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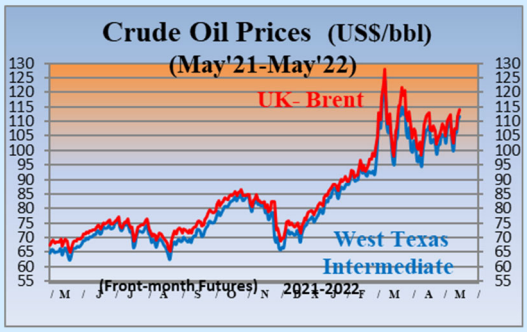
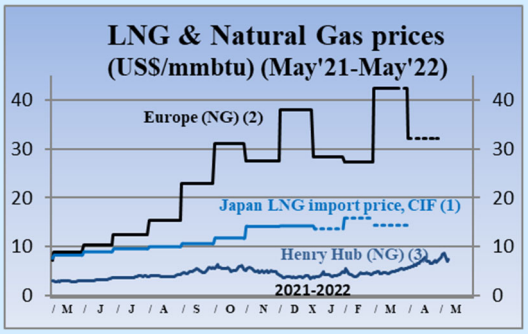
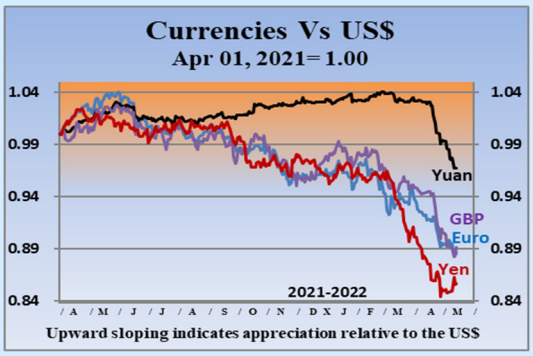


Sources:
(1) DOE-EIA
(2) Investing.com



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

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To strengthen energy security under the current uncertain international energy situation, it is necessary to fully leverage domestic renewable energies and hydrogen to minimize reliance on imports.

1. Developments in Nuclear Power

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On April 1, the International Atomic Energy Agency (IAEA) announced that Russian forces have withdrawn from Ukraine's Chernobyl nuclear power plant. The withdrawal has also been confirmed by an official statement from Russia, in addition to a report by Ukraine to the IAEA. Subsequently, Ukraine also reported to the IAEA the first change of plant staff since the start of the Russian invasion. Also, according to an April 13 statement, an IAEA expert team led by Director General Rafael Mariano Grossi is finalizing preparations for sending missions to help ensure safety and security at the power plant. Radiological assessments and repairs of remote safeguards monitoring equipment will also be conducted at the plant.

The Zaporizhzhia (Zaporozhye) nuclear power plant which was also attacked is still under Russian control. The plant remains in operation according to an IAEA announcement, but the fact that the country's key electricity supply facility is in foreign hands is an extreme threat to national security.

It is earnestly hoped that Ukraine will regain full sovereignty and achieve reconstruction, including restoring the two plants to their condition before the invasion. The international community should hold Russia responsible for the invasion and impose serious consequences to prevent similar acts by any other country in the future.

Last month's Newsletter reported on Belgium's decision on a ten-year extension of the operating life of two of its nuclear power plants, and the UK has now made similar moves. On April 7, the UK government announced the British energy security strategy, a development policy package for wind, solar PV, and hydrogen to become more self-sufficient in energy. The plan also sets an extremely ambitious target of adding up to 24 GW of nuclear capacity by 2050 to provide 25% of the country's power supply. In expanding the use of nuclear power, it is crucial to execute continuous measures based on a long-term plan. Whether the strategy will be implemented consistently as a long-term policy rather than a knee-jerk response to the invasion of Ukraine must be carefully watched.

On April 4, the Japan Bank for International Cooperation (JBIC) announced that it has made a $110 million investment in NuScale, a US developer of small modular reactors (SMR). Two Japanese companies, JGC Holdings Corporation and IHI, have already invested in NuScale. JBIC's investment will be executed through a special-purpose company established by the two parties. As the global competition to develop SMRs intensifies, it is hoped that this investment will strengthen Japan-US cooperation and the countries' competitiveness in nuclear power.

2. Recent Developments in the Oil and LNG Markets

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Oil and natural gas prices remain at high levels. Since the start of April, Brent has been trading at $100–110/barrel and natural gas at $30–35/Mbtu for spot LNG for Asia and for the Dutch TTF and at $6–8/Mbtu for US Henry Hub. Japan's LNG import price is unannounced as of April but is estimated at around $16/Mbtu.

In its April 13 Oil Market Report, the International Energy Agency (IEA) forecasted a drop in Russian oil production of 3 mb/d in May and beyond due to the impact of economic sanctions and import bans by the US and other countries. In response to this decrease in exports, importers have begun releasing their stocks in unprecedented amounts. The IEA and the US have decided to release 300 million barrels in total (an average of 0.82 mb/d on an annual basis) in March and April. In the same report, the IEA predicts oil demand of 99.5 mb/d for 2022 and supply of 99.3 mb/d when factoring in the decrease in Russia's output and the increase in the output of OPEC and the US. This suggests that oil supply will turn to a surplus in 2022 including the release of reserves and assuming that the decline in Russia's output remains as estimated. Meanwhile, the industry stocks of OECD countries remain at low levels.

The impact of sanctions and embargoes on the price of natural gas varies greatly by region and pricing scheme, as the natural gas market is less globalized than that of oil. The EU is proposing that its member states fill their underground storage facilities to 80% by the beginning of November and is set to reduce its dependence on Russian natural gas. American and Qatari LNG are the most likely alternative supplies, but even so, Europe's increased demand for LNG will put upward pressure on spot LNG prices for Asia. The rise in Japan's average import prices, being mostly oil-indexed, is relatively modest even though spot LNG prices remain high. However, the supply-demand balance remains tight for the LNG market as a whole.

Russian forces are intensifying their attacks on eastern Ukraine. Civilian casualties are rising and the use of chemical weapons is suspected, with warnings that even nuclear weapons may be used. On April 7, the EU and the G7 member countries announced an import ban on Russian coal. Among fossil fuels, coal is a relatively easy fuel to ban, but the ban is still causing concern about power supply stability. EU Commission President Ursula von der Leyen has revealed that arrangements are being made to ban Russian oil. If civilian casualties increase further and chemical and even nuclear weapons are used in Ukraine, the EU will ban Russian oil and natural gas imports, or even remove all Russian financial institutions from SWIFT. If that happens, Russia's oil output will decrease by far greater amounts than the currently estimated 3 mb/d, and the oil market will once again see severe supply shortage, and the impact on natural gas and LNG markets will be even more serious. Thus, energy supply stability is facing a critical situation, particularly in Europe. However, it is also true that the risk of supply disruptions and soaring prices of fossil fuels will increase the economic advantages of renewables and nuclear power, and, combined with climate action, suppress the demand for fossil fuel in the medium to long term.

3. Update on Policies Related to Climate Change and Energy Conservation

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On April 5, the Intergovernmental Panel on Climate Change (IPCC) published the Working Group III contribution to the Sixth Assessment Report. The IPCC has three Working Groups, of which Working Group III studies measures for mitigating climate change. This report presented the analysis result that to limit warming to 1.5°C from pre-industrial levels, it is necessary to reach peak global GHG emissions before 2025 at the latest and to conduct deep and rapid emissions reductions by 2050. It also found that not strengthening existing policies would lead to a median global warming of 3.2°C by 2100. The report calls for strengthening measures for energy transition, including reducing the use of fossil fuels, introducing technologies that reduce or eliminate carbon, transporting hydrogen energy using ammonia and liquefied hydrogen, conserving energy on both the supply and demand sides, and taking measures for cities, agriculture, forestry and land use.

On April 6, US NPO American Council for an Energy-Efficient Economy (ACEEE) published the International Energy Efficiency Scorecard. The fourth issued since the first one published in 2012, this report ranks 25 countries and regions by their energy efficiency efforts. Japan ranked 7th this time, compared to 5th in the last report in 2018. France ranked 1st, followed by Britain and Germany. The ranking is based on 36 metrics for evaluating, first, overall national efforts such as setting goals and providing subsidies as well as specific energy consumption values, in addition to measures and energy saving results in the three other categories of residential/commercial, industry and transportation. The report evaluated Japanese industry as number 1 in the world but noted that there is room for improvement in the residential and commercial sector, with challenges particularly in standards compliance and labeling of buildings, as well as renovation of existing buildings. Meanwhile, the ranking underrates the fact that Japan has achieved the world's highest equipment efficiency under its Top Runner Programs, raising doubts about the impartiality and accuracy of the evaluations.

On April 18, South Korea's LG Energy Solution announced its collaboration with Indonesia's Aneka Tambang (a mining and metals company) and Indonesia Battery Corporation. The consortium aims to build a seamless production process that spans the exploration and refining of the raw material nickel, battery materials, and EV battery assembly. In Indonesia, a presidential decree to accelerate the development of battery electric vehicles (BEVs) was issued in 2019 to make Indonesia the BEV production hub of Asia. The decree presents a policy to raise the share of BEVs in the country's new car production to 20% by 2025. By investing in Indonesia, which has the world's largest nickel deposits, LG seeks to secure a stable supply of raw materials.

On April 14, Japan's Ministry of the Environment released a report on the national GHG emissions for FY2020, which were 1.15 billion tonnes, down 5.1% from the previous year. The total without forest absorption was 1.16 billion tonnes, which is a 21.5% decrease from FY2013 levels.

Also in Japan, the media had reported that the planned submission of revisions to the Building Energy Efficiency Act to the Diet would be postponed at least till the coming autumn. The revisions will require all new houses and small and medium-sized buildings to comply with energy efficiency standards starting from FY2025. However, in a sudden shift in policy, the revised Act was approved by the Cabinet on April 22, with the aim of legislating it during the current Diet session.

4. Update on Renewable Energies

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There is growing attention on hydrogen energy as Europe accelerates efforts to reduce its dependence on Russian natural gas following the invasion of Ukraine.

The REPowerEU plan released by the European Commission in March aims to make Europe independent from Russian fossil fuels well before 2030 and sets additional targets to those under Fit for 55 (the policy package for a 55% reduction of GHG emissions from 1990 levels in 2030). For hydrogen, the plan raised the target for green hydrogen supply from 5.6 million under Fit for 55 to 20 million tonnes, a jump of roughly 15 million tonnes. Of the 15 million tonnes, 5 million will be produced within the EU's borders while 10 million will be imported from outside. This will enable Europe to reduce its imports of Russian natural gas by 30% (50 bcm).

Changes are also being made to plans to import Russian hydrogen. In the European Hydrogen Backbone report issued by a consortium of European gas infrastructure companies in 2020, Europe had planned to transport hydrogen from the North Sea, Ukraine, and North Africa via pipelines and Russia was one of the candidate sources. However, Russia was removed as a candidate in the supplement to the report released in April. In its energy strategy revised in 2020 for the first time in 11 years, Russia included the use of hydrogen for the first time and set goals of exporting 200,000 tonnes in 2024 and 2 million tonnes in 2035. With exports to Europe, its key customer, now impossible, those goals are unlikely to be met.

In Japan, the Ministry of Economy, Trade and Industry has signed a Joint Statement of Intent on Sustainable Energy Cooperation with Russia's Ministry of Energy and a Memorandum of Cooperation on Hydrogen, Ammonia, CCS, and CCU/Carbon Recycling with Novatek and Gazprom in September 2021. Further, since 2020, JOGMEC has been working with Japanese and Russian private-sector companies on a feasibility study on the Japan-Russia ammonia value chain. As the Ukraine crisis deepens, however, plans to import Russian hydrogen and ammonia may be revised.

Amid the global trend toward carbon neutrality, worldwide demand for hydrogen and ammonia is expected to expand. However, hydrogen and ammonia exporters may use their renewable energy and CCS resources preferentially to meet their own goals. In addition, Europe's rapid exit from Russian natural gas and efforts to expand hydrogen imports may result in a race among countries to secure hydrogen and ammonia. This would push up the prices of hydrogen and ammonia imports and seriously undermine their competitiveness.

As the uncertain international energy situation looks set to continue, in order to strengthen energy security it will be necessary to reduce dependence on imports by making maximum use of domestic renewable resources, including not only hydrogen but also biomass and marine energies.

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