



IEEJ e-NEWSLETTER

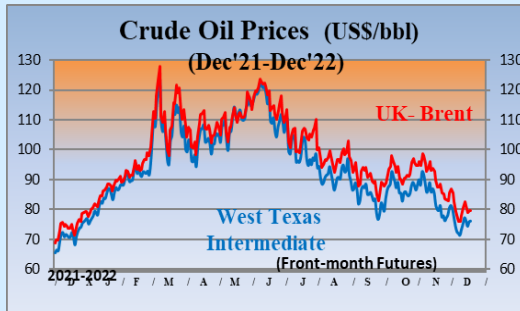
No. 240

(Based on Japanese No. 231)

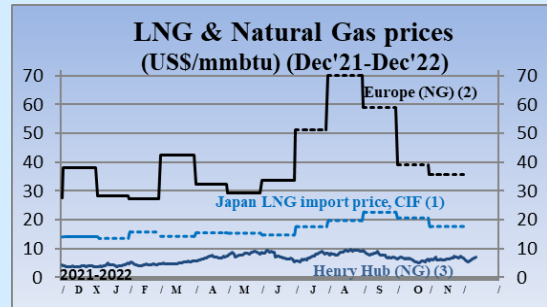
Published: December 20, 2022

The Institute of Energy Economics, Japan

(As of December 20, 2022)



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)



Source: x-rates.com



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

Contents

Summary

【Energy Market and Policy Trends】

1. Developments in Nuclear Power
2. Recent Developments in the Oil and LNG Markets
3. Update on Climate Change, Energy Conservation, and Renewable Energies

【Global Monitoring】

4. Europe and US: Post-Midterms U.S. Policy in the Spotlight
5. China: Return to Coal Seems Temporary, and the Way Forward for Net-Zero Carbon Emissions
6. ME: Limited Military Attacks and Terrorist Incidents in Various Regions
7. Russia: Russia Seeks Cooperation with Iran amid Sanctions



Summary

1. Developments in Nuclear Power

The Nuclear Energy Subcommittee discussed the operational lifetime of nuclear power plants. To achieve carbon neutrality, it is essential to maximize the use of nuclear energy, including by extending operational lifetime.

2. Recent Developments in the Oil and LNG Markets

Two LNG projects in the United States have clearer timelines for their upcoming investment decisions. European gas prices have stabilized at least for the moment. International crude oil prices are under downward pressures with great uncertainty.

3. Update on Climate Change, Energy Conservation, and Renewable Energies

At COP27, agreement was reached to establish a “Loss and Damage” Fund. Furthermore, the need to secure private-sector investment for decarbonization and the importance of clean hydrogen were emphasized.

4. Europe and US.: Post-Midterms U.S. Policy in the Spotlight

Republicans won a majority in the House of Representatives in the U.S. midterm elections, resulting in a divided government. The fate of the last remaining Senate seat is critical. The U.S. energy policy and other issues after the midterm elections deserve close attention.

5. China: Return to Coal Seems Temporary, and the Way Forward for Net-Zero Carbon Emissions

China’s percentage of fossil energy consumption declined in the January-September period, but coal consumption increased both in volume and percentage. However, the return to coal is only temporary; the decarbonization policy will not change.

6. ME: Limited Military Attacks and Terrorist Incidents in Various Regions

In addition to Iran, where protests have spread nationwide and are dragging on, terrorist incidents have occurred in Turkey and Israel, and air-strikes have been carried out in retaliation against militant bases in Syria and northern Iraq.

7. Russia: Russia Seeks Cooperation with Iran amid Sanctions

In the third quarter of 2022, Russia’s GDP fell 4%, recording negative growth for the second consecutive quarter. With the military alliance with neighboring former-Soviet states fraying, Russia will seek to deepen cooperation with Iran, which, like Russia, is under the pressure of sanctions.



1. Developments in Nuclear Power

Emiri YOKOTA, Senior Researcher
Nuclear Energy Group, Strategy Research Unit

On November 2, the Polish government adopted a resolution to build a Westinghouse reactor (AP1000), the country's first nuclear power plant. By adopting the AP1000 technology, the country aims to become independent from Russian energy, and plans to build 6 to 9 gigawatts (GW) of Westinghouse reactors going forward.

On November 7, Canada's Cameco announced that it has signed a uranium supply agreement with China Nuclear International Corporation, a subsidiary of China Nuclear Industrial Group Corporation (CNNC). Neither the contract period nor the supply volume has been announced because this is a private contract, but it is highly noteworthy that China, which expects its energy demand to increase, has embarked on securing a stable supply of uranium for its nuclear power plants in order to decarbonize the country.

On November 8, the Nuclear Energy Subcommittee of the Advisory Committee for Natural Resources and Energy discussed the operational lifetime of nuclear power plants. Maximizing the use of existing power plants such as by extending their operational lifetime was one of the issues raised under "Future Approach to Nuclear Energy Policy" in the document "Rebuilding Japan's Stable Energy Supply" submitted by the METI Minister at the August 24 GX (Green Transformation) Implementation Council.

Meanwhile, the Nuclear Regulation Authority held a hearing of the Agency for Natural Resources and Energy at its October 15 regular meeting, and decided that "the operational lifetime policy will be discussed based on the legal framework of the nuclear utilization policy, and that the regulator will clarify the regulations for ensuring the safety of aging reactors." At its regular meeting on November 2, the Authority proposed a new system that combines the existing permission for lifetime extension and technical evaluation of ageing deterioration, and began deliberations.

The proposed new system requires operators to assess the deterioration of safety-critical equipment and conduct a technical evaluation of aging deterioration at least every 10 years after 30 years of operation, and, based on the results, to formulate a long-term facility management plan to manage the deterioration of facilities. It does not mention any limit for operational lifetime. In order to ensure a stable energy supply and achieve the international commitments of a 46% GHG reduction by 2030 and carbon neutrality by 2050, it is essential to maximize the use of nuclear energy, including by extending operational lifetime, as well as to restart existing power plants promptly. Developments must be closely watched.

On November 22, the Japan Atomic Energy Agency (JAEA) announced that it has signed an agreement with Poland's National Center for Nuclear Research to participate in Poland's project to build an experimental high-temperature gas-cooled reactor. JAEA plans to assist with the basic design of the reactor and other proprietary technologies, aiming to complete the construction in the late 2020s.



2. Recent Developments in the Oil and LNG Markets

Hiroshi HASHIMOTO

Head of Gas Group

Fossil Energies & International Cooperation Unit

East Africa shipped its first LNG into the global LNG market in early November from the Coral Sul Floating LNG project offshore Mozambique. As a number of LNG sales and purchase agreements have been concluded with cumulative volumes involved amounting to 60 million tonnes per year so far in 2022, the momentum has been built for more investment activities in the LNG production sector. Investment in LNG production projects has been a major focus in the LNG industry for several years. Some projects have shown clearer timelines of their development. Sempra's Port Arthur LNG Phase 1 (13.5 million tonnes per year) and Energy Transfer's Lake Charles LNG (16.5 million tonnes per year) both in the United States have revealed their respective FID targets in the first quarter of 2023, which should see their LNG production from 2027.

Qatar's national energy company, QatarEnergy, announced its selections of international partners in the NFS Expansion project of 16 million tonnes per year sequentially in September and October - TotalEnergies, Shell and ConocoPhillips. QatarEnergy previously announced its selections of partners in the NFE Expansion project of 32 million tonnes per year in June and July, including the above three companies, as well as ENI and ExxonMobil. Among the two expansion projects, 12 million tonnes per year in total will be owned by the partners from Europe and the United States.

As for European gas prices, TTF contract for December 2022 fell around 70% from €350 / MWh (over USD 100 / million Btu) in late August to an average €117 / MWh (USD 35 / MBtu) in November. Prices have fallen notably due to mild weather and ample wind power generation in October, as well as sluggish economic activities, reducing gas demand for power generation.

EU Energy ministers in late November 2022 agreed that the Agency for the Cooperation of Energy Regulators (ACER) should develop a new complementary price benchmark for LNG, as an alternative to the TTF. However, it is expected to be difficult to establish an alternative transparent benchmark as TTF, as many LNG deals are negotiated bilaterally and privately. While discussions have been also underway for some time to introduce wholesale price caps in the European gas market, EU member countries are still divided on the issue.

International crude oil prices have been under downward pressures, with the Brent futures price declining to USD 85 per barrel on 23 November. With concern over economic slowdowns and the surge of gasoline inventories in the United States, the G7 price cap on Russian oil is not necessarily viewed as effective as reducing Russia's oil exports, as Russia has already been selling oil at a USD 25 discount to the Brent benchmark. Although Russia has stated that it would stop energy exports to those countries who join the price cap scheme, the G7's and EU's ban on Russian oil has been built in their policies for some time. Therefore, Russia is expected to further increase exports of oil to non-G7 and non-EU markets.



3. Update on Climate Change, Energy Conservation, and Renewable Energies

Sichao KAN,
Senior Researcher
New Energy System Group
Electric Power Industry & New and Renewable Energy Unit

COP27 adopted the Sharm El Sheikh Implementation Plan, which outlines strengthened efforts to combat climate change, and a mitigation work program that calls for the steady implementation of climate change mitigation measures through 2030. After years of negotiations between developed and developing countries on how to assist developing countries in responding to loss and damage, the establishment of a “Loss and Damage” Fund was finally adopted this year. Hereafter, a transitional committee will be set up to discuss the specifics of the funding arrangements.

Each year, securing investment is a key agenda item in COP discussions. The October edition of the International Energy Agency’s (IEA’s) World Energy Outlook 2022 estimates that the investment in clean energy technologies for achieving carbon neutrality by 2050 will amount to \$4.2 trillion per year in 2030. The private sector will play a major role in securing such enormous investments, with the IEA estimating that the private sector will fund \$3 trillion of these investments. Accordingly, there is increasing attention on the clean energy initiatives of private-sector financial institutions and investors. The number of financial institutions that have joined the Race to Zero campaign (to reach net-zero emissions in 2050) launched in 2020 by the UNFCCC reached 550 at the time of COP27 (with total assets of \$150 trillion), up 100 since COP26. In addition, The Global Investor Statement submitted to governments before COP27 by The Investor Agenda (launched in 2018), an institutional investor initiative to promote carbon reduction, had been endorsed by 602 institutional investors (representing \$42 trillion in total assets under management).

The stature of hydrogen is increasing each year at the COP event. Hydrogen Breakthrough is one of the five areas of the Breakthrough Agenda, an initiative launched at COP26 last year to accelerate the cost reduction of clean energy technologies to achieve the Paris Agreement goals. Hydrogen Breakthrough aims to make affordable green hydrogen and low-carbon hydrogen available globally by 2030. At COP27, several hydrogen-related programs were announced under the Breakthrough Agenda, including the establishment of 100 hydrogen valleys as hubs for using hydrogen and plans for green hydrogen investment. In addition, a COP27 High-level Roundtable on Investing in the Future Energy: Green Hydrogen announced the launch of the Global Renewable Hydrogen Forum. The establishment of the Hydrogen for Development Partnership (H4D), a World Bank initiative to support low-carbon hydrogen in developing countries, was also announced at the G20 held concurrently with COP27.

In Japan, the third GX (Green Transformation) Implementation Council was held on October 26, and Prime Minister Kishida requested that a concrete proposal for a growth-oriented carbon pricing system be presented. The key points of the institutional design are to establish a mechanism to improve predictability for companies and effectively attract bold investments from the private sector, to fully accelerate domestic decarbonization investments and energy-related technologies, and to link these to Asia’s huge decarbonization demand.



4. Europe and US: Post-Midterms U.S. Policy in the Spotlight

Ayako SUGINO, Senior Researcher
Associate Professor
Musashino University

In the U.S. midterm elections held on November 8, Democrats won 213 seats and Republicans 220 in the House of Representatives (as of November 27) as opposed to 222 for Democrats and 212 for Republicans pre-election. In the Senate, Democrats secured 50 seats, unchanged from before the election, while Republicans won 49 seats compared to 50 before. The remaining seat is still awaiting the runoff in Georgia. As is customary in midterm elections, the President's party lost in the House of Representatives (fewer seats), but the defeat was relatively small in view of the president's low approval rating.

The fate of the last remaining Senate seat is critical. For the past two years, the two parties have been deadlocked at 50-50 in the House, and on many occasions Vice President Harris had to cast the last vote to pass a Democratic bill. However, the climate bill, which was to be legislated within 2021, ran into difficulties due to opposition from Democratic Senator Joe Manchin and was forced to be drastically scaled back. This was not the first time the congressman had held the casting vote and wielded influence over the Democratic caucus to make the bill "less liberal." If the Georgia runoff election gives Democrats 51 seats in the Senate, they will be free from the "Manchin problem" and will be able to pursue policies more characteristic of their party.

Nevertheless, since the U.S. will have a divided government from January 2023, legislation that is typically Democratic will struggle to pass. In the energy and environment sector, the government has already achieved significant legislative success by passing the Infrastructure Investment and Jobs Act for infrastructure resilience (and climate change adaptation) in November 2021, which includes expansion of the EV charging network and transmission lines, and the Inflation Control Act in August 2022, which includes \$68 billion for widespread use of decarbonization technologies. Over the next two years, the goal will be to steadily implement both laws and produce real effects. The two key points to watch are as follows.

First, many of the energy and environmental measures in the Inflation Control Act are tax credits, which private-sector entities cannot receive unless they first make an eligible investment or purchase an eligible product. Federal agencies such as the Treasury Department, the Internal Revenue Service, and the Department of Energy have only just initiated the public comment process to develop new guidance and regulations prior to accepting tax credit applications. The tax credit eligibility requirements and procedures must then go through the prescribed procedures and are not likely to be established until mid-2023 or later.

Second, with the implementation of the Inflation Control Act and its very lengthy administrative process, the Republicans may attempt to roll back the law. Since the Republican Party does not have enough seats to override a presidential veto, they cannot scale back the climate change measures through regular legislation. As a result, they will likely demand cuts to the climate change budget during the budget bill process by weaponizing a government shutdown, as was frequently done during the second term of the Obama administration.

The 2024 election cycle will soon get underway. The battles both on and off the floor, as well as what the Democratic Party can achieve during its four years in power, will be interesting to watch.



5. China: Return to Coal Seems Temporary, and the Way Forward for Net-Zero Carbon Emissions

Li ZHIDONG, Visiting Researcher
Professor at Graduate School
Nagaoka University of Technology

China accounts for 51% of global coal production, 54% of coal consumption, and 31% of CO₂ emissions (2021 values, BP Statistics), and the course of its decarbonization and energy security is attracting global attention.

According to the National Bureau of Statistics (NBS), the National Energy Administration (NEA), and other sources, China's coal production in the first nine months of 2022 increased by 11.2% year-on-year to 3.32 billion tonnes while imports fell by 12.7% to 201 million tonnes, oil production increased by 3% to 154 million tonnes while imports fell by 4.8% to 388 million tonnes, and natural gas production increased by 5.4% to 160.1 billion m³ while imports fell by 9.5% to 112.0 billion m³. The import dependence of nominal consumption (production + imports – exports) is estimated to have declined by 1.5 percentage points to 5.6% for coal, by 1 point to 69.6% for oil, by 3.7 points to 41.2% for natural gas, and by 2.7 points to 21.9% for fossil energy as a whole. In addition, the amount of non-fossil electric power that is considered domestic increased by 5.7% to 2.3 trillion kWh (equivalent to 689 million coal-equivalent tonnes of primary electricity; power generation efficiency was 40.9%). As a result, the import dependence of primary energy consumption fell by 2.2 percentage points to 18.4%. The energy security situation has improved as the domestic production of primary energy, including non-fossil power, increased while fossil energy imports decreased. Note that according to the National Development and Reform Commission (NDRC), stocks of coal at power plants for generation have doubled since September to more than 170 million tonnes, a record high compared to the same period last year.

Meanwhile, progress toward decarbonization was mixed. According to the NBS, primary energy consumption increased by 2.5% year-on-year from January through September. This is lower than the economic growth rate for the same period (3%). The ratio of non-fossil energy to primary energy consumption increased by 0.6 percentage points. In contrast, the ratio of oil and natural gas fell by 0.7 and 0.3 percentage points, respectively, while the ratio of coal rose by 0.4 percentage points. The ratio of coal has declined for 10 consecutive years, from 70.2% in 2011 to 56% in 2021, and if it increases for the full year in 2022, it will be the first time in 11 years. The breakdown of consumption by energy source is not yet available, but if we combine relevant information, coal consumption is estimated to have gone up 3%, oil consumption down 1.6%, natural gas consumption down 1.2%, and fossil energy consumption up 1.5%. Consumption of oil and natural gas, which are highly dependent on imports and whose prices have risen sharply since the Ukraine crisis, has declined, while consumption of coal, which enjoys a high self-sufficiency rate and is underpriced, has increased. In other words, there has been a return to coal in China, with consumption growing and its ratio increasing simultaneously.

How long will the return to coal continue despite being incompatible with decarbonization? In October 2021, China submitted a long-term emission reduction strategy to the United Nations, specifying the “3060 target” to reach peak CO₂ emissions before 2030 and achieve net-zero carbon emissions before 2060. The strategy states that increase of coal consumption will be strictly controlled until 2025, and then the consumption will be reduced gradually from 2026. Measures to control coal consumption are also being strengthened. For example, on November 16, the NDRC, NEA and NBS issued a notice stating that an increase in renewable electricity consumption may be exempted from the total volume control for energy consumption. By doing this, China allowed any necessary amount of renewable energy to be used as it contributes to both decarbonization and a stable energy supply. Together with the regulatory target ratio for renewable electricity consumption that is already in place, this system is expected to increase the use of renewable electricity and reduce coal power generation and coal consumption. As a result of this holistic approach, the return to coal will be temporary and the policy of aiming for net-zero carbon emissions will not change, but actual market trends in the future deserve close attention.



6. ME: Limited Military Attacks and Terrorist Incidents in Various Regions

Sachi SAKANASHI, Senior Research Fellow
Assistant Director, JIME Center

On November 6, COP27 was held in Sharm El Sheikh, Egypt, and on November 20, the football World Cup, the first ever in the Middle East, opened in Qatar in spectacular fashion. At the same time, however, turmoil spread in the Middle East with a series of terrorist attacks and limited military strikes throughout the region, and anti-government protests have been dragging on in Iran.

The protests that began in Iran in mid-September over the death of a woman have spread, with each new death in clashes with security forces sparking a new protest, and have continued intermittently throughout Iran for over two months. A terrorist attack by the Islamic State (IS) militant group killed 13 people at a shrine in Shiraz in southern Iran, and the Iranian government is on the alert for weapons and armed forces coming in from outside, taking advantage of the domestic instability to spread chaos in the country. In particular, the Kurdish region in the northwest has seen many attacks by separatist militant groups on security forces in the past, and Iran's Islamic Revolutionary Guard Corps has repeatedly attacked the bases of these militant groups in neighboring Iraq.

In Iraq, where the Sudani government was inaugurated at the end of October, Turkey carried out airstrikes on a Kurdish militant base in northern Iraq in retaliation for the mid-November bombing in downtown Istanbul that killed six people. Turkey simultaneously air-bombed a Kurdish organization in Syria, while Israel also continues to conduct air-strikes in Syria, targeting Iranian military bases built within Syrian borders. Meanwhile, a drone attack off the coast of Oman struck an oil tanker owned by a wealthy Israeli, which the Israeli government condemned as "the work of Iran."

In Israel, former Prime Minister Benjamin Netanyahu's support base won a majority in the general election held on November 1 and Mr. Netanyahu began working to build a coalition. The coalition is also expected to include a far-right religious nationalist party that has gained votes on the back of the intensifying conflict with Palestine. On November 23, there were explosions at two locations in Jerusalem, killing one Israeli and injuring more than 20. The Palestinian Islamist organization Hamas released a statement, calling the incident the consequence of the Israeli occupation.

Ahead of COP27, Saudi Arabia's Crown Prince Mohammed, together with Egypt's President Sisi, held the Middle East Green Initiative Summit to demonstrate his enthusiasm to achieve the climate change targets in the Middle East. Crown Prince Muhammad was reportedly scheduled to visit Japan on November 19, in addition to Indonesia, South Korea, and Thailand around the time of his attending the G20 Summit and the APEC Summit. However, the visit was cancelled shortly before the event and he visited Doha for the opening ceremony of the football World Cup instead. As the Crown Prince's delegation also cancelled the visit to Japan, the Japan-Saudi Vision 2030 Business Forum scheduled for November 21 was called off.



6. Russia: Russia Seeks Cooperation with Iran amid Sanctions

Sanae KURITA, Senior Researcher
Global Energy Group 2, Strategy Research Unit

Gazprom's natural gas production between the beginning of 2022 and November 15 fell 19.2% (85.3 billion m³) year-on-year to 359.7 billion m³. Gas exports to non-CIS countries fell 43.4% (71.6 billion m³) to 93.2 billion m³, while the company's domestic sales also declined 5.9% (12.3 billion m³) (Gazprom, November 15). The overall supply to Europe plummeted because the drop in gas supplies via Nord Stream and Yamal Europe was greater than the increase in supplies to the region via Turk Stream. Russia's GDP for the third quarter of 2022 announced on November 16 declined 4% year-on-year, shrinking again after shrinking 4.1% in the previous quarter (Interfax, November 22). The causes are assumed to be the downward pressure from the impact of tighter economic sanctions after Russia invaded Ukraine and declining domestic demand. The Central Bank of Russia foresees a further drop in GDP growth rate of 6.4–7.8% in the fourth quarter.

As the sanctions exert greater pressure, Russia is claiming to the outside world that it has common values and cooperative relations with the former-Soviet countries of Central Asia and the Caucasus, but things have not played out as hoped. At the summit of the Collective Security Treaty Organization (CSTO), a Russian-led military alliance, held on November 23, the chair country Armenia refused to sign the draft joint declaration, and footage of the stunned faces of the participating leaders was broadcast to the world. Armenia vehemently argued that the draft lacked the CSTO's clear political view on Azerbaijan's actions over the disputed Nagorno-Karabakh region, which Azerbaijan could interpret as acceptance by the CSTO of further invasion of Armenia (TASS, November 24). Meanwhile, Kazakhstan, which has a policy of multi-vector diplomacy, stressed the need to seek a peaceful solution to the Ukraine crisis together, and supported the policy of seeking a diplomatic resolution of the Armenian-Azerbaijani conflict and providing support to Armenia (Kazakh President's Office, dated November 23). When anti-government protests spread throughout Kazakhstan in January of this year, Kazakhstan asked the CSTO to dispatch support units to suppress the protests. While the member countries are in different circumstances and have their own agendas, the event vividly showed the different views of CSTO members.

Amid talks of Russia's loss of unifying force over the former-Soviet countries, the country's active approach toward Middle East countries is eye-catching. In particular, Russia and Iran have often stressed both in and outside the countries that they are very close. At the end of October, Russia and Iran held talks on economic cooperation in several areas. In the energy sector, they agreed to explore cooperation in upstream oil and gas development in Iran, as well as oil swaps, oil products and gas pipeline construction, development of LNG complexes, and electricity supply through Azerbaijan. Trade between the two countries increased 81.4% year-on-year from \$2.2 billion in 2020 to \$4 billion in 2021, and recorded \$2.8 billion in the first half of 2022 alone, up 45% from the same period last year (TASS, November 1). Also in September, Iran was formally admitted to the Shanghai Cooperation Organization (SCO), a regional security framework led by China and Russia. Russia's efforts to deepen relations with Iran, which is also under the pressure of U.S. sanctions, must continue to be monitored.



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)



***IEEJ e-Newsletter* Editor: Yukari Yamashita, Managing Director**
***IEEJ j-Newsletter* Editor: Ken Koyama, Senior Managing Director**
The Institute of Energy Economics, Japan (IEEJ)
Inui Bldg. Kachidoki, 13-1 Kachidoki 1-chome, Chuo-ku, Tokyo 104-0054, Japan
Tel: +81-3-5547-0211 Fax: +81-3-5547-0223



IEEJ : December 2022 ©IEEJ 2022