



IEEJ e-NEWSLETTER

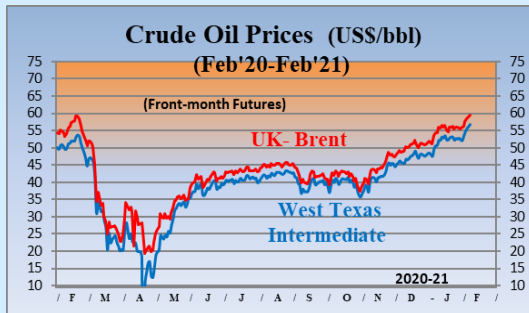
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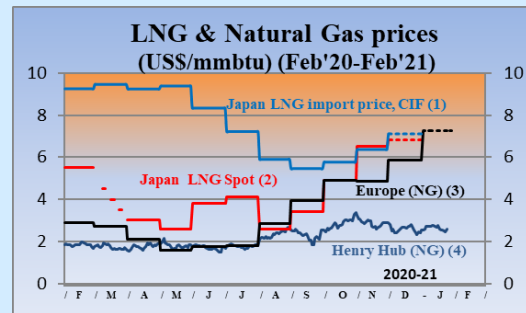
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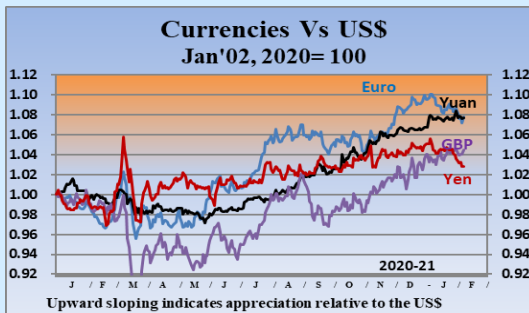
(As of February 5, 2021)



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 (Netherlands Title Transfer Facility)
(4) DOE-EIA, NYMEX (Front-month Futures)



Source: x-rates.com



Sources:
(1) Finance. Yahoo.com
(2) Investing.com

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Summary

【Energy Market and Policy Trends】

1. Energy Policies

The Strategic Policy Committee met on December 14 and 21, 2020 to discuss various electricity sources in 2050. On December 25, the Green Growth Strategy was released as a plan toward achieving the carbon neutrality target.

2. Developments in Nuclear Power

In Japan, the Federation of Electric Power Companies released a new pluthermal program. Outside of Japan, Canada released an action plan for introducing SMRs while in China, construction of a new power plant began.

3. Recent Developments in the Oil and LNG Markets

Saudi Arabia's 1 mb/d voluntary production cut came as a surprise and is propping up oil prices. The surge in the spot LNG price is a reminder of the need for a benchmark LNG price in Asia.

4. Update on Climate Policies

The third supplementary budget including 2 trillion yen for the Green Innovation Fund was approved by the Diet. In the U.S., Congress approved a coronavirus relief bill that appropriates 35 billion dollars to research and development on advanced energy technologies.

5. Update on Renewable Energies

The government set a target to increase offshore wind power dramatically in the Green Growth Strategy. Attention must be paid to efforts for establishing a competitive supply chain, as well as overcoming challenges in costs and infrastructure.



1. Energy Policies

Seiya ENDO, Economist
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Discussions on the Sixth Strategic Energy Plan have been under way since autumn 2020. The topics of renewable power sources and combining zero-emission thermal power with nuclear were discussed in the context of the 2050 carbon neutrality target at the 34th and 35th Strategic Policy Committee meetings held on December 14 and 21, respectively.

The basic policy for renewables is to “introduce it to the maximum level as a major source of energy,” but there are challenges regarding its introduction. To discuss the appropriate share of renewables in power generation, four organizations, including the IEEJ, presented analyses based on simulations from the perspectives of adjustment capacity, transmission capacity, natural conditions, and others. After the big picture and limits on introducing renewables from these perspectives were indicated, the organizers suggested setting a share of 50 to 60% of power generation as a “reference target level” for renewables for more in-depth discussions. Several members requested that several scenarios with different levels of renewables be established for the Committee to compare and discuss.

The rest of the electricity supply will be provided by thermal power and nuclear. The organizers proposed setting tentative target levels of around 30-40% for thermal power with CCUS and around 10% for hydrogen ammonia for the upcoming discussions. To reach carbon neutrality, thermal power must be combined with CCUS or use zero-emission fuels (hydrogen and ammonia). Achieving this would require innovation, but if renewable energy is to be increased as a major power source, thermal power will need to play an essential role in ensuring supply stability by providing adjustment capacity and maintaining grid inertia. For nuclear power, several members requested that the government set out a clear policy to restart and replace nuclear power plants in view of the increasing difficulty of securing technical staff in the nuclear industry. The discussions on power generation were wrapped up last year, and the organizers announced that discussions on the demand side will start from the next meeting.

On December 25, 2020, the government’s Committee on the Growth Strategy released the Green Growth Strategy as an action plan for achieving carbon neutrality, setting targets and roadmaps for 14 key areas. The action plan included ambitious targets such as introducing 30 to 45 GW of offshore wind power by 2040 and making 100% of new car sales electric vehicles by the mid-2030s. A framework for achieving these targets was unveiled, which includes establishing a 10-year, 2 trillion yen fund at NEDO to encourage private-sector investment, along with utilizing economic initiatives including carbon pricing and policy tools such as regulatory reforms and, standardization.

A supply-demand crunch and LNG shortages have emerged since the start of the year, causing wholesale electricity and spot LNG prices to spike and once again highlighting the importance of energy security. It was estimated in one of the Strategic Policy Committee meetings that electricity generation would grow by 30% to 50% by 2050 from current levels. Further, for non-electricity demand, a total renewal of infrastructure will be required for decarbonization. Constant efforts are needed to firmly maintain a stable and inexpensive energy supply while pursuing decarbonization.



2. Developments in Nuclear Power

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On December 17, under the principle of not possessing plutonium without specific purposes, the Federation of Electric Power Companies of Japan released a new plutonium thermal use (pluthermal) program for maintaining the balance between the supply and demand for plutonium.

With no prospects in sight for commencing the operation of fast breeder reactors, which consume plutonium, and with most light-water reactors being shut down, attention is turning to changes in the amount of plutonium inventory once the reprocessing business begins. This makes it important to restart existing reactors that can burn MOX fuels also from the perspective of nuclear non-proliferation.

The new program aims to start the pluthermal program in at least 12 reactors by FY2030, suggesting that the number of operating reactors must increase from the current nine (of which four use MOX fuel). Developments must be watched, including efforts by the power companies to restart their plants.

Overseas, Canada released an action plan for introducing small modular reactors (SMRs) on December 18, 2020. This envisages various organizations joining forces as “Team Canada” to launch the first SMR by the late 2020s, and boosting employment and economic development through SMRs by involving ethnic minorities as well as women and the younger generation.

The plan also clarifies the current situation and the next steps regarding the necessary actions for introducing SMRs set out in the roadmap released in November 2018. The actions are categorized based on the entities that should implement them (such as the government, regional municipalities, companies, and civil organizations) to clarify “who should do what.” The fact that a specific action plan involving various actors has been established is evidence that Canada has been conducting broad-ranging discussion on the introduction of SMRs and is seriously committed to the project.

In China, the construction of San’ao Unit 1 began in Zhejiang Province on December 31. The power station plans to build six reactors, all of them a Hualong One (HPR1000), China’s domestic reactor. Hualong One is already in operation in China and has also been selected for Karachi Units 2 and 3 currently under construction in Pakistan. China also began constructing its second demonstration fast reactor (CFR-600) in Fujian Province on December 27. Building up experience in the construction of third- and fourth-generation reactors, China is expected to further strengthen its presence in the global market going forward.



3. Recent Developments in the Oil and LNG Markets

Tetsuo MORIKAWA, Senior Economist, Manager
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Oil and spot LNG prices have been rising since the start of 2021. The prices started the year at \$51/bbl for Brent and \$14/Mbtu for spot LNG for Asia but on January 13, Brent surpassed \$56/bbl and spot LNG for Asia exceeded \$31/Mbtu.

Oil prices have been heading up since last November due to expectations for the recovery of oil demand and the success of OPEC Plus' joint production cut. On January 5, OPEC Plus agreed to roll back its production cut from 7.2 mb/d in January to 7.125 mb/d in February and 7.05 mb/d in March. However, without clear prospects for an end to the coronavirus pandemic, Saudi Arabia announced it will conduct a voluntary production cut of 1 mb/d in February and March. This would push up the collective OPEC Plus reduction to over the level of reduction in the latter half of 2020 (7.7 mb/d). This voluntary cut came as a surprise to the market and pushed prices up. Also, the impact of financial markets on prices cannot be ignored. In particular, the Democrats won two seats in the Georgia Senate runoff election and avoided a "gridlocked Congress." This gave the market confidence that the Biden administration is now in a better position to implement its 1.9 trillion-dollar economic package, raising expectations for an economic recovery and sending oil prices higher alongside stock prices.

The number of Covid-19 cases continues to rise even though vaccination has begun in many countries. Many people also fear that vaccination will not proceed as hoped. In its Oil Market Report dated January 19, the International Energy Agency revised its 2021 demand forecast downward by 0.3 mb/d to 96.6 mb/d, expecting a slow recovery of oil demand due to the pandemic and sluggish economic activity. Nevertheless, a sharp fall in oil prices is unlikely in the short term given Saudi Arabia's determination to maintain current market conditions through voluntary production cuts.

The surge in the spot LNG price for Asia was caused by a tight LNG supply-demand balance resulting from rising demand for spot LNG associated with unusually cold weather, a series of production troubles in Australia, Malaysia, and Qatar, and shipping capacity shortages. However, LNG is traded mainly through oil indexed long-term contracts in Asia and spot LNG transactions account for only 20-30% of the total, and therefore spot prices do not represent prices for the whole Asian LNG market. For Japan, the average LNG import price is expected to remain at around \$7-8/Mbtu from January through March though some buyers have reportedly purchased spot LNG at high prices. High prices may be a serious problem for individual companies that purchased expensive spot LNG, but their impact on the average import price for Japan as a whole should be limited. Meanwhile, some emerging LNG importers depend heavily on spot LNG. While most of those importers purchase LNG for power generation, electricity tariffs are often kept low by government policy. In these cases, high spot LNG prices would make LNG-fired thermal power unprofitable. The Asian LNG market is currently diversifying from oil-indexations, and the fact that different price volatilities exist is increasing the risk for market participants. The current surge in spot prices is a reminder of the need for a benchmark LNG price that reflects the supply and demand in the whole Asian market.



4. Update on Climate Policies

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At the Committee on the Growth Strategy that met on December 25, 2020, the Ministry of Economy, Trade and Industry reported on the “Green Growth Strategy towards 2050 Carbon Neutrality.” In terms of budget, the Strategy features establishing a 2 trillion yen fund (Green Innovation Fund) to support companies taking on ambitious innovation challenges over the next 10 years in the following key areas: (1) greener electricity and electrification (including next-generation battery technology), (2) realizing a hydrogen energy society, and (3) CO₂ sequestration and reuse. In terms of tax systems, tax benefits to encourage investments towards carbon neutrality will be established and tax benefits for research and development will be increased. Further, action plans were formulated for 14 key areas including offshore wind power, fuel ammonia, hydrogen, automobiles and batteries, and carbon recycling.

On January 28 the third supplementary budget for fiscal 2020 was approved by the Diet. For achieving a greener society, the budget included (1) 2 trillion yen for establishing the Green Innovation Fund, (2) 109.4 billion yen for establishing the Green Housing Point System (in which points are given to individuals purchasing high energy-efficiency housing), and (3) 11.7 billion yen for expanding the use of electric vehicles in tandem with the introduction of renewable electricity or chargers/dischargers that can serve as emergency power supplies in a disaster (the 400,000 yen subsidy for EV purchases is raised to 800,000 yen when purchased together with 100% renewable electricity).

Looking at the green recovery plans of other countries, Germany is spending 9 billion euros on investment packages for promoting hydrogen technologies (including the support for the switchover to hydrogen in the industrial sector such as the steel and chemical industries by providing funding for investment in electrolyzers), and 8 billion euros on the “innovation premium” (which doubles the subsidy that a consumer receives when buying an EV) and for expanding the charging infrastructure and investing in research and development for EVs and batteries. Meanwhile, France is investing 6.7 billion euros on the energy renovation of buildings, 2 billion euros on the development of green hydrogen, and 1.9 billion euros to support the demand for clean vehicles. The EU and the UK are currently considering the details of their green recovery plans.

In China, regarding the national emissions trading system, the 2019-2020 allocation plan of emission allowances for the power sector was released on December 30, 2020 followed by interim modalities on the management of emissions trading on January 5, 2021. According to these provisions, the covered companies must report their emissions for 2020 by March 31, 2021. The ecology and environment authorities at provincial level will allocate allowances to the companies which will then submit and settle these allowances before the deadline to be set by the Ministry of Ecology and Environment. However, actual transactions are not expected to start until mid-2021 due to delays in the final approval of the trading platform.

On January 6, 2021, the U.S. Internal Revenue Service released the final regulations regarding the tax credit for CO₂ sequestration, thus putting tax credit into effect. Formerly, facilities and CO₂ capture equipment were eligible for tax credit only if their construction had begun by 2024. However, this deadline was extended for two years in the bipartisan package consisting of a 1.4 trillion-dollar government spending bill and a 900 billion-dollar coronavirus relief bill which passed Congress on December 21. The package also allocates 35 billion dollars to R&D and commercialization of technologies including small modular reactors, CO₂ utilization, and direct air capture.



5. Update on Renewable Energies

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Positive signs are emerging for the Japanese offshore wind power industry. The government designated offshore wind power as a key for making renewables a major power source and set a goal of introducing 10 GW of offshore wind power by 2030 and 30 to 45 GW by 2040 in the Green Growth Strategy formulated under the 2050 carbon neutrality target. Japan has been working on expanding its wind power capacity, mainly land-based wind power, since the 2000s. However, as of FY2019, wind power accounted for just 0.7% of the total power generation, with a mere 16 MW generated offshore. While it is hoped this ambitious government goal will fuel a boom in Japan's offshore wind power business, there are various challenges to overcome.

Surrounded by the sea, the island nation of Japan, like Britain, is considered to have a high potential for offshore wind power. However, while Britain has relatively shallow waters along its long coastline, making it easier to install fixed-foundation offshore wind turbines, Japan has few such shallow areas. As such, Japan needs to use "floating" offshore wind power which generates power with turbines floating on the sea, but these are more costly both to install in deep-water areas and to maintain once they have started operation. Building larger wind turbines that can generate more power reduces costs, but this will require large work barges and upgrading of port facilities for loading wind turbine foundations.

In addition to these challenges in costs and infrastructure, establishing a competitive supply chain is also a key point. Considering that Japan currently has no wind turbine manufacturing centers in the country and relies on imports, the Green Growth Strategy has set a target of raising the domestic procurement ratio over the entire equipment lifecycle to 60% by 2040. Offshore wind power is a broad industry similar to the auto industry, with around 10,000–20,000 parts needed to build a turbine. Accordingly, growth of the offshore wind power industry is expected to benefit a wide range of related industries and create jobs. Furthermore, increasing the domestic procurement ratio is expected to reduce the cost of importing parts and large components from Europe and China.

For Japan, it is essential to build a supply chain that enhances the nation's international competitiveness, while also increasing the domestic procurement ratio. Offshore wind power is gaining momentum in Europe and China as well as in Taiwan and South Korea backed by the global trend toward decarbonization. A report issued by the Global Wind Energy Council (GWEC) last August predicts that more than 234 GW of offshore wind power capacity will be installed by 2030, with particularly remarkable growth in Asia.

With the promise of growth in offshore wind power in the Asia region, mainly in Taiwan and South Korea, Japan can make its wind power-related industries internationally competitive by serving as the hub in Asia, promoting component exports and leading the establishment of an Asia-wide supply chain while also fostering its domestic industry. Taking advantage of the positive momentum, Japan must establish frameworks for domestic and overseas measures to develop a solid offshore wind power industry.



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