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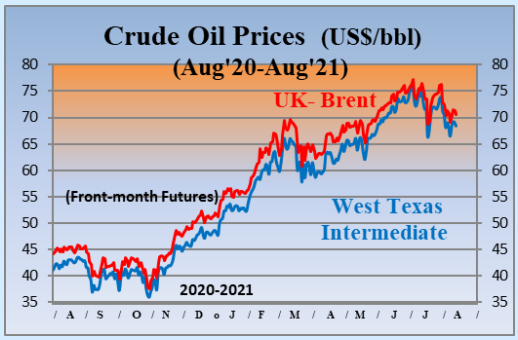
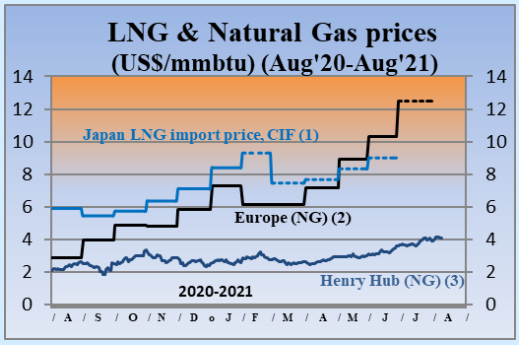
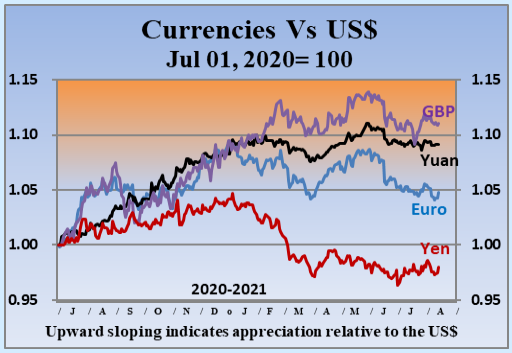


Sources:
(1) DOE-EIA
(2) Investing.com



Sources:
(1) Ministry of Finance "Japan Trade Statistics"
(2) World Bank (Netherland Title Transfer Facility)
(3) DOE-EIA, NYMEX (Front-month Futures)



Source: x-rates.com

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

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Japan’s draft new Strategic Energy Plan was released on July 21. Efforts will be made to reduce GHG emissions by 46% through the revised 2030 generation mix that includes 36–38% of renewable energy, and by thorough energy conservation of 62 million kL.

2. Developments in Nuclear Energy

The draft versions of Japan’s new Strategic Energy Plan and generation mix were released. The target share of nuclear power was kept at current levels. It might be necessary to develop a long-term decarbonization strategy factoring in all costs related to the power system.

3. Recent Developments in the Oil and LNG Markets

While Japan's LNG import increased firmly during the first half of 2021, China's LNG import increased even faster to make the country the largest importer during the period. LNG and crude oil prices have been in high levels.

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

The European Commission released the “Fit for 55” policy package for fulfilling the EU’s 2030 GHG emissions reduction target. In Japan, a government council was launched to discuss ways to enhance energy conservation measures for houses and buildings.

5. Update on Renewable Energies

The draft new Strategic Energy Policy released on July 21 set the FY2030 target output for renewable electricity to 300–350 billion kWh and indicated a policy of covering 36–38% of the generation mix with renewables.

1. Energy Policies

Seiya ENDO, Economist
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The draft Sixth Strategic Energy Plan of Japan was released at the 46th Strategic Policy Committee meeting held on July 21. The draft includes efforts for the reconstruction of Fukushima, challenges and measures toward 2050 carbon neutrality, and the 2030 policy and draft energy mix toward 2050.

The new Plan presents even more ambitious targets than the current one, with the goal of reducing GHG by 46% from 2013 levels by FY2030, mainly through the generation mix and energy conservation. Particularly remarkable is renewable energies, whose target share was raised to 36–38% from the 22–24% target stated in the existing 2030 generation mix. The target for nuclear power remained at 20–22% and a 1% target for hydrogen/ammonia was newly added, meaning that non-fossil power sources will cover around 59% in total. Meanwhile, the shares for coal, gas, and oil for thermal power were revised downward to roughly three-quarters of the current levels with 19%, 20%, and 2%, respectively.

On the demand side, the energy conservation target was raised from the last time for all sectors (industry, household, commercial, and transport) to around 62 million kL (oil-equivalent) or 18% of energy demand, which would be a drastic energy saving. Energy conservation, combined with the pandemic-induced economic slowdown, will cause the final energy demand to decrease to 280 million kL, a significant drop from 326 million kL last time. Thorough energy conservation efforts will be combined with expansion of non-fossil fuel power sources to reduce energy-related CO_2 emissions to 680 million tonnes (down 45% from 2013 levels), bringing the 46% reduction of energy-related CO_2 and other GHG emissions within reach.

The target for renewable power capacity is set to 330–350 billion kWh, roughly double the FY2019 level. In setting this target, the Agency of Natural Resources and Energy coordinated with the ministries and agencies concerned to maximize the increase in mainly solar PV, which has a short lead-time. For nuclear power, the expression “reduce to the extent possible” was retained; replacement and new builds were not mentioned. Meanwhile, the 2030 target share of 20–22% is a level that can barely be met by operating the 27 plants that have restarted, received a reactor installation and modification permit, or are undergoing assessment for operation, with a capacity factor of 80%. Some members backed this target as a lead-up to reaching carbon neutrality in 2050 in line with other developed countries. However, it is by no means an easy target in terms of both generation mix and energy conservation, and many members are concerned about the economic impact of higher costs and actual feasibility of the target.

A committee member and IEEJ Special Advisor Masakazu Toyoda commented as follows:

- I am concerned that the overwhelming share of solar PV in renewable energy will result in high integration costs. Efforts should be made to increase wind power and geothermal such as by shortening the assessment period. Supply-demand crunches are increasing in countries and regions that rely too heavily on variable renewable energy, and thus the restarting of nuclear power should be accelerated.
- An increase in electricity costs is inevitable. Exempting industry from surcharges, as is done in Germany, should be considered to maintain the competitiveness of industry.
- It is good that all options will be considered towards 2050. Multiple scenarios should be prepared, while remaining flexible about switching between them. I welcome the inclusion of references to BECCS and solar PV in the Plan.

2. Developments in Nuclear Energy

Kenji KIMURA, PhD
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Discussions on Japan's new Strategic Energy Plan and generation mix are entering the final stage, and on July 21, the government released the draft versions of both. According to the draft generation mix, renewables will account for 36–38% and nuclear for 20–22% in 2030.

This was a big jump for renewable energies from 22–24% in the previous Strategic Energy Plan while the target for nuclear power remained unchanged. The nuclear capacity necessary to achieve the 20–22% target decreased with the nearly 10% drop in total power output from the previous Plan; even then, nuclear power is likely to fall short of the 2030 target just by restarting the existing plants. The basic operating life of 40 years will need to be extended for at least some plants. It should be noted that Kansai Electric's Mihama Unit 3 restarted on June 23, becoming the first plant to operate with a lifetime extension.

The draft of the new Strategic Energy Plan states that "for reaching 2050 carbon neutrality, necessary amounts of nuclear power will continue to be used while working to ensure public trust and with safety as an overriding priority," stating the intention to continue using nuclear power toward 2050. Meanwhile, the draft Plan made no reference to nuclear new builds or plant replacement. The question is whether the Plan considers that extending the lifetime of existing plants is enough to cover the "necessary amounts" of nuclear power. Furthermore, the draft Plan mentions, "the pursuit of reactors that excel in safety, economic efficiency, and flexibility" in connection to the nuclear policy. In conjunction with securing "necessary amounts," the strategy for long-term utilization of carbon-free energy options should promptly be made clear.

In a move that is inseparable from the Strategic Energy Plan discussions above, on July 12, a government working group released the estimated costs for different power sources. According to the estimate, the generation cost of a new nuclear power plant will be "in the upper 11 yen range" in 2030, exceeding the estimated generation cost for commercial solar PV of "upper 8 yen to lower 11 yen range." However, when considering energy policy, it is the overall electricity cost that matters; it is essential to optimize the overall system, taking into account not only the cost for each power source but also the grid integration cost. The integration cost is known to rise with the increase in variable renewables such as solar PV and wind energy, and the OECD/NEA and some other organizations are discussing this problem. Striking the optimum balance will become ever more important, factoring in the different characteristics of various power sources.

3. Recent Developments in the Oil and LNG Markets

Hiroshi HASHIMOTO
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According to customs statistics, Japan's LNG import in the first half of 2021 amounted to 38.89 million tonnes, increasing by 7% year-on-year, driven by the incremental LNG procurement early in the year to take care of extra electric power demand. China's LNG import increased even faster, by 28% year-on-year, to 39.78 million tonnes, making the country the biggest LNG importer during the period. The corresponding U.S. dollar denominated payments by the two countries were USD 16 billion from China and USD 17 billion from Japan. The numbers mean that Japan's unit price of imported LNG was nearly 9% higher than China's, on average.

The global LNG trade in the first half of the year amounted to 190 million tonnes, increasing by 4% or 7 million tonnes year-on-year, thanks to the demand from Northeast Asia. On the other hand, European LNG import (including Turkey and the United Kingdom) in the same period decreased by 20% year-0n-year to 40 million tonnes, after steadily increasing during the previous two years. While Australia, Qatar, and Russia exported almost same volumes as one year earlier, the United States exported 33 million tonnes of LNG during the first half of 2021, increasing by nearly 40%, effectively meeting all increases in the global demand as it did in 2020. The U.S. Energy Information Administration (EIA), in its latest monthly (July) Short-Term Energy Outlook, revised up the country's LNG export outlooks to 73 million tonnes for 2021 and 77 million tonnes for 2022, effectively predicting the country's status as the world largest LNG exporting country by 2022.

On the background of the LNG market fundamentals, Asian spot LNG prices and European spot gas prices, now tied closely to each other, have been traded at high levels as of July 2021, surpassing the levels seen in 2013 and 2014. These high levels have been also supported by crude oil prices, which are still used as indexes to determine term-contract LNG prices.

The OPEC Plus producers reached an agreement to ease oil production cut on 18 July based on compromise between Saudi Arabia and UAE, after a failed attempt in early July. Under the new agreement, the baseline production of the OPEC Plus was set at 45.485 million barrels per day, revised upward by 1.632 million barrels. The production cut is scheduled to be eased by daily 400 thousand barrels per month from August until the total cut reaches 5.80 million barrels per day. Assuming 100% compliance to the cut, the production cut will reach the threshold by November. Thereafter OPEC Plus says it will review the situation in December and plans to continue the production cut until the end of 2022. As the agreement was reached within a short span of weeks after the earlier breakdown of talks, the price levels look more firmly supported. A next question is whether another wave of the pandemic will lead to a downward pressure on prices.

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

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On July 14, the European Commission released the "Fit for 55" policy package for fulfilling the EU's 2030 GHG emissions reduction target of 55% from 1990 levels. An overview of the policy is presented in the "EU Watching" article in this Newsletter; this article looks at the basic concept behind the initiatives, which can be grouped into: (1) economic initiatives, (2) enhancement of targets and regulations, and (3) support measures. These initiatives are designed to play mutually-complementary roles while ensuring a balance between factors such as economic impact and social equality.

For example, the focus of Fit for 55 on ensuring balance through the three initiatives is evident if we look at road transport and buildings. As (1) economic initiatives, the EU-ETS is revised to newly include suppliers of transport fuels and building heating fuels as a separate category from 2026. Suppliers will be required to trade emission credits according to the emission intensity of the fuels they sell each year. For (2) enhancement of targets and regulations, under the CO_2 Emission Standards for Cars and Vans, the road transport industry will be required to reduce the CO_2 emissions of new cars and vans by 55% from 2021 levels by 2030 on average and by 100% by 2035 (imposing a mandatory zero-emission requirement), while the Alternative Fuel Infrastructure Regulation will require an upgrade of the charger infrastructure for EVs and fuel cell vehicles to ensure a switch in transport fuels. For buildings, ambitious targets will be set for the EU as a whole through a revision of the Energy Efficiency Directive, and further, the Energy Performance of Buildings Directive (EPBD) will be brought up to tighten efficiency standards for buildings. For (3) support measures, the Social Climate Fund will be launched to address the expected increase in road transport and heating fuel prices resulting from expanding the EU-ETS to the road transport and buildings sectors and mitigate the impact on consumers. The Fund will spend 72 billion euros from the proceeds of EU-ETS from 2025 through 2032 to support low-income households, road transport users, and small- and medium-sized companies.

On July 23, the G20 Environment, Climate and Energy Ministers' Meeting adopted a joint communique. The communique referred to keeping the rise in global average temperature to 1.5℃ but with the same expression as the Paris Agreement; "phase-out of coal power" was dropped from the message due to opposition from China and others. It stressed the importance of CCUS and carbon recycling in reducing GHG emissions, recognizing that "fossil fuels still play a significant role," and touched upon the role of hydrogen/ammonia and their potential as international trade goods, in a tone that contrasts significantly with the G7 joint statement.

On July 20, the Ministry of Land, Infrastructure, Transport and Tourism, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment jointly convened the fifth meeting of the Council for Energy Conservation Measures for Houses and Buildings toward a Decarbonized Society. The meeting discussed the path to enhancing energy conservation initiatives for houses and buildings for the period up to 2030. The main initiatives included mandatory compliance with energy efficiency standards for new houses and small buildings starting in 2025 ("bottom-up" approach) and raising the energy conservation standard itself to the current guideline levels (10% improvement from the current standard for houses and 20% for buildings) (higher standards). Furthermore, buildings and houses will be encouraged to surpass the current guideline level (surpassing requirements), in order to achieve ZEH and ZEB on average by 2030. In preparation for requiring mandatory compliance, compliance will be made a condition for subsidies from the next fiscal year.

5. Update on Renewable Energies

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On July 21, the Ministry of Economy, Trade and Industry (METI) unveiled the draft version of the new Strategic Energy Policy, which sets the basic energy policy of Japan. The Plan clarified Japan's stance to "ensure that renewable energies become a main power source and work on renewables as the top priority" toward the goal of reducing GHG emissions by 46% from 2013 levels by FY2030 announced by the government in April. The FY2030 target output for renewable electricity was set to 330–350 billion kWh and a policy to cover 36–38% of the generation mix with renewables was indicated.

According to METI data as of 2019, renewables account for 18% of Japan's generation mix with hydropower at 7.7%, solar PV 6.7%, biomass power 2.6%, wind power 0.7%, and geothermal 0.3%. The plan is to raise these shares to 10% for hydropower, 15% for solar PV, 5% for biomass, 6% for wind power, and 1% for geothermal by FY2030. A particularly large increase is anticipated for solar PV and wind power, but various challenges must be overcome to make this possible: reducing generation costs, strengthening transmission networks, securing adjustment capacity to balance the supply and demand of electricity due to fluctuations in renewable output, and securing grid inertia for maintaining the frequency and grid stability.

In addition, Japan has geological constraints such as the scarcity of flat land and shallow sea areas, as well as social constraints including co-existence with the local community and ensuring harmony with land usage such as farmland. In particular, the rapid expansion of solar PV is causing growing fears over safety triggered by the recent increase in damages from natural disasters, and over the impact on the landscape and the environment. According to an Environment Ministry document dated March 2021, 138 municipalities have set ordinances requiring renewable electricity producers to obtain permission from the prefectural governor or the municipality when starting business.

While the draft Strategic Energy Plan mentions "securing appropriate lands in co-existence with the local community," it is important to not only obtain the community's understanding when conducting business but also to create a mechanism that feeds the profits from expanding renewable energy back to the local community. In that sense, the initiative launched by Chichibu city in Saitama prefecture to become a zero-carbon city deserves attention. Under this initiative, the city supplies the solar, hydropower, and other renewable electricity to local public facilities and places of business. The city set up the Chichibu PPS in 2018 and began to supply electricity to houses in 2021. As many municipalities face depopulation and the consequent shrinking of the local economy, it is hoped that the initiative will create jobs and spur industry by effectively utilizing renewables as a local resource, as well as spending a part of the proceeds from electricity sales to resolving the community's problems.

On May 26, the revised Act to Promote Global Warming Countermeasures took effect. The law promotes the launch of municipal systems to recognize businesses that help the region decarbonize or solve the region's problems, and of renewable energy promotion zones based on information on the renewable energy potential of municipalities. These government support measures and regional efforts are expected to serve as social infrastructure toward making renewable energies a main power source.

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