



# IEEJ e-NEWSLETTER

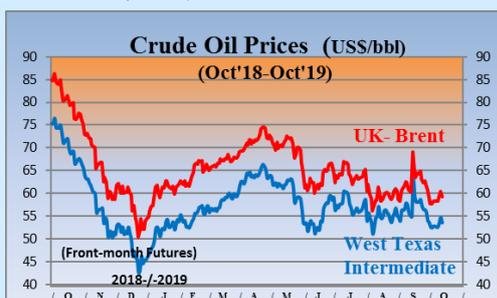
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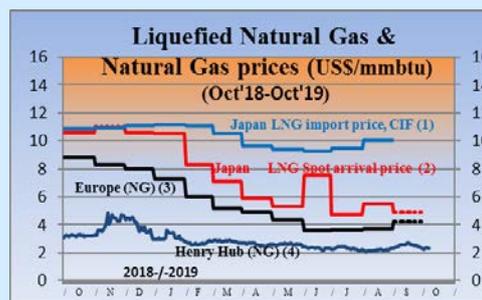
The Institute of Energy Economics, Japan

(As of October 14, 2019)



Sources:

- (1) DOE-EIA
- (2) Investing.com



Sources:

- (1) Ministry of Finance "Japan Trade Statistics"
- (2) Ministry of Economy, Trade and Industry (arrival month basis)
- (3) Estimated by World Bank (Netherland Title Transfer Facility)
- (4) DOE-EIA, NYMEX (Front-month Futures)
- (5) Investing.com and Finance.Yahoo.com



Source: x-rates.com



Source: Investing.com and Finance.Yahoo.com

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## Summary

### 1. Developments in Nuclear Power

On September 16-20, the 63rd IAEA General Conference was held in Vienna with 3,034 participants from 152 countries. Japan needs to make strong appeals to the international community to prevent nuclear non-proliferation from losing its substance.

### 2. Recent Developments in the Oil Market

Concern over supply insecurity caused by the attacks on Saudi oil facilities remains, but since the full recovery of Saudi oil production, oil prices are once again under downward pressure.

### 3. Recent Developments in the LNG Market

FIDs on LNG export projects announced in August and September in the United States and Russia highlighted specific ways of LNG offtake and funding arrangements. The LNG Producer - Consumer Conference focused on future consuming market development.

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

At the UN Climate Action Summit in New York, 77 countries and regions committed to cut greenhouse gas emissions to net zero by 2050. In Tokyo, the first International Conference on Carbon Recycling was convened.

### 5. Update on Renewable Energies

The Hydrogen Energy Ministerial Meeting was held on September 25. The Global Action Agenda, which describes the actions necessary to achieve last year's Tokyo Declaration, was presented.

### 6. ME: Tensions Remain High in the Persian/Arabian Gulf

The attacks on Saudi Aramco's oil facilities will not be resolved merely by identifying the perpetrator. Each country must work hard to address the multiple factors that lie behind the attacks.



## 1. Developments in Nuclear Power

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

On August 28, Tokyo Electric, Chubu Electric, Hitachi, and Toshiba announced the signing of a basic agreement to discuss joint business involving boiling water reactors (BWRs). The companies said that, under the agreement, they will focus on “creating a sustainable business environment to enable safe and economical operation of the BWR business leading to the future construction and operation of nuclear power plants.”

While media reports have focused on the construction project for Tokyo Electric’s Higashidori Unit 1 in Aomori prefecture, which has been suspended and which will be made part of the joint business, it is not clear from the press releases of any of the companies that this is actually the primary purpose of the agreement. Neither have any specifics been unveiled regarding the “sustainable business framework” or the “centralizing research and technological development capabilities for designing safe new reactors,” which are mentioned in the news releases of all the companies. With no clear prospects on when the BWRs will be restarted, the future of the BWR business envisioned by the companies through this joint enterprise requires close attention.

On the same day, August 28, the IEEJ hosted an international energy symposium on the nuclear energy report titled “Nuclear Power in a Clean Energy System” issued by the International Energy Agency in May.

Following an introduction of the report by IEA Chief Economist Lazlo Varro, a panel discussion was held by Mr. Varro, Ms. Masako Konishi, Deputy Director of the WWF Conservation Department, Mr. Susumu Tsukiyama, Vice Chairman of the Federation of Electric Power Companies, and Ms. Eunjung Lim, Assistant Professor at the College of International Relations, Ritsumeikan University, moderated by Professor Hisanori Nei of the National Graduate Institute for Policy Studies. Some of the issues pointed out in the discussions include “nuclear power not being fully recognized as a clean energy” and “the critical importance of the predictability of nuclear power as a private-sector business.” We hope that these discussions, which were joined by a panelist who supports a society that does not depend on nuclear power, will provide useful input to energy companies and policymakers.

On September 16-20, the 63rd IAEA General Conference was held in Vienna with 3,034 participants from 152 countries. At the Conference, the opening of a new facility named in memory of the late Director General Amano was unveiled. Meanwhile, during the presentation of reports by member states in the plenary session, South Korea criticized Japan over the proposed release of contaminated water into the sea, which Japan rebutted.

The conference closed after the adoption on the final day of a resolution reaffirming the importance of the IAEA’s role in facilitating the use of nuclear technology for peace. As the negotiations over the Iran nuclear deal among the US, UK, France and others face difficulties, Japan needs to appeal strongly to the international community through the IAEA to prevent nuclear non-proliferation from losing its substance. (As of September 27)



## 2. Recent Developments in the Oil Market

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

The attacks on Saudi crude oil facilities in Abqaiq and Khurais on September 14 triggered some of the most violent fluctuations in oil prices in recent years. On the 16th the Brent price surged by as much as 19% from the previous day's closing price, reaching \$71.95/bbl. Abqaiq has a processing capacity of 7 mb/d and Khurais has 1.5 mb/d. Though Khurais restarted operation on the next day, oil supply capacity of as much as 5.7 mb/d was lost at one point due to the attacks, matching the oil crises in the 1970s. The United States claims that Iran was behind the attacks and announced a new set of sanctions on the 20th. Germany, France, and the United Kingdom issued a joint statement on the 23rd accusing Iran.

In the short term, the supply disruption due to the attacks is mostly manageable with industry stocks. According to the Joint Oil Data Initiative (JODI), Saudi Aramco has stocks totaling 187.9 million barrels as of June and can continue export at the levels before the attacks for 27 days. The global oil supply is currently easing, with industry stocks of the OECD exceeding the 5-year average (2.89 billion barrels) as of June. Further, IEA member states are required to secure a national oil stockpile equivalent to 90 days of net imports. The fact that no country has released oil from its stockpile since the attacks is proof that supplies are not at immediate risk. Saudi Aramco announced on the 17th that the Abqaiq plant will resume full operation by the end of September, causing Brent to drop to \$64/bbl. President Trump's apparent reluctance to attack Iran is also giving the market a sense of security.

However, concern over supply security is far from resolved: the fact that the Saudi air defense system was breached is a grave threat. While more US troops will be sent to Saudi Arabia to strengthen defenses, oil prices will react sharply to the Middle East situation until the market regains confidence in Saudi Arabia's supply security. Should another crisis occur and cause industry stocks to plummet or oil prices to soar, OPEC Plus will be more likely to ease the joint production cut.

Nevertheless, oil prices have stalled since Saudi oil production was fully restored. In the monthly Oil Market Report released on September 12, the IEA once again lowered its outlook for oil demand in 2019. The European economy is slowing and the European Central Bank decided to cut interest rates and restart quantitative easing on September 12. On September 17-18, the Federal Reserve Board decided on further interest rate cuts, but like last time, did not announce whether more interest rate cuts are to come. There were moves to stabilize the US-China trade war since the beginning of September, but no notable progress in the vice-ministerial trade talks held on September 19 and 20 has been reported. Ministerial trade talks are scheduled for October, but pessimism remains about the countries reaching any form of a deal. The International Monetary Fund predicts that the US-China trade war will drag down world GDP growth in FY2020 by 0.8 percentage points if it intensifies. The impending start of an impeachment inquiry against President Trump could be an additional factor for weak markets, not only for stocks but also for oil prices.



### 3. Recent Developments in the LNG Market

**Hiroshi Hashimoto**, Senior Analyst, Head of Gas Group  
Fossil Energies & International Cooperation Unit

A final investment decision on the Arctic LNG 2 project was announced during the Eastern Economic Forum in Vladivostok in early September - a second large-scale LNG export project in the Russian Arctic region and led by Novatek. Japanese and Chinese companies have participated in the project as minority partners.

The partners plan to have three liquefaction trains with combined production capacity of 19.8 million tonnes per year on the Gydan Peninsula, starting production between 2023 and 2026. The project plans to have GBS (gravity-based structures) and procure majority of equipment and materials to be fabricated in Russia. By the time of the FID, a consortium of EPC contractors had been selected and more than 90% of long-lead items (including heat exchangers, gas turbines, and compressors) had been ordered. Drilling of production wells, construction of roads and the field's production infrastructure had been commenced.

A next wave of large-scale LNG export projects are moving forward in the United States, where the Freeport LNG project - which Japanese city-gas and electric power companies have equity participation in - started shipping out LNG cargoes in early September.

Venture Global LNG, who plans three grassroots projects in the Mexican Gulf region, announced an FID on the Calcasieu Pass LNG project in Louisiana in the middle of August, with operation expected in 2022. Lenders to the project include Mizuho Bank, Sumitomo Mitsui Banking Corporation, Nomura Securities International, as well as other world's leading project finance institutions. Stonepeak Infrastructure Partners has provided an equity investment for the project. The project's 20-year LNG sales contracts with six European companies with combined volumes of 8 million tonnes per year had provided strong assurance to underpin funding and investment decisions for the project, which depends on the project finance.

With the two FIDs, the cumulative capacity of large-scale LNG export projects sanctioned so far in 2019 has surpassed 63 million tonnes per year from five projects, coming closer to the historical high of 70 million tonnes in 2005. Each project has its own ways of marketing and funding. Arctic LNG 2 has long-term LNG offtake arrangements by all the participants - including companies of LNG importing countries - in proportion to equity interests. Novatek has also secured memoranda on cooperation with other companies in gas consuming countries and a local authority in Russia on potential demand creation. Calcasieu Pass LNG is backed by long-term sales commitments with multiple buyers to secure project finance.

At the 8th annual LNG Producer - Consumer Conference on 26 September in Tokyo, panelists discussed how the LNG consuming markets should be developed especially in emerging economies in Asia, taking advantage of abundant LNG supply expected in the future, as well as how flexibility in LNG market should be enhanced. The conference also highlighted importance of dialogues between emerging economies, LNG producers, and Japan as the traditional leading LNG market.



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

**Takahiko Tagami**, Senior Coordinator, Manager  
Climate Change Group  
Climate Change and Energy Efficiency Unit

Various announcements and events took place around the time of the UN Climate Action Summit convened on September 23.

On September 20, Germany's climate cabinet agreed the Climate Action Program 2030 to ensure that the country achieves its climate goals for 2030. The highlights of this program are the introduction of a national emissions trading system in the transport and building sectors and a 54-billion-euro investment program. The national trading system will be launched in 2021 for the transport and building sectors which are currently not covered by the EU emissions trading system, and emissions allowances will be sold to companies at a fixed price, which is set initially at 10 euros per tonne of CO<sub>2</sub> and increased to 35 euros in 2025. From 2026, the market will set the price. The investment program will promote emissions reductions mainly in the building and transport sectors. The German government will also finalize a Hydrogen Strategy within 2019 while promoting R&D on the storage and use of CO<sub>2</sub>.

On September 23, the UN Climate Action Summit was convened in New York. Seventy-seven countries, mainly developing small island states and least developed countries as well as the EU and Germany, which had not yet made a formal announcement, committed to cut greenhouse gas emissions to net zero by 2050, and 70 countries announced they would boost their nationally determined contributions (NDCs) for 2030. Instead of updating its NDC for 2030 and publishing a long-term strategy for 2050 as some had expected, China only proposed an initiative to reduce emissions by 12 billion tonnes annually through "nature-based solutions," such as reforestation, expansion of grasslands and wetlands, and utilization of biomass energy. India also only committed to further increase its installed renewable energy capacity to 450 GW without specifying the timeline. Japan and the United States did not take the stage, as they had no plans to step up their NDCs for 2030.

On September 24, the Intergovernmental Panel on Climate Change (IPCC) approved a special report titled "The Ocean and Cryosphere in a Changing Climate." This report follows the special reports "Global Warming of 1.5°C" published in October last year and "Climate Change and Land" in August this year. The report presents, based on the latest scientific literature, observed changes and impacts, projected changes and risks as well as implementing responses to ocean and cryosphere change regarding melting ice and rising seas, changing ocean ecosystem, declining Arctic sea ice, and thawing permafrost.

On September 25, the first International Conference on Carbon Recycling was convened in Tokyo. At the opening, the Minister of Economy, Trade and Industry Isshu Sugawara issued Japan's three "Cs" initiative on: (1) Caravan (close communication amongst research organizations and international organizations), (2) Centers of research, and (3) Collaboration around the world. Following speeches by ministers from Australia, Brunei Darussalam, Pakistan, Viet Nam, Norway, and others, experts from industry, government, and academia, including government officials from the US, Canada, and Saudi Arabia, delivered their speeches. At the Conference, Japan and Australia signed a memorandum of cooperation including on holding regular meetings on carbon recycling technologies.



## 5. Update on Renewable Energies

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

On September 25, the Ministry of Economy, Trade and Industry (METI) and NEDO co-hosted the Hydrogen Energy Ministerial Meeting in Tokyo following last year, attended by the hydrogen energy ministers, government officials, and private companies of major countries. The event was joined by 35 countries, regions, and organizations, far exceeding last year's 21.

At the ministerial meeting in the morning, METI Minister Isshu Sugawara presented the Global Action Agenda, which details 44 specific actions based on the four key areas of initiatives identified in the Tokyo Statement issued last year: (1) collaboration on technologies and coordination on harmonization of regulations, codes, and standards, (2) promoting information sharing and international joint R&D to reduce hydrogen supply chain costs and ensure its safety, (3) the significance of studying and assessing the potential, economic effect, and CO<sub>2</sub> reduction effect of hydrogen, and (4) communication, education, and outreach. Items among the actions include cooperation for building hydrogen stations and other infrastructure and expanding the market, promoting R&D on supply chain-related equipment, establishing international standards for marine transport through the IMO, sharing and building on the achievements of demonstrations for water electrolysis technology, expanding the use of industrial hydrogen, increasing the number of hydrogen-related studies and analyses by international organizations, and disseminating information through international organizations and events.

The Future of Hydrogen published by the IEA in June suggests that specific actions must be taken over the next decade to increase the use of hydrogen. Actions were presented under the Agenda this time presumably in response to this suggestion.

Further, “triple 10” was announced as the global target. This is an effort to introduce 10 million fuel cell-powered mobility, including passenger cars, buses, and trucks, and 10,000 hydrogen stations in the next decade, which is an ambitious goal given that there are now only about 10,000 fuel cell mobility and 248 hydrogen stations. The purpose of setting this non-binding target is apparently to attract investment from the private sector.

During the open session in the afternoon, lectures and discussions by panelists were held on four topics: (1) cross-cutting efforts, (2) mobility, (3) supply chains (moderated by IEEJ Chairman & CEO Masakazu Toyoda), and (4) sector integration. For topic (1), the IEA, IPHE (International Partnership for Hydrogen and Fuel Cells), ERIA (Economic Research Institute for ASEAN and East Asia) and other international organizations reported the latest developments and future prospects for hydrogen energy. For topic (2), the necessity of linking the spread of fuel cell vehicles with the construction of hydrogen stations was reaffirmed. For topic (3), the latest developments in establishing a large-scale international hydrogen supply chain were shared, and the importance of diversity, including both of green hydrogen and blue hydrogen and also the use of existing infrastructure such as ammonia, was emphasized. For topic (4), the importance of the role of water electrolysis in integrating renewable energy into the power system, the challenges and prospects for using hydrogen in industry, and the developments in establishing a carbon footprint certification system for hydrogen were shared.



## 6. ME: Tensions Remain High in the Persian/Arabian Gulf

**Sachi Sakanashi**, Senior Research Fellow  
Manager of Research Group  
Acting President, JIME Center

It is still not clear who was behind the attacks on two oil facilities in Saudi Arabia on September 14. The United States accused Iran immediately after the attacks, joined by three other countries, namely the United Kingdom, Germany, and France, about 10 days later. However, the Japanese government has cautiously withheld from drawing any conclusion on Iran's involvement, with several parties suggesting waiting for the results of the UN investigation.

Yemen's Houthi group, which claimed responsibility for the attacks, has been targeted by air strikes by the Saudi-led coalition since March 2015. These air strikes have caused an unprecedented humanitarian crisis in Yemen, but the international community has failed to respond adequately. Under these circumstances the Houthi group had sufficient motive to retaliate.

Nevertheless, the US, and later the UK, Germany, and France, condemned Iran because they doubted that the Houthi group had the ability to carry out such sophisticated attacks. Thus, Iran was denounced not based on decisive evidence linking it to the attacks, but because the attacks were judged as "impossible without Iran's support."

If Iran had a motive for the attacks, it was to protest against US sanctions to "cut Iranian oil exports to zero." These sanctions are believed to have driven down Iranian oil exports to one-tenth of pre-sanction levels (to around 0.2 mb/d) despite being imposed solely by the US, and not by the United Nations. In other words, the attacks may have been executed to question the legitimacy of these sanctions that are designed to suppress Iran.

Armed conflict in the Persian/Arabian Gulf, which is crucial for the global energy supply, would benefit nobody. However, as the US continues to reject the nuclear deal which was unanimously approved by the UN Security Council and to run its campaign to apply "maximum pressure on Iran", and as Iran refuses to "bow to unjust pressure," tensions remain high.

Under such circumstances, it is increasingly important for countries to collaborate and jointly determine what is needed for stability in the region. This is why it is highly significant that Japan did not join the chorus of criticism against Iran. These attacks cannot be dealt with properly simply by denouncing Iran for this single incident. Behind the attacks lie several factors, including the prolonged Yemen war and the collapse of the Iran nuclear deal. Unless each country addresses these factors in earnest, the potential risk of more anonymous attacks in the region will remain. This absolutely must be avoided for those countries that depend on this region for energy. (As of September 27)



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