



IEEJ e-NEWSLETTER

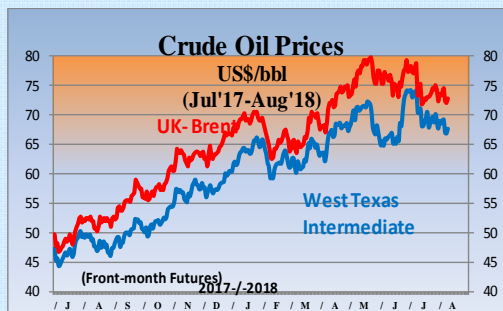
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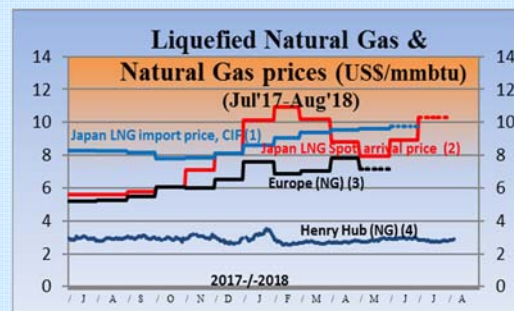
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Source: DOE-EIA, Financial Times, NASDAQ

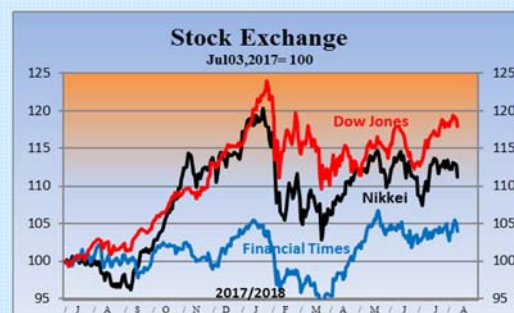


Sources:

- (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

Contents

【Energy Market and Policy Trends】

Summary

1. Economic and Energy Outlook of Japan through FY2019
2. Developments in Nuclear Power
3. Recent Developments in the LNG and Oil Markets
4. Update on Renewable Energies



Summary

【Energy Market and Policy Trends】

1. Economic and Energy Outlook of Japan through FY2019

On July 26, the Institute of Energy Economics, Japan released its latest short-term outlook, the Economic and Energy Outlook of Japan through FY2019.

2. Developments in Nuclear Power

With the commercial launch of Yangjiang Unit 5, China became the world's third-ranking country with Japan in the number of operating reactors. China's movements must be closely monitored together with those of Russia as it strengthens its presence in the international nuclear new build markets.

3. Recent Developments in the LNG and Oil Markets

Volatility is rising in the international oil market due to the rapidly changing situation such as the US sanctions on Iran, the US-China trade war, the decline in demand due to high oil prices and the US production hike.

4. Update on Renewable Energies

To make renewables a key power source, it is essential to properly evaluate the profitability of renewable electricity by raising the predictability of power limitation. The progress in the upcoming publication of grid information must be closely monitored.



1. Economic and Energy Outlook of Japan through FY2019

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Macroeconomy and production activity: Expansion of the Japanese economy is slowing, and FY2019 will end four years of growth exceeding 1.0%

The Japanese economy will grow by only 1.1% in FY2018 as both domestic and external demand weaken. The increase in energy prices will also put downward pressure on growth. Growth will further decelerate in FY2019 to 0.9%, barely above the potential growth rate. The trade balance will turn negative with a deficit of JPY1.2 trillion in FY2018 due to rising energy prices.

Energy supply and demand: Primary energy supply declines for the second consecutive year and CO₂ for the sixth

The primary energy supply will start to decline in FY2018 (-0.8%) for the first time in two years due to the slowdown from the “higher” economic growth of the last fiscal year and the rebound from the harsh weather last winter. It will further slip in FY2019 (-0.2%) as economic and production activities slow somewhat and energy efficiency continues to rise. Natural gas will see a third year of decline for the first time and mark the lowest level since the Great East Japan Earthquake. The shift from oil and natural gas to nuclear and renewables will accelerate. CO₂ emissions will decrease to -13.1% from FY2013 levels in FY2019.

Energy sales: Electricity remains unchanged, city gas starts to decrease, and the decrease in fuel oil sales expands

Electricity sales will remain flat in FY2018. Sales will decline for lighting services due to the rebound from the harsh winter last year and the spread of residential solar photovoltaic power generation and energy efficient household appliances and lighting devices. The growth in power services will shrink as the growth in machine production eases, and will remain generally flat in FY2019. City gas sales will start to decline in FY2018 for the first time in three years (-0.3%) as residential gas sales drop after the harsh winter last year, but will increase in FY2019 mainly for industrial use, and will turn to an overall increase (+1.0%), setting a record high. Fuel oil sales will fall further in FY2018 (-3.1%) as sales plummet for heavy fuel oil C for power generation, decline for gasoline as fuel-efficient cars increase, and decline for naphtha as more ethylene plants undergo periodic repair. Sales will also decline in FY2019 for the seventh consecutive year (-1.3%).



Renewable power generation: The FIT power generation capacity reached 74 GW at the end of FY2019

Installed FIT capacity will grow driven by non-residential solar PV at 44 GW. It will produce 135.1 TWh of electricity in FY2019, accounting for 13% of total electricity generation. Meanwhile, the total approved capacity of 80 GW as of March 2017 (total approved capacity of 105 GW minus the capacities that have expired or are unlikely to start operation), if all put into operation, would cause a surcharge of JPY50 trillion during the purchase period, causing electricity tariffs to rise by JPY2,900/MWh or 12% for residential and 17% for industrial electricity.

The key point is the impact of uncertainties of (1) nuclear power generation, (2) oil prices, and (3) US trade policy. If President Donald Trump keeps his campaign promise and imposes a 45% tariff on imports from China, and China retaliates with tariffs of the same rate, it would inflict a negative economic contribution of -2.1% on the US and -2.9% on China. This translates to a drop in oil consumption of 200 thousand barrels/day in the US and 300 kb/d in China. There would be a 0.4% benefit for Japan which would substitute the US and China in trade and slightly raise its energy consumption. The adverse effects on Japan of a US-China trade war may not be as significant as some fear. Meanwhile, a 20% US tariff on imported cars would slow the global economy by 0.2%, the Japanese economy by 0.1%, and the US economy by 0.4%.



2. Developments in Nuclear Power

Tomoko Murakami, Senior Economist, Manager
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On July 6, Russian nuclear power operator Rosenergoatom announced that it had obtained a lifetime extension license for its Kola Unit 1 (VVER-440, 440 MW) to July 6, 2033. The plant started operation in 1973 and celebrated its 45th anniversary on June 18 this year. It has kept a solid operational record, reaching an excellent capacity factor of 77.9% in 1986 even when the Chernobyl Unit 4 accident struck. If no problems arise, the plant will complete 60 years in operation as licensed and contribute to the country's stable electricity supply and economic development.

Having a wealth of operational experience at home, Russia is actively capitalizing on this to enter emerging markets. State-run nuclear enterprise Rosatom agreed with Rwanda on June 25 to cooperate in nuclear power and with Uzbekistan on July 10 on a nuclear new build project. Further, Bangladesh's Rooppur NPP, the country's second Russian nuclear plant, began construction on July 14. Today, half of the global nuclear new build market is handled by Rosatom, with plans for Russian plants to start operation in emerging countries such as Egypt, Belarus and Turkey in the early 2020s. We must continue to monitor Russia's international nuclear business as well as how many of the early second-generation reactors operating since the 1970s will be given a lifetime extension. Japan should learn from the global situation on lifetime extension.

China is also seeing a series of new plants enter operation. Taishan Unit 1 (EPR, 1750 MW) and Sanmen Unit 1 (AP-1000, 1250 MW) started to transmit electricity on June 29 and 30, respectively, and on July 12, China's 39th commercial reactor, Yangjiang Unit 5 (ACPR-1000, 1080 MW), started commercial operation. With 39 reactors in operation, China caught up with Japan this year in the number of nuclear power plants, both now third in the world. With Taishan Unit 1, Sanmen Unit 1, and others due to start commercial operation in a few months, China will surpass Japan within this year to become the world's sole third-ranking country in terms of nuclear capacity after the United States and France. Nuclear power still accounts for just 3% of the country's electricity (as of 2015) so there is much room for growth. Organizations in Japan should pay more attention to China which, like Russia, is steadily building up construction and operational experience in light-water reactors. China is now leveraging its experience to strengthen its presence in the UK and other foreign markets.

On July 13, a comprehensive functional test of the fuel processing and storage facility began at the decommissioned fast-breeder reactor Monju prior to the removal of fuels, which is the first step of decommissioning. After the test, Monju will spend approximately five years until FY2022 to relocate all its fuels into a water pool. Where to keep the spent fuel will significantly affect the decommissioning plan, and the discussions between the government, hosting community, and other stakeholders should be monitored.



3. Recent Developments in the LNG and Oil Markets

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Volatility is rising in the international oil market. The Brent price fluctuated by nearly \$10 in less than a month, surging to nearly \$80/bbl in early July from around \$75/bbl in late June and then falling to the lower \$70 range at the time of writing. The main cause of the recent fluctuation is the rapidly shifting focus of the market players toward various factors.

The most notable factor that causes higher prices is stiffer US economic sanctions against Iran and the resulting drop in Iranian oil exports. It is unclear how far Iranian exports will fall since the Trump administration is demanding that the international community cease all oil imports from Iran by November 4, but State Secretary Mike Pompeo has suggested that the US will exempt certain countries on a case-by-case basis. The tougher sanctions against Iran could fuel international tensions in the Middle East and trigger a major supply disruption, sending oil prices soaring. Further, Venezuela's production cut caused by the financial distress of the state-run oil company PDVSA is also quietly but steadily squeezing supplies in the international market. The drop in output from Iran and Venezuela will presumably be offset by production hikes in Saudi Arabia and other OPEC countries and the US. However, a production hike by OPEC would mean a smaller surplus production capacity of the Organization, which is already starting to make the market overreact to geopolitical risks and thus increasing the price volatility.

Meanwhile, there are also factors for lower oil prices, one of which is the slowdown in global oil demand as prices rise. The growth in global oil demand shrank drastically in Q2 of 2018 to 0.88 mb/d yoy from 2.03 mb/d in Q1. Another factor is the global economic slowdown resulting from the US-China trade war. The decline in US-China trade due to the trade war and its negative effect on the global macroeconomy, once they emerge, will steadily hurt the global oil demand. On the supply side, according to the US Energy Information Administration, US domestic oil production has been growing by 1.4 mb/d since the beginning of the year as American oil production has soared along with oil prices. Such easing of supply and demand as well as factors for lower prices are also playing a role in the current price fluctuations.

Regarding LNG, on June 21, the European Commission announced that it will investigate the LNG sold by Qatar in Europe for possible violation of the anti-trust law. Europe has long deemed destination restrictions in the natural gas trade as an anti-trust violation. This investigation by the competition authorities focusing on the destination problem in LNG trade comes after the one announced last June by the Fair Trade Commission of Japan. Attention must be paid to the result of the probe and its impact on similar activities by competition authorities in South Korea and other countries.



4. Update on Renewable Energies

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On July 11, Chugoku Electric announced that applications for connecting solar power (including those for already connected capacities) have reached the “quota for 30-day power limit” (the maximum grid-connectable capacity of renewable electricity for renewable power operators who accept an uncompensated curtailment for the number of days or hours per year prescribed by the government). Under current rules, any applications for connecting solar power received hereafter will be connected only if the applicant accepts an unlimited, uncompensated curtailment. The “quota for 30-day curtailment (including already connected capacities)” has been exceeded in Hokkaido, Tohoku, Shikoku, Kyushu, and Hokuriku Power Companies for solar power and in Hokkaido, Tohoku, Chugoku, and Kyushu Power Companies for wind power.

The renewable capacity subject to curtailment described above is any surplus renewable electricity that occurs after reducing thermal power generation output to the limit (based on the priority feeding rule to accommodate increasing renewable energies, thermal power generation output is reduced to maintain the supply-demand balance). The amount of surplus electricity is usually calculated based on factors such as the size of electricity demand, the operational patterns of other power sources, and whether pumped-storage hydroelectric power is used. The Working Group on Grid Connection and Renewable Energy established under the Advisory Committee for Natural Resources and Energy in the autumn of 2014 releases every year the connectable capacity of each power company, which is the amount of solar and wind power capacities whose surplus capacity fits within the “quota for 30-day curtailment.”

Meanwhile, there is another type of surplus renewable electricity that is subject to curtailment: the surplus electricity arising from grid connection limits (transmission capacity limits). Under the current rule, there is no surplus renewable electricity arising from grid connection limits as any capacity exceeding the transmission line capacity is not allowed to connect. However, things will change starting from this year with the partial and stepwise implementation of “Japanese Connect & Manage,” which aims to maximize the use of existing transmission lines by first revising rules rather than reinforcing the lines. One of the measures is to allow renewables to connect to transmission lines while imposing a certain degree of curtailment. As the first attempt of its kind, on July 2, Tohoku Electric announced the launch of use of N-1 power control, which allows renewable electricity to be connected on condition that its power generation will be limited (stopped) instantaneously when an incident occurs to give precedence to emergency use.



Past IEEJ Events

Energy and Economy Indicators of Japan

IEEJ Homepage Top

Back Numbers of *IEEJ e-Newsletter*

Back Numbers of *IEEJ Newsletter* (Original Japanese Version - Members Only)

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