year, OCCTO predicts that if the reserve rate continues to shrink, supply capacity might fall below the appropriate reserve rate before FY2024 when capacity will start to be secured via the capacity market. However, OCCTO also adds that this assumption does not factor in any nuclear capacity including the four nuclear power plants (Kansai Electric's Ohi Units 3 and 4 and Kyushu Electric's Genkai Units 3 and 4) which may restart soon, and that the supply capacity will need to be re-evaluated in line with the progress in restarting nuclear plants.

The new supply plan projects that a supply-demand crunch can be avoided for FY2021 thanks to the availability of 3300 MW of power plants which are not counted as supply capacity but which can be started quickly. There have also been media reports on a series of revisions of thermal power plant constructions. These are largely due to the deterioration of the wholesale electricity market caused by low energy prices, as well as headwinds against coal thermal power.

In the electricity retail sector, the overall switching rate of consumers increased to 12.7% on a capacity basis as of December 2017. The rates differ significantly among regions, marking 17.4% in Hokkaido and 17.8% in Kansai but only 2.1% in Hokuriku. Meanwhile, the switching rate of consumers for the gas business was 11.1% overall as of December 2017, also with significant regional differences, marking 39.4% in Tohoku and 10.8% in Kinki but only 5.4% in the Chubu/Hokuriku region. Power companies and gas companies are entering each other's business areas, and thus the profit rates of electricity and gas tariffs are probably both decreasing.

A notable point regarding the decline in reserve rate is the drop in the ratio of oil-fired thermal power in regions with large cities, such as Tokyo, Kansai, and Chubu. When the supply-demand balance tightened in February 2018, one of the reasons was thought to be the difficulty in securing thermal fuel oil. With the day-ahead spot price of JEPX being comprised mostly of fuel cost, oil-fired thermal power is facing economic difficulties, not being able to pay for operation and maintenance. Further, as the retail margin shrinks due to fierce competition mainly in cities, oil-fired thermal power, already deficit-prone, is becoming difficult to maintain. As the supply reserve rate falls and oil-fired thermal power shrinks toward FY2021, short-term fuel shortages may trigger "energy shortages" and worsen the supply crunch. Thus, it may be necessary to consider a bidding system for oil-fired thermal power to be held by a cross-regional organization based on the Electricity Business Act.



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**Energy and Economy Indicators of Japan**

**IEEJ Homepage Top**

**Back Numbers of *IEEJ e-Newsletter***

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