



JAPAN NRG WEEKLY

JUNE 27, 2022

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June 27, 2022

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- Japan's LNG stockpiles drop slightly, but remain above average

ANALYSIS

[NEW NUCLEAR REGULATOR CHIEF STIRS INDUSTRY HOPES FOR WARMER RELATIONS](#)

In less than two months, the chairman of the Nuclear Regulation Authority (NRA) will change. With current chair Fuketa Toyoshi stepping down, all of the original commissioners appointed when the regulator was set up in 2012 will have left. Fuketa is the last of the NRA top staff appointed during that early period in its formation when the Democratic Party of Japan (DPJ) was in power.

In theory, when Yamanaka Shinsuke assumes the top NRA role, little should change. Still, many expect his leadership to herald certain transformations.

[METHANOL TAKES FIRST STEPS AS LOW CARBON FUEL WITH JAPAN CLOSELY MONITORING EVENTS](#)

As a low carbon fuel, methanol has so far been given little attention in Japan. With announcements of mega e-methanol projects over the past year across the globe, however, that could all change. With so much focus on hydrogen and ammonia research and development, Japan has hitherto given little consideration to other innovative renewable energy forms based on fluids.

Now, Europe is pushing methanol as a new alternative to fossil fuels and Japan is taking notice.

GLOBAL VIEW

Africa needs \$25 billion a year to develop its energy sector. New offshore wind plans in Brazil. NGO claims global steel industry faces writedowns from net-zero transition. Baker Hughes to end services to Russia's energy sector. Cheniere to expand U.S. LNG export facility. Details on these and more in our global wrap.

EVENTS SCHEDULE

JAPAN NRG WEEKLY

Events

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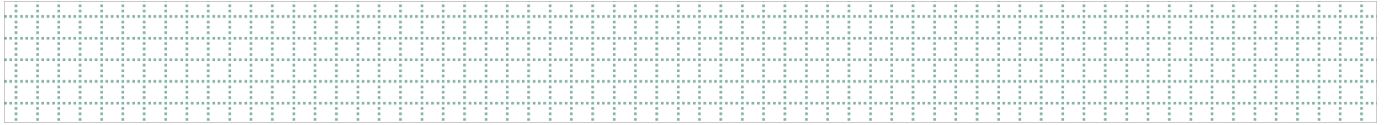
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OFTEN USED ACRONYMS

METI	The Ministry of Energy, Trade and Industry
MOE	Ministry of Environment
ANRE	Agency for Natural Resources and Energy
NEDO	New Energy and Industrial Technology Development Organization
TEPCO	Tokyo Electric Power Company
KEPCO	Kansai Electric Power Company
EPCO	Electric Power Company
JCC	Japan Crude Cocktail
JKM	Japan Korea Market, the Platt's LNG benchmark
CCUS	Carbon Capture, Utilization and Storage
mmbtu	Million British Thermal Units
mb/d	Million barrels per day
mtoe	Million Tons of Oil Equivalent
kWh	Kilowatt hours (electricity generation volume)



NEWS: ENERGY TRANSITION & POLICY



Japan cancels financing for overseas coal power projects, in line with G7 pledges

(Ministry Statement, June 22)

- Japan will suspend ODA (official development assistance) for the 1.2 GW Matavali coal-fired power project in Bangladesh.
- The suspension is in line with agreements made by Japan at the G7 Summit in June 2021 to terminate new international direct government support for coal-fired power generation in which no emission reduction measures were taken by end of 2021.
- Japan discussed the issue with the Bangladeshi side and promised to continue providing support for a “realistic transition toward a decarbonized society”.
- Japan will also no longer fund the Indramayu coal-fired plant in Indonesia, based on the Indonesian government’s decision not to continue with the plans.
- **TAKEAWAY:** Japan is canceling the Bangladeshi project ahead of the next G7 meeting, which starts this week. However, if the project is revised to include CO2 capture tech or co-firing technologies or both, it is possible for the plans to be revived. Japan’s commitment extends to not funding “unabated” coal-fired power plants.

—

Mitsubishi to start selling green power certificates in Japan’s first VPP accord

(Asia Nikkei, June 24)

- Trading house Mitsubishi Corp. will start selling renewable electricity certificates that buyers can use as offsets for their energy consumption. Murata Manufacturing, an electronic components maker and major Apple supplier, will be the first to receive a certificate.
- **CONTEXT:** *This will be Japan's first case of a so-called virtual power purchase agreement.*
- Under the scheme, Mitsubishi will actually build a solar power plant and deliver generated electricity to the utilities market, and separately sell renewable energy certificates to those who want to use them as offsets. The purchaser of a certificate might not necessarily use renewable electricity but the certificate still acts as an offset.

—

Japan’s latest solar auction results: winning bids under ¥10 per kWh

(Kankyō Business, June 21)

- OCCTO announced results of the 12th solar power bidding round (the first in FY2022) and the capacity of the 13th solar power bidding round (the second in FY2022).
- The results are:
- PV power facilities with a capacity of 1,000 kW or more in the FIP-eligible categories:
 - Offered bids: total 175 MW, with a supply price ceiling of ¥10/kWh
 - Result: five bids awarded for a total capacity of 128.94 MW, with a minimum bid price of ¥9.85/ kWh and a maximum bid price of ¥9.9/ kWh; weighted average bid price was ¥9.87/ kWh.

- PV facilities with a capacity of less than 1,000 kW but more than 250 kW
 - Offered bids: total 50 MW, with a supply price ceiling of ¥10/kWh
 - Result: 39 bids awarded for total output of 24.8 MW, with a minimum bid price of ¥9.8/ kWh; maximum bid price of ¥10/ kWh; weighted average bid - ¥9.93/ kWh.
- For the 13th solar bidding round (the second in FY2022), total offered capacity was at 225 MW (175 MW in the FIP eligible category and 50 MW in the FIT eligible category).
- SIDE DEVELOPMENT:
[Pacifico Energy claims more than half of the capacity in the recent solar auction](#)
(Company Statement, June 17)
 - We won the 12th solar power bidding in June 2022 at a supply price of ¥9.86/ kWh for a power generation facility with a 77 MW output. This is a plant utilizing a golf course located in Yamaguchi Prefecture, scheduled to start in 2027.

PM announces scheme to reward energy-saving

(TBS, June 21)

- PM Kishida announced a scheme that will award households and businesses points for saving electricity, especially during supply shortages.
- Points will be able to be earned and redeemed using a smartphone app.

Japanese companies to boost capital investment by 25% this fiscal year

(Nikkei Asia, June 21)

- A Nikkei survey showed Japanese companies plan to boost capital investment by 25% this fiscal year as they try to catch up on plans delayed by the pandemic and supply chain problems.
- Manufacturers such as Nissan, Suzuki and Panasonic also cite growing demand for EVs and related products.
- Planned capital spending by 876 major companies increased for the first time in three years, to ¥28.66 trillion (\$212 billion) -- the second highest tally on record.
- SIDE DEVELOPMENT:

[Kishida backs Bank of Japan's loose monetary policy despite weak yen](#)

(Nikkei, June 22)

- The BoJ should maintain its course of monetary easing, PM Kishida said, signaling support for a policy criticized as helping to weaken the yen in the current global environment.
- "Monetary policy needs to be decided by looking at the whole picture," he said, adding that "now is not the time to alter it."
- "It's important to focus policy on energy and food," he said, noting that more than 60% of Japan's current inflation comes from the former.

GX patents database launched

(Japan NRG, June 23)

- The Japan Patent Office launched the green transformation technology inventory (GXTI), a patent database, following a revamp of the classification system. For example, methanation is classified under CCU/CCUS and negative emissions, rather than recycling.

Major GXTI categories

Category	Sub-category	Major patent holders
Solar	Power generation/application	Panasonic group
Wind	Power generation	Power utilities
Geothermal	Power generation/heat systems	Toshiba, MHI
Hydropower	Power generation	Power utilities
Ocean energy	Wave/temperature energy conversion	Institute of Ocean Energy
Biomass	Solid/liquid/gas	Nippon Steel, IHI
Nuclear	Fusion/reactors/plant systems	Hitachi group, MHI
Fuel Cell	Stationary/mobile	Automakers, Panasonic group, Toshiba
Hydrogen	Production/transport, storage/applications	Kawasaki Heavy Industries, MHI, power utilities
Ammonia	Production/transport, storage/applications	IHI, Chugoku Electric and other power utilities
Secondary batteries	Cells including redox flow/modules	Toyota Motor, Maxell, Panasonic
Co-generation	Use of heat, others	Gas utilities
Energy conservation	Zero emission buildings/houses	Solar Energy Solutions, Kyocera
Mobility	Cars/aircrafts/sea vessels	Automakers

Heat to power conversion	Microwave/infrared ray	Power utilities, Panasonic, Toyota
Power transmission	Smart grid/high voltage direct current	Power utilities, cable installation contractors
Power supply and demand management	VPP/aggregation	Takenaka Corporation
Hydrogen steel	Direct iron reduction/hydrogen blast furnace	Steelmakers
Recycling	Steel, plastics, copper, aluminum	JX Metals, Nippon Steel, Showa Denko
CCU/CCUS, negative greenhouse gas emissions	Carbon capture/underground storage/methanation	Toshiba, MHI
Non-carbon greenhouse gas mitigation	Methane/fluorocarbon	Daikin Industries

- *CONTEXT: Some technologies, such as wireless data transmission, have wide applications outside energy with varied licensing practices. Clear licensing rules may be required as some licensors may ask a fee basis for the “social and climate value” of the final products such as electric vehicles, rather than on the number of devices that use the technologies.*

Government-private sector council on aviation launched

(Japan NRG, June 20)

- The government-private sector council on zero emission aviation technologies was launched to develop aircraft powered by hydrogen or batteries. Participants included 12 manufacturers of aircraft and components, two airlines, national research institutes, relevant industry associations, the Ministry of Land, Infrastructure, Transport and Tourism and METI. Airport authorities have also joined as observers.
- *CONTEXT: Hydrogen has more space requirement than jet fuel, and there are safety issues that have not been resolved for flying with lithium-ion batteries.*

Nuclear Regulation Authority to continue studies on meteorological tsunamis

(Japan NRG, June 23)

- The Nuclear Regulation Authority will continue to study the mechanism of meteorological tsunamis following the Tonga earthquake, despite its initial finding that their risks are low. The earthquake in January this year changed atmospheric pressures causing the tsunami, rather than the volcanic eruption. While the risk of such tsunamis affecting nuclear safety is low as they rarely occur, the

Tonga quake showed that meteorological tsunamis travel faster than volcanic tsunamis and the Pacific Ocean has many volcanoes that may erupt.

METI to push development of small hydrogen electrolyzers

(Japan NRG, June 23)

- METI will push development of small hydrogen electrolyzers for factories. The European Union plans to install electrolyzers totaling 40 GW by 2030, creating demand for equipment and opportunities for Japanese businesses.
- METI will support speedy development of electrolyzer systems and their applications notably to convert redundant power into hydrogen. By around 2030 when renewables comprise 50-60% of the country's power supplies, up to 200 TWh/ year will be redundant depending on weather and demand. The excess power could produce 4.7 million tons/ year of hydrogen.
- The cost of hydrogen production using renewable electricity is ¥55-60/ kWh, which will be lower than grid power on a base assumption that renewable power rates are ¥8-9/ kWh and grid power ¥10/ kWh. Hydrogen produced using grid power supplies is estimated to be ¥64.6/ kWh.

Kasawaki, KEPCO achieve hydrogen supply chain milestone

(Denki Shimbun, June 23)

- A consortium that includes Kawasaki Heavy Industries and Kansai Electric says it used hydrogen shipped from Australia to power a 1.7 MW cogeneration plant in Kobe for the first time.
- While not yet commercial scale, the operation represents the completion of one hydrogen supply chain between Australia and Japan.

Mixed expectations on climate shareholder proposals ahead of this week's AGMs

(Toyo Keizai, June 22)

- The article previews the upcoming AGMs of the five Japanese companies that have received e climate change-related shareholder proposals: Mitsubishi Corp, Sumitomo Mitsui FG, TEPCO Holdings, Chubu Electric, and J-POWER.
- In past years, such proposals received a 20-30% approval from shareholders. Mizuho FG and Mitsubishi UFJ FG were asked to improve their approach to climate change.
- For Mitsubishi's AGM, TEPCO, Chubu Electric, and Sumitomo Mitsui, the Australian environmental NGO Market Force and Japan's Climate Network submitted proposals. For J-POWER, three European institutional investors, including Amundi, a French asset management company, submitted proposals together with the Australian NGO ACCR.
- ACCR claims that the reason for its proposal is that J-POWER is Japan's largest coal-fired power generation operator and risks losing its corporate value as Japan reduces emissions in line with its net-zero 2050 targets.
- Voting advisory firms such as Institutional Shareholder Services (ISS) and Glass Lewis have a major influence on how institutional investors exercise their voting rights. While both companies recommended against the shareholder proposal for Sumitomo Mitsui, they were divided on the proposal for Mitsubishi.

IHI in synthetic methane trial

(Nikkei, June 20)

- In a trial conducted by IHI in Fukushima, local buses will be powered by synthetically-produced methane.
- Methane is produced by reacting hydrogen with factory CO2 emissions.
- Conversion of buses and trucks to run on methane is relatively simple, and is a cost effective alternative to replacement with electric fleets.

Hitachi Zosen installs Japan's biggest methanation facility in Kanagawa

(New Energy Business News, June 23)

- Hitachi Zosen installed a methanation facility at its base in Odawara City, Kanagawa Prefecture. The facility produces methane by synthesizing CO2 emitted from cleaning plants and hydrogen. Production is 125 Nm3 per hour, the largest in Japan and comparable to a commercial natural gas satellite supply facility.
- The project is part of an MoE initiative. The synthetic methane produced will be combusted in a methane gas utilization facility to make electricity.

Osaka Gas installs methanation equipment and seeks to kickstart production

(Denki Shimbun, June 24)

- Osaka Gas has installed experimental equipment for methanation at its R&D base in Osaka City. Methane is produced using SOECs (solid oxide water electrolysis cells) and also with "biomethanation" that makes methane from sewage and other waste materials.
- The goal is to introduce synthetic methane by 2030 to 1% of Osaka Gas' total gas sales. It was Japan's first company to make a prototype of a SOEC practical size cell.
- The company expects SOEC to achieve the world's highest level of energy conversion efficiency, at ~85% to 90% of energy input.
- Biomethanation will proceed with field tests at a sewage treatment plant in Osaka City, with a view to commercializing the technology around 2030.

Idemitsu to develop solid state batteries with Belgium's Umicore

(Nikkan Kogyo Shimbun, June 23)

- Idemitsu will partner with Belgium's Umicore to develop high-performance solid state battery technology enabling high capacity and rapid charging.
- Idemitsu brings to the partnership its expertise in the manufacture of highly pure lithium sulfide.

TEPCO EP and Energy Pool to study power-to-gas system for hydrogen in Yamanashi

(New Energy Business News, June 24)

- TEPCO Energy Partners (TEP), the local unit of France's Energy Pool, and Yamanashi Prefecture will study the potential to use a (power to gas) P2G system to make hydrogen from renewable energy at the Yonekurayama research site in Kofu City.
- The P2G system uses water electrolysis to produce hydrogen, which is then used to balance supply and demand in the power network.

- Yonekurayama will host research on production and storage of hydrogen from tap water using electricity from solar power and a large solid polymer electrolyzer (PEM). It will also assess the creation of a demand response (DR) function, which would divert excess solar electricity to hydrogen that could then be utilized as a heat source for boilers.

SB Energy and Elixir eye gigawatt-scale green H2 production in Mongolia

(SB Energy Press Release, June 22)

- SB Energy Corporation (SBG subsidiary) and Elixir Energy Ltd. will develop a green hydrogen project in the Gobi Desert.
- The goal is to jointly develop a gigawatt-class green hydrogen production project.

INPEX allies with AGL Energy to study hydrogen project in Australia

(Company Statement, June 17)

- INPEX signed an MoU with Australian energy provider AGL Energy (AGL) to conduct a feasibility study for AGL's Torrens Island Hydrogen Hub in the state of South Australia.
- The hub has the potential for the production and export of green hydrogen and the commercialization of methanation from hydrogen.
- CONTEXT: *Osaka Gas is also one of the partners.*
- CONTEXT: *INPEX wants to commercialize three or more hydrogen projects by 2030 in order to produce and supply 100,000 tons or more of hydrogen/ammonia per year.*

Okinawa Electric and others look at local ammonia production project

(Kankyo Business, June 21)

- Okinawa Electric, Tsubame BHB, and Kawasaki Heavy Industries will study the potential for local production for local consumption of clean ammonia in Okinawa.
- The ammonia would be produced using renewable energy and deployed as a second fuel at local coal-fired power stations such as the Gushigawa Thermal Power Plant.
- The results of these studies will be compiled by the end of FY2022.
- CONTEXT: *Tsubame BHB has developed ammonia catalyst technology and is creating a distributed ammonia production system.*

Tokyo Grid and 10 others to develop distributed energy resources to decongest the grid

(Denki Shimbun, June 24)

- Tokyo Electric Power Grid (PG) and 10 other companies will develop technologies that use distributed energy resources (DER) to help relieve congestion in the power grid.
- The project was selected for funding by state research hub NEDO.
- The project will develop a flexible system that can work with the variable loads of renewable sources like solar and wind. The idea is to connect grid companies with DER providers, controlling the large number of the latter in an integrated manner.

Hitachi to issue green bonds

(Denki Shimbun; June 21)

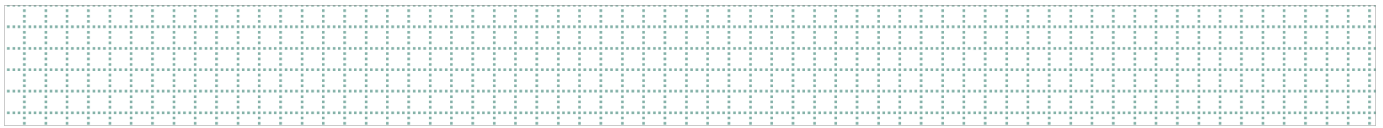
- Hitachi established a framework for issuing green bonds. It plans to invest ¥37bn in improving energy efficiency over the next three years.
- Funds raised through green bond issues will partially be used to convert the power sources of its Yokohama factory and Okayama data center to renewables.
- Hitachi's green bond framework is based on the International Capital Market Association's Green Bond Principles.

Toshiba ESS develops superconducting motor prototype for large mobility applications

(Denki Shimbun, June 24)

- Toshiba Energy Systems Corp has developed a superconducting motor prototype for large-scale mobility applications such as aircraft and ships. The output is 2,000 kW. Compared to conventional products with a similar output, the new motor is less than one-tenth the size and weight.
- Toshiba ESS aims to commercialize the prototype by late 2020 in cooperation with the mobility industry. Implementation is expected in aviation.

NEWS: POWER MARKETS



METI finalizes proposed revision of offshore wind auction rules

(Japan NRG, June 23)

- METI finalized its proposal for revising the offshore wind auction rules for a review by the joint METI-Ministry of Land, Infrastructure, Transport and Tourism panel. It remains divided on limiting a single consortium or a bidder to participate in multiple auctions.
- Other proposed changes include changes in the weighting of evaluation criteria and a process to reflect local stakeholder interests through governors. Whether the names of third-party experts making the assessments should be made public was also discussed.
- The panel is expected to reach its decisions at the next meeting.
- The plan is also to conduct public comments on the draft and discuss it in the Subcommittee on Mass Adoption of Renewable Energy and Next Generation Electric Power Networks.

International oil companies likely to joint next round of wind tenders

(Diamond, June 20)

- The Japanese government is now inviting tenders for a second tranche of major offshore wind farm projects. In the first round, construction contracts were awarded to a Mitsubishi-led consortium that undercut the competition with rock-bottom bids.
- This time, Marubeni and Tokyo Gas have joined forces to ensure Mitsubishi does not walk away with another "clean sweep".
- The upcoming round of projects have generated interest overseas as well; in April, at least one senior official at a company in the tender was contacted by a major international oil company that wanted to join the bid in return for letting the Japanese company join its European projects.
- Shell, BP and Total are keen to be more active in the renewables sector, especially since there's a need to divest from Russian oil and gas.
- Having judged that winning the first round of tenders was not necessarily to their advantage, the international oil companies have a chance in the upcoming tenders, provided their bids are competitive.
- Of the upcoming offshore wind projects, those in Happono and Noshiro (Akita) look likely to go to the Mitsubishi Corp Energy Solutions consortium.
- The other Akita-based projects are most likely to go to the JERA/J-Power consortium, with possible involvement from BP, Shell or Total.
- Projects in Nagasaki and Niigata are likely to go to Japan Renewable Energy and a consortium led by Cosmo Eco Power, respectively.
- SIDE DEVELOPMENT:

[Rivals desperate to stop another Mitsubishi "clean sweep"](#)

(Nikkei, June 21)

- CONTEXT: *This is an opinion piece by columnist Murakami Megumu.*

- After a Mitsubishi-led consortium walked away with all contracts at the first round of offshore wind tenders, the Japan Wind Power Association asked the government to emphasize contractors' ability to complete projects quickly, rather than the lowest bidder.
- The JWPA's comments were a reference to Mitsubishi's completion timelines of 2028-2030—significantly later than those of other bidders.
- The JWPA subsequently proposed limiting the number of projects that can be awarded to any single consortium to 30% of the total projects available in the first and second tranche of tenders.
- However, fellow JWPA member Mitsubishi Corp Energy Solutions said it only heard about that proposal at the last minute. CEO Iwasaki Yoshihiro said he felt the other members don't want any contracts to go to Mitsubishi.
- Government officials, who argue that awarding projects to the lowest bidder benefits the consumer, have criticized attempts to change the rules.
- **SIDE DEVELOPMENT:**
 - [Government to consider speed of completion in wind farm contracts](#)
(Mainichi Shimbun, June 24)
 - METI revised the criteria used to evaluate bids for offshore wind farms.
 - Proposals will now be evaluated on speed of completion as well as cost.
 - There is speculation on why the government revised the selection criteria a mere six months after the first offshore wind farm tender was announced.
 - Mitsubishi Corporation warns that prioritizing the timing of the start of operations will simply give advantage to those companies that began on-site inspections early in the area up for auction.
 - Protecting the bids against one company dominating is also viewed by some as discouraging for those trying creative business models.
- [TAKEAWAY: With the offshore wind power business in Japan still in its infancy, the back and forth is par for the course. But even the media are starting to discuss the negative impression such volatility in rulemaking will have on the Japanese market. With all sides now unhappy, the only thing that stands out is the dissonance.](#)

JERA to restart thermal power stations

(Diamond, June 20)

- JERA will restart Unit 5 of the Anegasaki gas-fired power station (Chiba) and Unit 5 of the Chita coal/gas-fired power station (Aichi) in July, boosting generation capacity in the relevant areas by around 1%.
- Demand for electricity in July was projected to exceed 97% of capacity.
- [TAKEAWAY: This is a temporary restart of two aging thermal power plants for two months to cope with possible power shortages. With over 40 years in operation, the facilities have rust and paint peeling, according to local managers, but still, they've been rushed back into service. One issue to keep in mind is the higher risk of malfunction at older facilities. Another is that the cost of restarting these power plants will be added to transmission line charges, and will be borne by consumers.](#)

Governor slams Kansai Electric's approach to wind power

(Kahoku Shimbun, June 21)

- Miyagi Governor Murai slammed Kansai Electric's "insincere" decision to hold closed-door consultations with residents of the Kawasaki community, which is home to a proposed wind farm.
- An environmental assessment conducted by the prefectural government was critical of KEPCO's plans to build wind turbines in a national park.
- While KEPCO changed its plans to exclude national parks, Murai said KEPCO failed to demonstrate concern for the natural environment.

Hokkaido town starts applications for offshore wind surveys

(New Energy Business News, June 23)

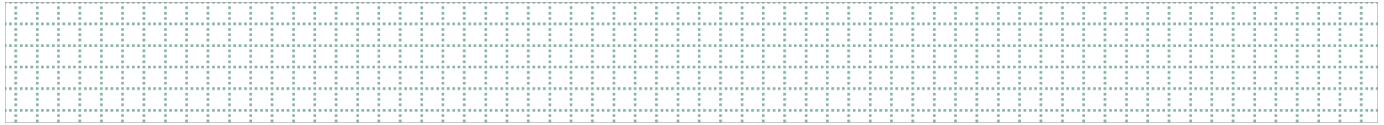
- The town of Suttsu, Hokkaido, began accepting applications from companies interested in a survey for the introduction of offshore wind power in the Iwau and Minami-Goshi Offshore Areas. The application period is until July 15, 2022.
- The project will survey areas not tackled by the offshore wind study now carried out by METI and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT).
- The target waters are basically shallow waters of less than 50 meters in depth. Several fishing cooperatives own the rights there.
- *CONTEXT: Suttsu is also interested as a site of the nuclear waste storage facility.*

Nishimatsu to build five biomass power plants

(New Energy Business News, June 22)

- Nishimatsu Corp established a subsidiary, Sanyo-Onoda Green Energy Co. to develop a woody biomass power generation business in Yamaguchi Prefecture. Nishimatsu owns 100% of the company, but plans to obtain investments from several others.
- The new entity will build and operate a 1.99 MW-class woody biomass power plant burning domestic wood chips in Sanyo-Onoda City. The electricity generated will be sold to Chugoku Electric at a fixed price for 20 years based on the FIT system. Construction is scheduled to begin in June 2023, and commercial operation in the summer of 2024.
- This is the first of five biomass power plants Nishimatsu plans in Japan by 2030, and will invest ¥15 billion in total to build. Each plant is expected to have a 2 to 5 MW output.

NEWS: OIL, GAS & MINING



Cosmo drops fuel prices for the first time in five weeks

(Sekiyu Tsushin, June 24)

- Cosmo Oil Marketing notified its distributors of gasoline, kerosene, diesel, and fuel oil that the purchase prices for June 24-30 will drop by ¥1.5 compared to a week earlier.
- The price cut is the first in five weeks and is related to the government's subsidies for fossil fuels.
- SIDE DEVELOPMENT:

[Japan Petroleum Association chair says too early to exit subsidies](#)

(Nikkan Kogyo Shimbun, June 23)

- Chair of the Petroleum Association of Japan (PAJ) and Chair of ENEOS Holdings, Sugimori, said oil prices are not in a phase of rapid decline yet and that some time may be needed for an exit strategy from state oil subsidies, which have now been extended until the end of September.
 - The PAJ board has decided to make additional demands to the government regarding taxes related to Sustainable Aviation Fuel (SAF). It seeks to set up import duty exemption systems for SAF raw materials and neat SAF, as well as exemptions for oil and coal taxes, and also add SAF manufacturing plants to the carbon neutral investment tax program.
- TAKEAWAY: The oil industry seeks to prolong the timeline of the subsidies, which currently run until the end of September. Their argument is that oil subsidies are currently around ¥40 per barrel due to the high crude prices and it's unlikely that prices will drop suddenly in the remaining period. The government is more likely to make a decision on expanding subsidies at a later stage but the reason PAJ is raising it now is likely to extract promises before the upper-house elections in early July during which price increases and inflation are hot topics.

Mitsui and Mitsubishi hesitancy towards new LNG worries government

(Diamond, June 23)

- Japan's leading investors in LNG globally are the two large trading houses, Mitsubishi Corporation and Mitsui & Co. But now they hesitate to make new investments.
- METI estimates that without new investments in upstream gas projects by Japanese firms, the country's LNG supply and demand could become tight until 2025 and again after 2030, causing energy prices to soar. In the worst-case scenario where LNG supply from Russia is disrupted, Japan will even face a power outage crisis.
- Mitsui and Mitsubishi's reluctance to expand in the LNG business is because of the long lead times and large sums required. An industry joke refers to LNG as the Long Negotiation Game because new projects require investments in the region of ¥1 trillion, take five to six years to build and start producing, and need decades to make back the money through long-term contracts with utilities.
- In the past, Japanese power and gas utilities easily committed to 10–20-year LNG purchase contracts but electricity market deregulation has made it harder to predict demand volumes. With

that, utilities prefer short term contracts (one to five years), but it's not enough to support new LNG investments.

- Meanwhile, institutional investors are pushing Japanese traders to exit fossil fuels.
- In lieu of Mitsui and Mitsubishi, JERA is stepping up to be a major LNG investor.

JOGMEC Provides Equity Financing to INPEX's Exploration Project in Abu Dhabi

(Company Statement, June 17)

- Japan Oil, Gas and Metals National Corporation will provide equity financing in return for 49% of the share capital in JODCO Exploration, a wholly owned subsidiary of INPEX, which was awarded exploration rights and operatorship for the Onshore Block 4 concession in the 2018 Abu Dhabi Block Bid Round in the United Arab Emirates.
- JODCO Exploration will identify potential hydrocarbon-bearing structures following the high-resolution 3D seismic survey conducted by the Abu Dhabi National Oil Company.
- *CONTEXT: Approximately 30% of Japan's crude comes from the UAE. This new project is said to hold significant hydrocarbon potential.*

LNG stocks drop to 2.29 million tons

(METI Data, June 22)

- LNG stocks stood at 2.29 million tons as of June 19, down from 2.31 million tons a week earlier. The end-June stocks last year were 2.04 million tons. The five-year average of end-June stocks is 1.95 million tons.
- Recent milder weather has curbed Japan's demand for power.

ANALYSIS

BY YURIY HUMBER

New Nuclear Regulator Chief Stirs Industry Hopes for Warmer Relations



In less than two months, the chairman of the Nuclear Regulation Authority (NRA) will change. With current chair Fuketa Toyoshi stepping down, all of the original commissioners appointed when the regulator was set up in 2012 will have left. Fuketa is the last of the NRA senior staff appointed during that early period in NRA's formation when the Democratic Party of Japan (DPJ) was in power.

In theory, when Yamanaka Shinsuke assumes the top NRA role on Sept. 22, little should change. While Yamanaka's candidature had to go through a parliamentary approval process, and the NRA is couched within the MoE, the administrative body operates at arms-length from the government.

Still, many expect (or hope) Yamanaka's leadership to be different from that of his predecessors. Both Fuketa and the NRA's first chairman Tanaka Shunichi were reportedly hard on Japan's major utilities. Power companies complained that even an email from them was viewed as an attempt at subterfuge, and at times communication between the regulator and industry was tense.

Yamanaka's appointment is viewed as a favorable development by the industry, according to trade media such as the *Denki Shimbun*. He will also take over at a time when the restart of idled nuclear reactors is a priority for Prime Minister Kishida and his government.

With the NRA's length of reviews now openly questioned by lawmakers and the media – something that was almost taboo for a decade after the Fukushima nuclear disaster – change in regulator leadership is likely to filter into the way the watchdog operates. But even that may not be the silver bullet that Japan's nuclear utilities need to bring their facilities online.

	Outgoing Chair FUKETA Toyoshi		New Chair from Sept. 22 YAMANAKA Shinsuke
Date of Birth July 1957 March 1987 Doctor of Engineering, Tokyo Institute of Technology		Date of Birth December 1955 November 1989 Doctor of Engineering, Osaka University	

<p>April 1987</p> <p>Research Engineer, Japan Atomic Energy Research Institute (JAERI)</p> <p>...</p> <p>April-September 2012</p> <p>Deputy Director General, Nuclear Science and Engineering Directorate, JAEA</p> <p>September 2012</p> <p>Commissioner, the Nuclear Regulation Authority, Japan</p> <p>September 2014</p> <p>Commissioner (Deputy Chairman), the Nuclear Regulation Authority, Japan</p> <p>September 2017</p> <p>Chairman, the Nuclear Regulation Authority, Japan</p>	<p>December 1994</p> <p>Associate Professor, Department of Engineering, Osaka University</p> <p>...</p> <p>April 2016</p> <p>Director, Open Innovation Education Research Center, Graduate School of Engineering, Osaka University</p> <p>August 2016</p> <p>Vice-President /Trustee, Osaka University</p> <p>August-September 2017</p> <p>Professor, Graduate School of Engineering, Osaka University</p> <p>September 2017</p> <p>Commissioner, the Nuclear Regulation Authority, Japan</p>
<p>On Yamanaka's appointment:</p> <p><i>"Our basic policies are not so different. It is an appropriate appointment with a reasonable degree of continuity. Yamanaka is soft-spoken, but his attitude toward regulations is firmer than it seems."</i></p> <p><i>Fuketa speaking at a press briefing on March 2. (Nikkei Shimbun)</i></p>	<p>On slow NRA review at Tomari:</p> <p><i>"I don't want to waste unnecessary time. I hope you [Hokkaido Electric] will answer the questions from the NRC promptly and accurately."</i></p> <p><i>Yamanaka speaking during June 9, 2022 visit to Tomari NPP (Mainichi Shimbun)</i></p>

Source: NRA, Nikkei, Mainichi

Predecessor's track record

NRA's first chair, Tanaka, was appointed with a mission to create a truly independent regulator, not one with cozy industry ties. The previous watchdog had resided within METI, a ministry also tasked with promoting nuclear energy and the export of nuclear technologies. The dual role of supporting and policing the nuclear industry was heavily criticized after the accident at the Fukushima Dai-Ichi NPP in 2011.

Tanaka promised to introduce the world's highest nuclear safety requirements. His work is now put into practice by utilities through multi-billion-dollar upgrades of safety measures at Japanese nuclear reactors.

Tanaka stepped down in 2017, but Fuketa was seen as closely aligned with his predecessor's tough stance on the industry. During Fuketa's five-year term, just five reactors received approval for a restart, two of those occurring a few months after he took up the position. This compares with 12 reactors approved in the three years prior to Fuketa's promotion to chairman.

Yamanaka is two years older than Fuketa but joined the commission only in September 2017, the moment that Fuketa became chairman. While Fuketa joined the

NRA at its inception from the Japan Atomic Energy Agency (JAEA), Yamanaka moved over from academia. He was previously a professor at Osaka University, where he specialized in nuclear fuel safety research.

While Yamanaka worked closely as part of Fuketa's five-person commissioner team, he is seen differently. In addition to the cautiously positive reception from nuclear utilities noted in the trade media, Yamanaka's appointment was quizzed by the anti-nuclear Constitutional Democratic Party of Japan (the main successor of the now defunct DPJ) and the Communist Party of Japan.

One of the Communist Party's objections was the NRA's approval to extend the life of four reactors from the original 40-year operating license. Yamanaka was in charge of the relevant committee and backed the decision.

A time of troubles

Yamanaka will inherit a difficult job. As nationwide energy shortages and higher power prices swing public opinion in favor of nuclear power plant restarts, politicians are calling for a faster review process. Former NRA chief Tanaka recently warned against such pressures, telling lawmakers to focus on persuading the public – not meddling with the regulators.

That said, the NRA's review of certain facilities is raising eyebrows. The Tomari NPP in Hokkaido is about to start its 10th year under review with core issues around the plant barely resolved; for example, does it sit on an active fault. Former chief Tanaka put the blame for this on geology experts, on whom the NRA relies on for such decisions.

Any attempt by Yamanaka to speed up the discussions around the Tomari plant will now be further complicated by two recent court decisions. Sapporo District Court ruled on May 31 that on the one hand the Tomari plant does not meet safety standards to counter the risk of tsunami; on the other hand, the court stopped short of demanding decommissioning.

With the Tomari legal and geological issues a mess, Yamanaka has few other things that he can realistically speed up. Outside Hokkaido, there are just five other reactors under NRA review for a restart:

- two units at the Hamaoka NPP (Chubu Electric)
- one unit at Tsuruga NPP (Japan Atomic)
- one unit at Higashidori NPP (Tohoku Electric)
- one unit at Shika NPP (Hokuriku Electric)

Technological divide

Another complication is the reactor technology divide. While most of the world relies on pressurized water reactor (PWR) technology, Japan is the only country that has more boiling water reactor (BWR) systems than PWRs (17 vs 16). Since the technology employed at the Fukushima Dai-Ichi NPP was BWR, Japanese politicians have primarily supported the restart of PWRs even though other factors that caused the Fukushima disaster were far more influential.

In the 11 years since the Fukushima accident, there has yet to be a restart of a BWR reactor in Japan. Half the reactors still under NRA review are BWRs.

This situation, however, is about to change. On June 2, Shimane Governor Maruyama announced his consent to the restart of Chugoku Electric's Shimane NPP Unit, which uses BWRs. The local authorities at Matsue City had already given their consent, so a restart should now proceed.

How well it goes will be crucial to further deployment of nuclear power in Japan since anti-nuclear newspapers have already described the Shimane facility as employing "the same reactor type as Fukushima". The Shimane unit was commissioned in 1989, about 18 years after the building of the Fukushima Dai-Ichi NPP.

Without the restart of BWR units, Japan's central and northern regions will remain nuclear-free. Since the volume of power that can be sent from one region of Japan to another is limited, this is a headache for the grids that service Tokyo and its surrounding area.

Positive signals

A change at the helm of NRA is taken as a positive signal by the nuclear industry, but it will not be a gamechanger. For one, Yamanaka has already served with the NRA for five years and he is unlikely to entirely revamp the processes to suit the political agenda of the day.

What's more, the NRA is only one "bottleneck" in the restart process. Arguably a bigger one is local politics. And in that light, the late May gubernatorial election in Niigata Prefecture was a more significant move. It saw incumbent Hideyo Hanazumi (64, supported by the ruling Liberal Democratic Party) defeat independent challenger Naomi Katagiri (72, recommended by the Communist Party, Reiwa, and Social Democratic Party). Hanazumi received more than three times Katagiri's votes: 703,694 to 203,845.

Interestingly, Hanazumi said he would defer to the local mood before accepting the restart of the Kashiwazaki-Kariwa NPP (TEPCO), but the issue figured fairly low on the electorate's agenda. A poll before the election showed people were far more interested in economic and employment issues than the fate of the nuclear facility.

The way forward for Japan's nuclear industry is to explain that the solution to the former lies in the latter. Kishida has already made comments in that light. The July 10 upper-house elections will show us if the public agrees.

ANALYSIS

BY JEREMY BOWDEN

Methanol Takes First Steps as Low Carbon Fuel in Japan

As a low carbon fuel, methanol has so far been given little attention in Japan. With announcements of mega e-methanol projects over the past year across the globe, however, that could all change.

With so much focus on hydrogen and ammonia research and development, Japan has hitherto given little consideration to other innovative renewable energy forms based on fluids. Now, Europe is pushing methanol as a new alternative to fossil fuels and Japan is taking notice.

Growing demand in new markets, such as marine fuel and fuel cells, have business and government leaders in Tokyo starting to consider the versatile fuel's potential to help meet 2050 net-zero goals and open new markets abroad.

Furthermore, to make methanol an even more attractive option, businesses can use it as a low carbon fuel and hydrogen carrier, expanding its traditional role as a key constituent in the chemicals sector.

Growing green marine transport market

In recent months, methanol's public profile has grown quickly following announcements of massive new green e-methanol plants, primarily to supply a growing green marine transport market.

These include Engie's 1.85 GW wind-generated hydrogen and captured CO₂ plans in Holland – partly aimed at reducing Europe's reliance on imported gas. Engie will initially build a 100 MW electrolyzer in 2025 (expanding to 1.85 GW in the early 2030s) to produce hydrogen that will be combined with biogenic CO₂ from a power plant.

In addition, Danish energy company Ørsted signed a deal in March to supply shipping company Maersk with 300 kt of e-methanol annually in the U.S. Gulf coast area, where it plans to build a 675 MW, 300 kt power-to-methanol plant that will use green hydrogen.

The plant is slated to start-up in the second half of 2025 and will use captured biogenic CO₂. The two companies are already partners in a 1.2 GW Green Fuels for Denmark e-methanol project, announced in 2021.

25% global market share by 2050

The green methanol market has gained a significant boost thanks to Maersk, the world's biggest integrated shipping company. While Japanese shippers' preference has been first to shift to LNG-fueled ships and later adopt ammonia-powered engines, Maersk has set its course on a methanol-backed transition.

The Danish company recently ordered 12 methanol-powered vessels, which will require 490,000 metric tons a year of sustainable methanol. A senior executive said green methanol was the only “market-ready and scalable available solution” available today to decarbonize shipping.

To supply this fleet (on top of the deals with Ørsted), Maersk has secured supply from European Energy starting in 2025/26 that will be produced in Europe and the Americas, along with 50,000 metric tons of bio-methanol, each from two Chinese companies (CIMC ENRIC and Green Tech Bank).

It has also lined up deals for bio-methanol from WasteFuel, and either bio- or e-methanol from Proman – both to be supplied in the Americas. Nevertheless, Maersk has yet to sign enough deals to meet its goal of shipping 25% of all freight with renewable fuels by 2030.

Other big international shippers are now also considering methanol, and the take up could be significant given looming IMO carbon reduction targets. According to S&P Global Platts, methanol could take a 25% share of the marine vessel orderbook by 2050, with another 10% going to biofuels.

Currently, Waterfront Shipping (a subsidiary of Methanex, the world’s biggest methanol producer) has the largest methanol-fueled fleet, although it’s derived from fossil-feedstock. This makes the fuel better established for marine transport than competing hydrogen carrier, ammonia, which has yet to be used to fuel vessels.

Japanese firms only plan to produce their first ammonia-fuel ship by the middle of this decade. In addition, ammonia must be pressurized, which adds energy and handling costs.

Low carbon methanol options

E-methanol’s carbon footprint can vary, depending on the source of CO₂ and hydrogen. E-methanol that uses fossil fuel-derived CO₂ effectively recycles carbon before it is emitted, displacing the use of more fossil fuels in the process.

While this is the most easily accessed product, and the basis of many new projects, it only cuts emissions by half. Using biogenic (renewable plant-sourced) CO₂ produces much lower net emissions.

CO₂ from direct air capture would also be acceptable and fit with net-zero commitments. Bio-methanol from biomass or biogas is another low carbon methanol option. Using methanol derived in these ways displaces fossil fuel use, cutting CO₂ emissions and also dramatically reducing SO_x, NO_x, and particulates.

On the demand side, methanol has other applications in a future hydrogen economy. For example, some argue that since it’s easily stored and transported as a stable liquid, methanol is a better hydrogen carrier than ammonia when supplying the gas to dispersed outlets such as road fueling stations.

The International Renewable Energy Agency expects renewable (bio-methanol and e-methanol) methanol production to reach 500 million metric tons by 2050, five times

more than today's levels. That's a conservative target and could be bigger if the fuel was to meet 25% of new shipping demand.

Methanol for Japan

In its efforts to decarbonize, Japan is primarily focused on renewables and gaseous fuels. Methanol is not high on the agenda, although this could be changing. Hydrogen is key to Japan's low carbon plans, and methanol's role as a hydrogen carrier could help it gain traction.

High handling, storage, and transport costs in the mountainous and heavily populated country means it's not an easy place to deploy hydrogen at scale for off-grid power or road transport. Methanol has already proven it can address these problems in Japan, with over 300 methanol fuel cells successfully distributed to generate power following the Fukushima disaster.

Methanol is also being adopted by some Japanese shippers, although not necessarily in its low carbon form. The biggest, MOL, has bought four ocean going methanol fueled vessels. And in March, it ordered one for use in domestic Japanese waters.

Japan has been involved in conventional methanol production (from natural gas) for decades, with Mitsubishi Gas Chemical the world's third biggest producer. Recent advances by the company have included the piloting of methanol production using CO₂ and hydrogen at its Niigata facility.

The project involves the production of 'Circular Carbon Methanol' (CCM) in which emitted CO₂ and waste plastics are used. MGC is also active in applications, with its direct methanol fuel cells (DMFCs) offering a lighter, more stable alternative to hydrogen fuel cells.

Other interested parties in Japan are also beginning to identify opportunities for methanol projects, though mainly abroad. In May, trading house Itochu announced plans to build a blue ammonia and methanol plant in Canada, adding to its gas-based methanol facility in Brunei. Mitsui & Co. last year invested to boost CO₂-derived methanol output in Dallas, U.S., while Marubeni had explored a Russian methanol venture.

Inside Japan, many of the projects in this sector focus on bio-methanol that can be produced from agricultural and municipal solid waste - either from biogas or from the gasification of the biomass feedstock.

However, for the innovative methanol technology to take off domestically, more support from business and government leaders is required, especially in R&D.

The key to methanol's adoption now rests with Japan's merchant fleet, one of the world's largest. With the global LNG market now severely constrained by a surge in demand in Europe, and the molecule's high prices expected to last for years to come, Japanese may well reconsider their move to retrofit tankers with natural gas-fired engines. An uptick in global methanol production offers an alternative.

GLOBAL VIEW

BY JOHN VAROLI

Below are some of last week's most important international energy developments monitored by the Japan NRG team because of their potential to impact energy supply and demand, as well as prices. We see the following as relevant to Japanese and international energy investors.

Africa/ Energy transition

About \$25 billion is needed annually through 2030 to develop the continent's energy sector, said the IEA. Access to electricity in Africa fell by 4% between 2019 and 2021, said IEA director Fatih Birol, adding that development banks needed to take "urgent action" to increase investment in Africa's renewable energy sector.

Brazil/ Offshore wind

Ocean Winds, a JV between France's Engie and Spain's EDP Renewables, plans to build five offshore wind projects with a total generating capacity of 15 GW. The projects will be located in the states of Piauí, Rio Grande do Norte, Rio de Janeiro, and Rio Grande do Sul.

Energy investments

Global energy investment will rise 8% to a record \$2.4 trillion in 2022, with clean energy garnering \$1.4 trillion of the total. Coal investment, however, is also growing, says a report by the IEA. In related news, BlackRock is launching a program to invest in helping polluting companies go green. More than half of its investments will focus on Europe.

Energy transition/ Steel industry

The global steel industry may have to write down as much as \$518 billion in assets in the next decade because it's still building dirty blast furnaces, according to a report by Global Energy Monitor. Due to pledges to lower emissions, coal-powered blast furnaces could become unnecessary or inoperable.

France/ Energy financing

Crédit Agricole, France's second-biggest listed bank, will cut financing to highly polluting industries and will expand services and investment for renewable forms of energy. Emissions produced in the oil and gas sector and financed by Crédit Agricole are planned to fall 30% by 2030.

Germany/ Coal power

The government will pass emergency laws to reopen idle coal plants for electricity generation. This measure is a reaction to Russia's 60% capacity cut on its main gas pipeline. "This is bitter but in this situation it's essential to lower the use of gas," said German economic minister Robert Habeck.

Philippines/ Renewable power

Vivant Corp. will invest \$557 million in renewable energy in the next five years. The company is developing nearly 600 MW of renewables capacity, including solar farms (212 MW), wind (196 MW), solar rooftop (129 MW) and hybrid projects (62 MW).

Russia/ Arctic gas

Baker Hughes will halt engineering services to Russia's energy sector, which will impact that country's Arctic energy projects. The company will also stop deliveries of equipment. Without the services and equipment provided by Baker Hughes, projects such as Yamal LNG and the Arctic LNG 2 will soon run into trouble.

U.S./ Natural gas

Cheniere Energy, the biggest U.S. gas exporter, will expand its facility in Corpus Christi (Texas), boosting capacity more than 20% by late 2025. This will add 10 million tons a year of liquefaction capacity on top of its current 45 million tons. Total U.S. capacity is roughly 100 million tons.

U.S./ Solar power

The Solar Buyer Consortium, which includes Clearway Energy Group, Cypress Creek Renewables and DE Shaw Renewable Investments, will spend about \$6 billion to support expansion of the domestic solar panel supply chain. The long-term plan calls for supplying up to 7 GW of solar modules each year starting in 2024.

2022 EVENTS CALENDAR

A selection of domestic and international events we believe will have an impact on Japanese energy

January	<p>OPEC quarterly meeting; JCCP Petroleum Conference - Tokyo; EU Taxonomy Climate Delegated Act activates; Regional Comprehensive Economic Partnership (RCEP) Trade Agreement that includes ASEAN countries, China and Japan activates; Indonesia to temporarily ban coal exports for one month; Regional bloc developments: Cambodia assumes presidency of ASEAN; Thailand assumes presidency of APEC; Germany assumes presidency of G7; France assumes presidency of EU; Indonesia assumes presidency of G20; and Senegal assumes presidency of African Union; Japan-U.S. two-plus-two meeting; Japan's parliament convenes on Jan. 17 for 150 days; Prime Minister Kishida visits Australia (tentative)</p>
February	<p>Chinese New Year (Jan. 31 to Feb. 6); Beijing Winter Olympics; South Korea joins RCEP trade agreement</p>
March	<p>Renewable Energy Institute annual conference; Smart Energy Week - Tokyo; Japan Atomic Industrial Forum annual conference - Tokyo; World Hydrogen Summit - Netherlands; EU New strategy on international energy engagement published; End of 2021/22 Japanese Fiscal Year; South Korean presidential election</p>
April	<p>Japan Energy Summit - Tokyo; MARPOL Convention on Emissions reductions for containerships and LNG carriers activates; Japan Feed-in-Premium system commences as Energy Resilience Act takes effect; Launch of Prime Section of Japan Stock Exchange with TFCF climate reporting requirement; Convention on Biological Diversity Conference for post-2020 biodiversity framework - China; Elections: French presidential election; Hungarian general election</p>
May	<p>World Natural Gas Conference WCG2022 - South Korea; Elections: Australian general election; Philippines general and presidential elections</p>
June	<p>Happo-Noshiro offshore wind project auction closes; Annual IEA Global Conference on Energy Efficiency - Denmark; UNEP Environment Day, Environment Ministers Meeting - Sweden; G7 meeting - Germany</p>

July	Japan to finalize economic security policies as part of natl. security strategy review; China connects to grid 2nd 200 MW SMR at Shidao Bay Nuclear Plant, Shandong; Czech Republic assumes presidency of EU; Elections: Japan's Upper House Elections; Indian presidential election
August	Japan: Africa (TICAD 8) Summit - Tunisia; Kenyan general election
September	IPCC to release Assessment and Synthesis Report; Clean Energy Ministerial and the Mission Innovation Summit - Pittsburg, U.S.; Japan LNG Producer/Consumer Conference - Tokyo; IMF/World Bank annual meetings - Washington; Annual UN General Assembly meetings; METI to set safety standards for ammonia and hydrogen-fired power plants; End of 1H FY2022 Fiscal Year in Japan; Swedish general election
October	EU Review of CO2 emission standards for heavy-duty vehicles published; Chinese Communist Party 20th quinquennial National Party Congress; G20 Meeting - Bali, Indonesia; Innovation for Cool Earth TCFD & Annual Forums - Tokyo; Elections: Okinawa gubernatorial election; Brazilian presidential election;
November	COP27 - Egypt; U.S. mid-term elections; Soccer World Cup - Qatar;
December	Germany to eliminate nuclear power from energy mix; Happo-Noshiro offshore wind project auction result released; Japan submits revised 2030 CO2 reduction goal following Glasgow's COP26; Japan-Canada Annual Energy Forum (tentative); Tesla expected to achieve 1.3 million EV deliveries for full year 2022

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