



# IEEJ e-NEWSLETTER

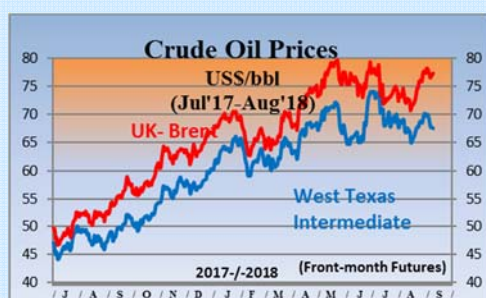
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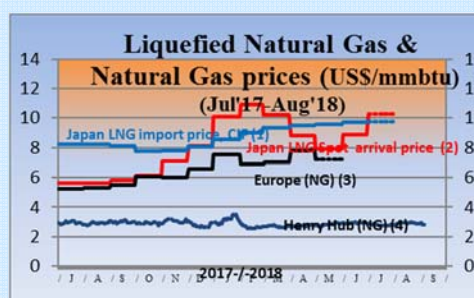
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Source: DOE-EIA, Financial Times, NASDAQ

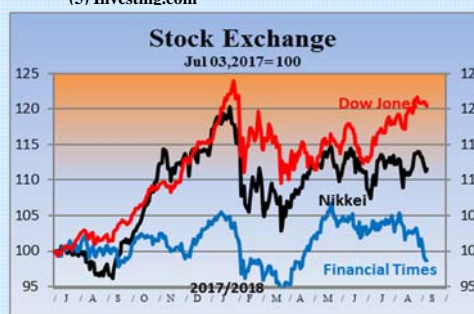


Sources:

- (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 Nuclear Power**

The FERC and other organizations are considering countermeasures to the premature closure of nuclear power plants in the US. China announced the goal of establishing its own reactor technology standard and making it global.

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

Both oil and LNG prices are currently stable, but the escalating trade war and slowdown in emerging economies pose significant downside risks for both oil and LNG (particularly spot) prices.

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

It is necessary to keep monitoring of the discussions on the rulebook for the Paris Agreement, revisit of the 2030 pledge by each country, the trade war and its repercussions on climate policies, and the discussions in the Meeting on Long-Term Strategy in Japan.

#### **4. Update on Policies Related to Energy Conservation**

METI set the long-term goal of reducing GHG emissions from Japanese cars sold worldwide by 80% by 2050. The United States announced a policy to ease auto fuel standards and is demanding that California withdraw its ZEV regulation.

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

France's hydrogen road map released in June is unique in that the economically rational selection of initial hydrogen users in industry is linked to the expansion of the water electrolysis market.



## 1. Developments in Nuclear Power

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

On July 27, the permanent closure in late 2020 of the Duane Arnold Energy Center (DAEC, GE BWR, 597 MW) in Iowa, US was announced by its owner NextEra Energy Resources (NEER). The decision came after the state public utility holding company Alliant Energy decided to shorten the power purchase agreement with DAEC by five years and end it in 2020. Alliant Energy will pay \$110 million to NEER employees as early retirement compensation and purchase wind power from NEER's wind power plant instead of nuclear power, and NEER will invest approx. \$650 million to develop renewable energies in the state by the end of 2020. DAEC commenced operation in February 1975 and had been granted a lifetime extension license to 2034 by the US Nuclear Regulatory Commission in December 2010. It still had a capacity factor of 99% in 2017, 43 years after the start of operation. Even though the plant has an excellent record and is allowed to operate until the 2030s, the power company decided that it is more economically beneficial to close it and invest in renewable power sources.

To stem any more premature closures of nuclear power plants under the harsh market environment and low wholesale power prices, the Federal Energy Regulatory Commission (FERC) is considering compiling a list of critical plants for the United States jointly with the Department of Defense, the Department of Energy (DOE), and the National Security Agency. This comes after an order by President Donald Trump to DOE Secretary Rick Perry in June to take immediate steps to save coal and nuclear power plants that are on the verge of closing prematurely and that have a secure on-site supply of fuel. It is not clear how many plants worth how many gigawatts will be listed. This is an interesting development showing the growing concern of many over the recent spate of premature closures of nuclear power plants, which are expected to support the long-term national energy security. Developments must be closely monitored.

On August 9, the State Council of the Chinese government released the Guiding Opinions on Strengthening the Standardization of Nuclear Power, which sets targets for establishing a technical standard by 2019 for reactors developed by China and making them the global standard. The standard will be applied to most domestic nuclear new build projects by 2022, aiming to make China the leader in global reactor standardization by 2027. Standardization initiatives for reactor technologies already exist, including the Multinational Design Evaluation Programme (MDEP) led by the OECD Nuclear Energy Agency, of which China is a member but, since it is not an OECD country, has little chance of leading. China may have decided that it is more realistic and dependable to establish its own standards and spread them globally, rather than to cooperate with the MDEP. This is a typical case in which actual achievement counts for more than idealism.

On August 10, Chugoku Electric applied to the Nuclear Regulation Authority for a safety assessment of its Shimane Unit 3 in accordance with the new regulation standards. It is the second plant under construction to do so after J-POWER's Oma Nuclear Power Plant. The results of the assessment are keenly awaited.





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

**Tetsuo Morikawa**, Senior Economist, Manager  
Oil Group  
Fossil Energies & International Cooperation Unit

Oil prices have been stalling since mid-July. After rising to nearly \$80/bbl in early July, Brent fell to as low as \$72/bbl in mid-July and is around \$75/bbl as of late August. The main cause of the weaker price is concern over the intensifying US-China trade war. Hopes are rising that US-China vice-ministerial trade talks will restart, but the escalating trade war is currently the main cause of lower oil prices.

Demand appears to be weakening also in the United States, which is the largest oil producer and consumer. Now at the end of the driving season, gasoline demand remains lower than last year. Oil output is solid, with signs of an increase in industry stocks. The number of drilled but uncompleted wells (DUCs) continues to set new highs, and the current increase in output can be maintained comfortably if prices remain at current levels. Thus, the supply-demand balance in the US may also be putting downward pressure on prices in the short term.

Saudi Arabia's output increased by 430 kb/d m-o-m in June but dropped by 110 kb/d m-o-m in July, causing repercussions in the market. The output increase in June was generally thought to be the result of a request by the Trump administration to boost production and was expected to continue in July and beyond. However, production actually fell, perhaps reflecting the country's intention to prop up prices. With the re-introduction of US sanctions and the US's request to other countries to stop importing Iranian oil, Iran will inevitably slash production. Aside from the outcome of the trade war, the extent to which Saudi Arabia can offset the decrease in Iran's output is the greatest factor, and will affect the balance of supply and demand for oil and its price this year and the next, and must continue to be monitored.

Meanwhile, international natural gas prices are \$10/MMBtu for spot LNG for Japan, \$3/MMBtu for Henry Hub, and around \$8/MMBtu for British NBP in August. A supply surplus remains in the LNG market overall, but in recent years, robust demand in emerging countries including China for spot LNG has often caused spot prices to soar. Most LNG transactions continue to be long-term and contract-based, and spot LNG prices do not necessarily reflect the supply-demand situation of the entire LNG market. However, for the LNG spot market this winter, attention must be paid to how the trade war and tightening monetary policy in the US and Europe affect spot LNG market.

The size of fluctuations in China's spot LNG demand will be determined, aside from weather factors, by the balance between the downward pressure on demand due to the economic slowdown, which is becoming a reality as the trade war escalates, and the upward pressure on demand generated by economic stimulus measures to counter the trade war. Further, China's plans to impose high tariffs on US LNG will also affect the flow of LNG. As share prices and currencies plummet in emerging countries triggered by Turkey's currency crisis, if the real economy slows not only in China but also in India, Egypt, and Jordan, which are emerging LNG importers with a high ratio of spot purchases, the demand for spot LNG may shrink, causing spot LNG prices to fall.



### 3. Update on Policies Related to Climate Change

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

On June 21, 23 countries including several EU Member States and Canada released a joint declaration of commitment to explore the possibility for stepping up their 2030 pledge under the Paris Agreement. The declaration was announced at the Second Ministerial on Climate Action (MoCA) co-hosted by the EU, China and Canada. The signatories to the declaration included the Marshall Islands, eight EU Member States and Canada. China and Poland did not sign. On the previous day, June 20, Miguel Arias Cañete, EU Commissioner for Climate Action & Energy, had said at the MoCA that the EU would raise its 2030 GHG emissions reduction pledge from 40% to 45% compared to 1990 level after the agreement reached on the revised Renewable Energy Directive on June 14 and the revised Energy Efficiency Directive on June 19. Changing an EU target, however, requires the approval of its Member States.

As the US-EU trade war intensifies, on June 25, the French government presented a proposal at the EU Environmental Council to add compliance with the Paris Agreement as an essential element of EU trade agreements. EU Commissioner for Trade Cecilia Malmström also said that participation in the Paris Agreement was a prerequisite for striking free trade deals with Europe. There were also reports that border carbon adjustment taxes should be imposed on imports. Under such circumstances, on July 17, the Japan-EU Economic Partnership Agreement was signed in Tokyo, the first-ever trade agreement to include a clause regarding the Paris Agreement. However, the clause only require the parties to work together to take actions to address climate change towards achieving the purpose of the Paris Agreement and to cooperate to promote the positive contribution of trade to the transition to low greenhouse gas emissions and climate-resilient development. Further, the Paris Agreement clause was not added as a result of the trade war but had already been included when the negotiations were compromised in December 2017. As for the US-EU trade war itself, the parties agreed at the US-EU summit on July 25 to avoid escalation of the trade dispute for the time being.

In Japan, the first meeting on a Long-Term Strategy under the Paris Agreement as Growth Strategy was held at the Prime Minister's office on August 3 attended by Prime Minister Abe. The Meeting was established to discuss a vision for Japan's long-term strategy under the Paris Agreement, and consists of ten members: Mr. Takeshi Uchiyamada, Chairman of Toyota; Prof. Junko Edahiro, The Graduate School of Leadership and Innovation, Shizenkan University; Mr. Shin'ichi Kitaoka, President of JICA and Chair of this Meeting; Mr. Kosei Shindo, President of Nippon Steel & Sumitomo Metal Corporation; Mr. Shuzo Sumi, Chairman of Tokio Marine Holdings; Prof. Yukari Takamura, Nagoya University; Mr. Hiroaki Nakanishi, Chairman of Keidanren; Mr. Hiromichi Mizuno, Chief Investment Officer of the Government Pension Investment Fund; Mr. Masashi Mori, Mayor of Toyama City; and Mr. Itaru Yasui, President of the Institute for Promoting Sustainable Societies. Meetings will be held in closed sessions, and the first one ended in just 37 minutes after each member expressed their views for two minutes. The future schedule has not been released.

The Ad Hoc Working Group on the Paris Agreement (APA) and Subsidiary Bodies were convened from September 4 to 9 in Bangkok, Thailand, to continue to consider the rulebook for the Paris Agreement. The APA Co-Chairs had prepared and released documents including proposals for streamlining the informal notes in early August. The success of this meeting depends on how far it could develop the draft negotiating text based on these documents. It is necessary to keep monitoring of the discussions on the rulebook for the Paris Agreement, revisit of the 2030 pledge by each country, the trade war and its repercussions on climate policies, and the discussions in the Meeting on Long-Term Strategy in Japan.



#### 4. Update on Policies Related to Energy Conservation

**Naoko Doi**, Senior Economist, Manager  
Energy Conservation Group  
Global Environment and Sustainable Development Unit

On July 24, the Strategic Commission for the New Automotive Era (hereinafter, “the Strategic Commission”), led by the Ministry of Economy, Trade and Industry and with the participation of Japanese automakers, issued an interim report. The Strategic Commission set a long-term goal to reduce GHG emissions from Japanese automobiles supplied worldwide by around 80% by 2050. The report projects that EVs including hybrids will account for 100% of all passenger cars by 2050. The interim report sets out the actions to be taken in the next five years: (1) promoting open innovation across boundaries between industry, academia, and government, (2) developing all-solid-state batteries and joint procurement of cobalt resources, and (3) creating a battery recycling market. A meeting of policy-makers from Asian countries will be held in autumn to reinforce collaboration.

The Strategic Commission is scheduled to release a road map for supplying Japanese vehicles with excellent environmental properties worldwide. However, considering the differences in technological strengths and preferential development areas among automakers and global partnerships among companies, it is not clear whether the road map will be effective. Specific measures must be formulated to implement the road map, including continuing subsidies for technological innovation.

On August 2, the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) of the Department of Transportation of the United States decided on a policy to ease auto fuel standards. Under the policy, the fuel standard of the Obama era (which requires improvements in stages between 2021 and 2026) will be frozen, and the levels in 2020 (equivalent to 12.6 km/liter) will continue to be applied. Further, the EPA and NHTSA are demanding that the State of California withdraw its regulation requiring a certain percentage of all cars sold in the state to be electric vehicles or other Zero Emission Vehicles (ZEVs). The state has pledged to make every effort within the law to resist.

Key auto industry associations Auto Alliance and Global Automakers have released a statement that fuel standards should be improved gradually toward 2026, despite the federal government policy, in view of the likelihood that the global shift toward electric vehicles is now unstoppable. It is expected to take time before the dispute with California is resolved and an auto fuel regulation is formulated. Future developments must be closely monitored.

The EU is considering a new emissions target after its 2021 CO<sub>2</sub> emissions target for passenger cars of 95 g/km (equivalent to 24.9 km/liter), reducing emissions by 30% from 2021 levels by 2030. It further aims to increase the percentage of ZEVs in all passenger car sales to 15% in 2025 and 30% in 2030.

In addition to automobiles, the EU will also draw up regulations for the installation of charger systems. The Energy Performance of Building Directive (EPBD) revised in June requires each member state to set a minimum required number of EV chargers for commercial buildings with parking space for 20 or more cars by 2025. The Directive will also require pre-cabing of apartments at the time of major renovation so that EV chargers can be installed afterwards. The EU considers that EVs are an important means for decarbonization and plans to establish charger infrastructure using buildings to help spread EVs.

## Update on Renewable Energies

**Yoshiaki Shibata**, Senior Economist, Manager  
New and Renewable Energy Group  
Electric Power Industry & New and Renewable Energy Unit

In June, the Ministry for an Ecological and Solidary Transition of France (former Ministry of Ecology, Sustainable Development and Energy) released a plan for expanding the use of hydrogen in the nation's energy transition. While not as comprehensive as the Strategic Road Map for Hydrogen and Fuel Cells of Japan's METI, France's hydrogen road map reflects perspectives unique to the country.

The road map highlights the importance of hydrogen for achieving the 2030 renewable energy deployment target stipulated in the 2015 Energy Transition for Green Growth Act and for achieving decarbonization by 2050. The road map presents three chronological action plans: the short-term action plan which focuses on using hydrogen produced by water electrolysis in industry; an action plan for using hydrogen in automobiles; and a medium- to long-term action plan for storing hydrogen obtained from renewables through Power to Gas (PtG). Among them, the short-term plan is unique in that the supply and demand of hydrogen are clearly linked with each other. Regarding hydrogen demand, the plan identifies specific, realistic users in industry as early adopters, taking economic efficiency into account. To supply the hydrogen to meet this demand, the plan aims to develop water electrolysis technology, which is essential for introducing PtG in the future, as quickly as possible.

In Europe, many initiatives are under way to shift from hydrogen produced by reforming natural gas, which is used mainly as a raw material in industry, to hydrogen obtained through water electrolysis. The petroleum refining and chemicals industries are expected to become large-scale users of hydrogen. However, hydrogen is cheap in these sectors as it is produced or purchased centrally in bulk, and hydrogen from water electrolysis cannot compete as yet. Thus, the road map initially targets distributed small- and medium-sized industries (glass, food, metals, electric and electronic devices, etc.), which use costly hydrogen with high transportation costs, as early adopters.

These target sectors have a limited hydrogen demand of only 200,000 tonnes per year (approximately 2.2 billion Nm<sup>3</sup>, equivalent to 1 GW of hydrogen-fired power generation). However, it is big enough to create a water electrolysis market for hydrogen suppliers. The underlying strategy of the road map apparently is to rapidly develop water electrolysis technology by subsidizing R&D and technological demonstration projects for reducing the cost of water electrolysis devices and improving their efficiency, to build the foundation for introducing PtG in the future. Note that while the water electrolysis market is in its infancy, electricity input into electrolyzer is not restricted to renewable electricity. This is characteristic of France, whose power sources have already been significantly decarbonized majorly by nuclear.

In contrast with France, Japan's strategy targets fuel cell vehicles and hydrogen-fired power generation as the initial hydrogen demand, and primarily uses imported hydrogen supplies. However, both countries aim to introduce PtG in the future. The strategy of France, which specifically links the creation and expansion of a water electrolysis market with technological development, may serve as a useful reference for Japan.





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**IEEJ e-Newsletter Editor: Yukari Yamashita, Director**  
**IEEJ Newsletter Editor: Ken Koyama, Managing Director**  
**Inui Bldg. Kachidoki, 13-1 Kachidoki 1-chome, Chuo-ku, Tokyo 104-0054**  
**Tel: +81-3-5547-0211 Fax: +81-3-5547-0223**



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