



# JAPAN NRG WEEKLY

JUNE 10, 2024

# JAPAN NRG WEEKLY

JUNE 10, 2024

## NEWS

### TOP

- Japan, EU to develop international hydrogen standards to expand its potential usage
- ANRE: Tokyo's summer power supply faces risk due to aging thermal power plants
- Japan plans to increase state ownership stakes in overseas copper mines up to 75%

### ENERGY TRANSITION & POLICY

- Japan Hydrogen Fund to lead ¥150 billion funding effort and look for projects to sponsor in Asia under the IPEF framework
- MoE urges Sumitomo, TEPCO to review offshore wind farm plan
- Japan's power demand outlook has changed to growth: METI
- ANRE analyzes impact of rooftop solar on utility power demand
- Sapporo becomes special GX business zone
- MoE expands online GHGs inventory reporting system
- Govt approves Integrated Innovation Strategy 2024

### ELECTRICITY MARKETS

- Hitachi Energy to invest \$4.5 billion in India, Sweden operations
- Sumitomo to install 500 MW or more battery storage by 2031
- Sumitomo Electric acquires Südkabel for HVDC projects
- KEPCO contends with large power oversupply in Kansai
- ENEOS RE plans to build onshore wind farm in west Hokkaido
- NRA to review fault at Tsuruga NPP over safety concerns
- IAEA deems TEPCO's anti-terrorism safety measures sufficient
- Toshiba inks MoU to supply equipment for Poland's first NPP

### OIL, GAS & MINING

- INPEX supplies crude to Germany from oil field in Kazakhstan
- LNG stocks increased 8.3% from previous week
- TEPCO expands gas sales into areas covered by Shizuoka, Saibu

## ANALYSIS

### MOLECULES FIGHT BACK: GAS EXECS SPEAK AGAINST ALL-ELECTRON FUTURE

Last week, many state and business officials gathered in Tokyo for the Japan Energy Summit & Exhibition. The mood was similar to recent events in Japan, where on-stage and private discussions centered on what participants deemed achievable rather than aspirational. Renewables were universally backed, but not to the exclusion of technologies promising clean gas and liquid solutions. Japan NRG gives a thorough wrap of the key events and developments at the summit.

### ENERGY JOBS IN JAPAN: THE CLOSING OF GREEN AND DIGITAL TALENT MARKETS

Clean energy is the tip of the iceberg for the power-hungry data center industry. Energy efficiency and energy security are key priorities. This drives an increase in demand for advanced energy management software systems, as well as an increase in backup power systems that are increasingly in the form of on-site BESS. The increase of such BTM (behind-the-meter) systems is leading to increased talent demand in our next growth sector.

## ASIA ENERGY VIEW

A wrap of top energy news that impacts other Asian countries.

## EVENTS SCHEDULE

A selection of events to keep an eye on in 2024.

# JAPAN NRG WEEKLY

Events

## PUBLISHER

K. K. Yuri Group

## Editorial Team

Yuriy Humber	<i>(Editor-in-Chief)</i>
John Varoli	<i>(Senior Editor, Americas)</i>
Mayumi Watanabe	<i>(Japan)</i>
Wilfried Goossens	<i>(Events, global)</i>
Kyoko Fukuda	<i>(Japan)</i>
Magdalena Osumi	<i>(Japan)</i>
Filippo Pedretti	<i>(Japan)</i>
Tim Young	<i>(Japan)</i>

## Regular Contributors

Chisaki Watanabe	<i>(Japan)</i>
Takehiro Masutomo	<i>(Japan)</i>

## SUBSCRIPTIONS & ADVERTISING

Japan NRG offers individual, corporate and academic subscription plans. Basic details are our website or write to [subscriptions@japan-nrg.com](mailto:subscriptions@japan-nrg.com)

For marketing, advertising, or collaboration opportunities, contact [sales@japan-nrg.com](mailto:sales@japan-nrg.com) For all other inquiries, write to [info@japan-nrg.com](mailto:info@japan-nrg.com)

## OFTEN-USED ACRONYMS

METI	The Ministry of Economy, Trade and Industry	mmbtu	Million British Thermal Units
MoE	Ministry of Environment	mb/d	Million barrels per day
ANRE	Agency for Natural Resources and Energy	mtoe	Million Tons of Oil Equivalent
NEDO	New Energy and Industrial Technology Development Organization	kWh	Kilowatt hours (electricity generation volume)
TEPCO	Tokyo Electric Power Company	FIT	Feed-in Tariff
KEPCO	Kansai Electric Power Company	FIP	Feed-in Premium
EPCO	Electric Power Company	SAF	Sustainable Aviation Fuel
JCC	Japan Crude Cocktail	NPP	Nuclear power plant
JKM	Japan Korea Market, the Platt's LNG benchmark	JOGMEC	Japan Organization for Metals and Energy Security
CCUS	Carbon Capture, Utilization and Storage		
OCCTO	Organization for Cross-regional Coordination of Transmission Operators		
NRA	Nuclear Regulation Authority		
GX	Green Transformation		

## NEWS: ENERGY TRANSITION & POLICY

### Japan, EU to develop international hydrogen standards to expand its potential usage

(Government statement, June 3)

- METI minister Saito and EU Commissioner for Energy Simson agreed to form a working plan to expand hydrogen's potential.
- This includes exchanging information on hydrogen promotion efforts, such as the Japanese Hydrogen Society Promotion Act and the European Hydrogen Bank, with the goal to build resilient and sustainable supply chains.
- There'll also be information sharing on standardization for electrolyzers, large-scale liquefied hydrogen tanks, and refueling infrastructure for heavy duty vehicles, etc.
- Separate cooperation agreements were signed by:
  - Japan Hydrogen Association (JH2A) and Hydrogen Europe
  - NEDO and Clean Hydrogen Joint Undertaking (CHJU)
  - JOGMEC and H2GLOBAL
  - JH2A and H2GLOBAL
  - Kawasaki Heavy Industry and Daimler.
- *CONTEXT: METI seeks closer cooperation with EU counterparts to create new rules and standards; this approach is possibly more realistic than developing Japanese standards into global benchmarks, according to an industry source.*
- **TAKEAWAY:** In Japan, corporate cooperation to set standards isn't seen as anti-competitive, unless they exclude other players wanting to join. In Germany, for example, the Federal Cartel Office has the authority to act if it sees a competition violation. KHI and Daimler's cooperation seeks to write technical hydrogen standards. As the initiative falls under bilateral collaboration, it'll be protected from possible anti-competition allegations from peers developing different technologies. However, if, say, the standard writers begin charging licensing fees to others to be compliant, antitrust issues may be raised.

- **SIDE DEVELOPMENT:**

[Japan Hydrogen Fund to lead 400 companies in ¥150 billion funding effort](#)

(Nikkei, June 5)

- About 400 companies including Toyota Motor, Kawasaki Heavy Industry, plan to join the Japan Hydrogen Fund that will have a financing capacity of ¥150 billion.

- **SIDE DEVELOPMENT:**

[Itochu launches ammonia hydrogen FS in Kitakyushu](#)

(Company statement, June 3)

- Itochu Corp launched feasibility studies for building ammonia and hydrogen supply chain infrastructure in the city of Kitakyushu, Fukuoka Pref.
- The studies include hydrogen production in the Hibiki Nada coastal area, and the transport of hydrogen to consumers via pipelines.
- *CONTEXT: Since February, Kitakyushu city has been testing the transport of hydrogen to consumers via a 1.2 km pipeline. Nippon Steel supplies the hydrogen and Iwatani Corp manages the pipeline.*

## Japan Hydrogen Fund to set up IPEF Window for projects in Asia

(Government statement, June 6)

- The Indo-Pacific Economic Framework for Prosperity Window will be set up within the Japan Hydrogen Fund (JHF) to finance building hydrogen value chains in Asia.
- JHF is a private fund to be set up this year by the Japan Hydrogen Association and its members. Advantage Partners will run the fund.
- CONTEXT: *The IPEF is a framework for a clean and fair economy that consists of Australia, Brunei, Fiji, India, Indonesia, South Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, the U.S., and Vietnam.*
- The aim of the IPEF Window is to drive private sector investments; it's open to finance both private and public sector projects.
- Funding scope includes, but not limited to:
  - Facilities for hydrogen production, including electrolyzers and renewables
  - Converting hydrogen to ammonia and other hydrogen carrier technologies such as liquefied hydrogen and metal hydride
  - Hydrogen transport and storage infrastructures
  - Hydrogen-fired power generation
- TAKEAWAY: *The IPEF Window reflects Japan's long-standing climate position to allow multiple paths to net zero. Producing hydrogen with a low-carbon footprint takes priority but the fund's scope is not limited to "green hydrogen".*

It is interesting to see metal hydride included in the funding scope. Some shipping companies say this technology is not fit for large-scale hydrogen transport as the metal is heavy. However, it is safer since there is almost no likelihood of gas leakage.

- SIDE DEVELOPMENT:  
[IPEF members sign three pacts](#)

(Government statement, June 6)

- Some 14 IPEF industrial ministers signed the IPEF Clean Economy Agreement, the IPEF Fair Economy Agreement and the Agreement on IPEF, which states basic framework principles.
- The Clean Economy Agreement supports transitions to clean economies consistent with respective pathways.
  - The IPEF Catalytic Capital Fund, to support the building of clean energy infrastructure, was launched;
  - The First Investor Forum was held, identifying over \$23 billion priority infrastructure projects;
  - New cooperative working programs on emission accounting, e-wastes, and small modular reactors were launched.
- The Fair Economy Agreement aims to improve transparency and predictability of businesses in the IPEF region.

## MoE minister urges Sumitomo, TEPCO RE to review offshore wind farm impact

(Government statement, May 31)

- Japan's environment minister urged a consortium led by Sumitomo and TEPCO Renewable Energy to review the environmental impact of plans for a 670 MW wind farm on the south side of the Japan Sea off Aomori Pref.
- The minister urged the firms to reconsider:
  - Wind power generation layout – it should accord with the area set by Aomori Pref;
  - The impact of noise on local living conditions, with a suggestion that wind turbine shadows be avoided or minimized;
  - The impact on local wildlife, especially migratory birds;
  - The impact on scenic views.
- The firms want to install between 34 and 45 turbines with an individual output of 15-20 MW each.
- The site stretches across a 10,425 ha area in the Japan Sea near Tsugaru City and Ajigasawa Town, Aomori Pref.
- *CONTEXT: The area near Tsugaru City is one of two areas designated in Round 3 of auctions to select operators for new offshore wind farms. In March, the govt rolled out a total potential capacity of 1.05 GW for two projects in Round 3. One area, which has a capacity of 600 MW, is located on the south side of the Japan Sea near Tsugaru City. The other area, with a capacity of 450 MW, is located off the coast of Yamagata Pref. The tender runs until July 19.*

---

## METI publishes FY2023 Energy white paper – power demand forecast to grow

(Government statement, June 4)

- METI published its Energy White Paper summarizing policy, as well as FY2023 supply and demand trends. Key topics included the Fukushima treated water release and regional reconstruction, energy security, climate action, and green transformation.
- Power demand is forecast to grow on the back of AI and data center demand; the outlook a year ago was a demand decline.
- Fuel prices subsided from 2022 levels but were higher compared to five-years ago. Fossil fuel import costs have led to trade deficits.
- On climate action, Japan is on track with GHG reduction goals and pledged to double renewables by 2030 and triple nuclear power capacity by 2050.
- **SIDE DEVELOPMENT:**

### [ANRE analyzes impact of rooftop solar on utility power demand](#)

(Government statement, June 3)

- Residential rooftop solar panels reduced demand for power from utilities by 0.5% on July 18, 2023 when consumption hit the summer's high of 1 TWh, said ANRE.
- At 15:00 when demand was the highest, the panels curbed consumption by 1.2%.
- 865,748 homes in the Tokyo area are estimated to have rooftop solar panels.

## Kioxia president: Renewable energy support measures are essential to stay competitive

(Bloomberg Japan, June 6)

- Speaking at a subcommittee of METI's Advisory Committee for Natural Resources and Energy, Kioxia president Hayasaka said he predicts that the chipmaker's energy consumption will increase by an annual average of about 10% up to FY2040.
- He also explained Kioxia's dilemma: It has a goal of 100% renewables usage by 2040, but current supply of renewables is low and their price is high.
- *CONTEXT: Increasing chip capacity while achieving decarbonization isn't easy. TSMC is set to use around 10%-12% of Taiwan's power supply by 2030 (up from the current 8%). Kioxia uses around 0.5% of Japan's power supply, also expected to rise. The discussion was attended by executives from SoftBank, JFE Holdings, NTT, etc.*

—

## Sapporo becomes special GX business zone

(Government statement, June 4)

- The Financial Services Agency selected the city of Sapporo in Hokkaido as a special business zone to attract foreign investment into clean energy.
- The Special Zones for Financial and Asset Management Businesses will include:
  - New visa categories for foreigners, English-language administrative procedures such as business registration,
  - relaxing bank rules for financing startups, etc. (task of national govt);
  - local tax cuts and subsidies (city of Sapporo).
- Rules on hydrogen storage, such as the cap on the storage volume, will be relaxed.

—

## MoE expands online GHGs inventory reporting system

(Government statement, June 3)

- The MoE expanded the Energy Efficiency and Global Warming Countermeasures online reporting system (EEGS) to entities not required to report GHG emissions.
- Entities that consume less than 1,500 kiloliters of oil-equivalent of energy are exempt from annual GHGs reporting but can disclose emissions by filing their data to EEGS.
- *CONTEXT: Reporting of annual emissions is limited to large companies. For example, Tokyo has 660,000 business entities but only about 1,300 of them report their emissions.*

—

## Govt approves Integrated Innovation Strategy 2024, nuclear fusion included

(Government statement, June 4)

- The govt approved the "Integrated Innovation Strategy 2024," which prioritizes fusion energy, aiming to demonstrate power generation by the 2030s.
- It also seeks to strengthen the Quantum Science and Technology Research and Development Organization (QST). Finally, it aims to set up test facilities for startups.
- The strategy also supports research on next-gen reactors with new safety mechanisms.

- **TAKEAWAY:** The document summarizes Japan's comprehensive strategy for nuclear fusion development. Perhaps, the most important thing to notice is that the govt reaffirms its goal of a nuclear fusion power generation demo by the early 2030s.

---

## Honda launches production of hydrogen FCEVs in the state of Ohio

(Company statement, June 6)

- Honda Motor will begin production of fuel cell vehicles in Ohio, U.S.
- The new car model can travel 600 km on a 3-minute refill of a hydrogen tank.
- The car will be exported to Japan and first go on sale by late summer, and in North America by year's end.
- It will be equipped with a fuel cell system co-developed by Honda and GM.
- **CONTEXT:** *The U.S. has no automakers producing hydrogen-powered passenger cars from the fuel cell level up; the infrastructure is still lagging, with California the only state to host hydrogen refueling stations.*

---

## Sojitz, Kyushu Electric, Sembcorp agree on terms of green ammonia deal

(Company statement, June 6)

- Sojitz and Kyushu Electric signed term sheets with Sembcorp Green Hydrogen to supply 200,000 tons/ year of green ammonia to each of the Japanese parties. They will sign contracts following reviews.
- The ammonia will be produced in India. Shipments are expected to begin in the latter half of the 2020's.
- **SIDE DEVELOPMENT:**

[Tsubame BHB sets up green ammonia research institute](#)

(Company statement, June 5)

- Tsubame BHB and Tokyo Institute of Technology established the Tsubame BHB Green Ammonia Research Cluster to develop inorganic electrode catalysts for commercial green ammonia production.

---

## Demand response study group launched

(Government statement, June 4)

- METI launched a 4-member "DReady Study Group" to explore measures to promote the use of heat pumps and other appliances equipped with electricity demand response mechanisms, as well as to analyze case studies and identify cybersecurity issues.
- The group is headed by Prof Hayashi Yasuhiro of Waseda University.



## NEWS: ELECTRICITY MARKETS

### ANRE: Tokyo's summer power supply faces risk due to aging thermal power plants

(Government statement, June 3)

- ANRE warned that the power supply in the Tokyo area faces risks as 10% of its power sources are thermal power plants operational for more than 40 years.
- Another risk is the concentration of these plants in the Tokyo Bay area.
- OCCTO lowered the July power margin forecast in Tokyo to 4.1% from the previous 5.7%; August to 8%, down from 8.7%; and September to 11.8%, down from 11.9%.
- The 3% margin rate, the minimum threshold, was cleared, but ANRE will request power operators to conduct thorough facility inspections.
- The power margin forecast in the Hokkaido and Tohoku areas were also reduced, while those of Chubu, Hokuriku, Kansai, Chugoku and Shikoku areas mostly rose. There were no changes for Kyushu and Okinawa.
- The 948 MW Haramachi power plant in Tohoku closed temporarily in May due to technical issues; it will restart on July 29. The 490 MW Kawasaki power plant in Tokyo closed in April; there's no restart date yet.

Regional margin rates (%)

	July	Aug	Sep
Hokkaido	4.4 -> 4.1	10.5	16.2
Tohoku	8.2-> 4.1	8.7 -> 8.0	11.9 -> 11.8
Tokyo	5.7 -> 4.1		
Chubu	10.3 -> 10.4	10.6	
Hokuriku		10.6 -> 12.2	
Kansai			
Chugoku			
Shikoku			
Kyushu	13.2	14.8	14.5
Okinawa	34.0	35.8	35.1

### Hitachi Energy to invest \$4.5 billion in India, Sweden operations

(Company statement, June 8)

- Hitachi Energy will spend \$4.5 billion in Sweden and India to expand capacity to produce power grid equipment as global demand for the infrastructure rises.
- The investments through 2027 will be on top of the \$1.5 billion already announced. It will bring the total to \$6 billion over four years, more than twice the 2021-23 spending.

- *CONTEXT: Hitachi Energy's order backlog has topped \$30 billion, more than three times the level in 2020. The rise of AI has produced a rush in construction of power-hungry data centers. The growth of renewable energy projects has also increased the need for power transmission capacity.*
- 

## Sumitomo Corp to install 500 MW battery storage in Japan by 2031

(Reuters, June 6)

- Trading house Sumitomo plans to expand its battery storage capacity to 500 MW or more by March 2031, up from the current 9 MW across three sites.
  - Sumitomo expects growth in Japan's market, driven by govt incentives and the need for more balancing capacity. It will also look at opportunities overseas.
  - Japan's domestic battery storage capacity will grow from 2GWh in 2023 to 40GWh by 2030, according to Sumitomo's forecasts. The trading house has a 6 MW energy storage facility near the city of Chitose, in Hokkaido, close to the location of a new semiconductor factory being built by Rapidus.
  - *CONTEXT: Battery storage is crucial for managing solar and wind power's intermittent nature in Japan's renewable energy efforts.*
- 

## Sumitomo Electric acquires Germany's Südkabel to deliver HVDC projects

(Company statement, June 6)

- Sumitomo Electric (SE) is set to acquire 90% of shares in Südkabel, a German high-voltage cable manufacturer. The deal is expected to be completed by October.
  - The firm will expand its production capacity in Mannheim, to locally manufacture 525 kV HVDC cables. SE will invest €90 million in Südkabel's production capacity.
  - *CONTEXT: Germany's TSO Amprion awarded two major HVDC cable projects — Korridor B V49 and part of the Rhein-Main-Link project — to Sumitomo Electric. The total project value is more than €3 billion. The HVDC cables will be manufactured at Südkabel. The projects are expected to be completed by 2033.*
  - In May, SE said it will build a high-voltage submarine cable factory in the UK.
- 

## KEPCO managed power oversupply in Kansai region due to solar power surplus

(Denki Shimbun, June 4)

- On June 1 and 2, KEPCO requested OCCTO to transfer excess renewable power to other regions in case supply exceeded demand due to a surge in solar generation in the Kansai area. This is the third time that Japan implemented such a measure.
- The area demand during this period was about 14.5 GW, including for pumped-up water; while supply was approximately 17.49 GW (including 5 GW of solar and wind combined); this resulted in an excess supply of some 2.99 GW.

- KEPCO was able to control the combined offline and online output of about 2.24 GW of renewables, including solar power generation facilities of 10 kW or more; but on June 1, there was still a surplus of some 750 MW outstanding.
  - A maximum of 739 MW was transmitted to areas controlled by Chubu Power Grid and Chugoku Electric.
  - The same situation occurred on June 2, and a maximum of 718 MW was transmitted to the Chugoku area to maintain the supply-demand balance in the Kansai area.
  - *CONTEXT: The reason for the oversupply is believed to be due to the increased operation of nuclear power and the decrease of pumped-storage power, as well as the fact that a considerable amount of residential solar power, installations of less than 10 kW and hence not subject to output control, had entered the grid.*
- 

## ENEOS RE plans to build onshore wind farm in western Hokkaido

(Company statement, May 30)

- ENEOS Renewable Energy plans to develop an onshore wind farm in Obira Town in western Hokkaido. The maximum capacity is 85.4 MW.
  - The firm plans to start construction in FY2028, and operation is expected to begin in FY2032. It plans to use up to 17 turbines with an output of between 4.2 MW and 6.1 MW each.
  - *CONTEXT: There are several wind power plants in operation in the area, including HSE's Rumoi Port wind power generation project.*
- 

## NRA to discuss fault at Tsuruga NPP over safety concerns

(Denki Shimbun, June 3)

- The NRA discussed the 'K Fault' at Tsuruga NPP Unit 2. Japan Atomic Power Co provided detailed data on dating and soil analysis around the geological fault line. It said that the 'K Fault' hasn't been active since the Late Pleistocene, which is defined as between c. 129,000 and c. 11,700 years ago.
  - *CONTEXT: The K Fault has been confirmed at a location about 300 meters north of Unit 2. JAPC hopes to restart the reactor, but must first prove that the fault does not extend directly beneath the reactor.*
  - The NRA seems to believe it is difficult to completely deny the fault's activity. The regulator questioned the reliability of the assessment, particularly the depositional age of the strata.
  - The NRA will conduct an on-site investigation on June 6-7 to further test the fault's status.
  - *CONTEXT: New regulatory standards prohibit building significant structures on top of active faults. Tsuruga NPP is located near the active Urasoko fault. This led to complications when experts linked a bedrock fault beneath the plant to the Urasoko fault. According to NRA definitions, it may be active. In contrast, the plant operator studied the K Fault in 2014 and concluded that it is not active. Japan Atomic Power estimated that there has been no movement at K Fault in the last 127,600 years.*
-

## Chugoku Electric gets approval for changes to Shimane NPP safety regulations

(Company statement, May 31)

- Chugoku Electric received NRA approval for changes to the safety regulations at Shimane NPP Unit 2. The company had submitted the application in 2013.
- Changes include new safety equipment.
- Inspection on compliance with new standards is now complete.
- SIDE DEVELOPMENT:

[KEPCO's Takahama NPP Unit 1 has regular inspection](#)

(Company statement, May 31)

- KEPCO announced that Takahama NPP Unit 1 will undergo regular inspections starting June 2 and it will last around four months.
- Reactors, fuel storage facilities and cooling systems are top of the list for inspection.
- Some 49 out of 157 fuel assemblies will be replaced.
- The reactor is set to restart in late September.

—

## IAEA deems TEPCO's anti-terrorism safety measures to be sufficient

(Company statement, June 6)

- TEPCO received a report from the IAEA following an expert mission at the Kashiwazaki-Kariwa NPP from March 25 to April 2.
- They reported the correct completion of most of the planned nuclear material protection measures. The improvements were requested after ID card misuse, equipment malfunctions, and other issues came to light.
- SIDE DEVELOPMENT:

[Govt to fund evacuation routes in Niigata](#)

(Nikkei, June 6)

- The govt will fund evacuation routes for Kashiwazaki city and Kariwa village (Niigata Pref) in case of nuclear disasters.
- The mayor said this is key for Kashiwazaki-Kariwa NPP's restart.
- SIDE DEVELOPMENT:

[KEPCO to replace steam generators at Takahama NPP units](#)

(Company statement, June 5)

- KEPCO received NRA approval for replacement of the steam generators in Takahama NPP Units 3 and 4 due to aging and risk of corrosion.
- The replacements are part of preventive maintenance.

—

## Toshiba ESS inks MoU to supply equipment, etc to Poland's first NPP

(Company statement, May 30)

- Toshiba ESS and its affiliate, Toshiba International (TIL), signed an MoU with Rockfin and EthosEnergy Poland to supply equipment and maintenance services for Poland's first NPP.
- Construction, fuel cycle management and maintenance are also being considered.

## UK power supplier Octopus Energy to install solar and BESS

(Company statement, May 29)

- Octopus Energy, a UK-based electricity supplier, will begin installation services for solar power generation and storage battery systems in Japan.
- The firm is developing a retail electricity business through TG Octopus Energy, a JV with Tokyo Gas.
- Octopus will provide a one-package service, from installation to maintenance. The service will be offered in all prefectures except Okinawa.
- The firm aims to install around 3,000 solar panels in the first two years of the service.
- SIDE DEVELOPMENT:

[Tensor Energy partners with Kyocera Group in AI-supported BESS monitoring](#)

(Company statement, June 3)

- Tensor Energy, a developer of a cloud platform for integrated financial and power management of renewable power plants and storage batteries, is introducing a platform for BESS recharging and discharging optimization.
- The project is run with Kyocera TCL Solar, and will be used for a storage battery project with a solar power plant in Arao City, Kumamoto Pref.

---

## MHI, Thailand's EGAT ink hydrogen co-firing MoU

(Company statement, June 5)

- MHI and the Electricity Generating Authority of Thailand inked an MoU to research hydrogen co-firing at gas power generation facilities.
- The first co-firing test is set for March 2025. The fuel mix hydrogen ratio is 20%.
- CONTEXT: *Capacities of EGAT's gas-fired power stations range 0.3-1.3 GW.*

---

## Kyuden Mirai Energy to develop new geothermal plant

(Company statement, June 6)

- Kyuden Mirai Energy is set to develop a new 4.9 MW geothermal binary-cycle power plant in Kirishima City, Kyushu Pref.
- Construction begins in Sept; operations in 2026.

## NEWS: OIL, GAS & MINING

### Japan to increase the cap on state's ownership of overseas copper mines to 75%

(Nikkei, June 6)

- By the end of FY2024, METI plans to allow for the state ownership of copper mines overseas to reach as high as 75%. Currently, that limit is 50%.
- JOGMEC will provide the investment.
- METI aims to increase the volume of copper projects in Africa through financial support to companies.
- By 2040, JOGMEC expects Japan's copper demand to rise 30% (over 2022 levels), reaching 1.35 million tons
- *CONTEXT: JOGMEC is a corporate entity but also a METI umbrella organization, a vehicle for implementing METI policies, loans, credits, etc.*
- *CONTEXT: Global competition to secure copper has inflated investment costs. METI estimates at least several hundred billion yen will be required to gain a small stake in African projects, which is beyond budget for most businesses. Currently, JOGMEC is able to take full ownership of rare earth mining projects but its equity in other mineral projects is capped at 50%.*
- **TAKEAWAY:** In some African countries, mining is a state enterprise and mines are fully or partly state-owned. As local JV partners are often govts, JOGMEC's majority ownership of the Japanese stake will facilitate relationship building. Meanwhile, the rise in copper prices on the back of digitalization and the green transformation will change how the metal is used. The high prices might trigger substitution, i.e. aluminum instead of copper for cables. Copper will no longer be used for kitchen utensils but for products with higher commercial value. This substitution strategy is probably as important as investing in mines and recycling.

### INPEX supplies crude to Germany from oil field in Kazakhstan

(Reuters, May 31)

- In April, INPEX made a trial supply of crude oil from its stake in the Kashagan oil field (Kazakhstan) to a refinery in Germany, via the Druzhba pipeline.
- This shows how Kazakhstan is developing oil exports amidst the EU embargo on Russian crude.
- INPEX is considering more supplies from Kashagan to Germany.
- *CONTEXT: Kazakhstan lacks direct access to international sea routes, and relies on Russian pipeline infrastructure for exports. INPEX's trial shipment is a shift from the predominant supplier, Karachaganak Petroleum Operating (KPO).*

## LNG stocks increased 8.3% from previous week

(Government data, June 5)

- LNG stocks of the 10 power utilities were 2.23 million tons as of June 2, up 8.3% from the previous week (2.06 million tons).
- This is 7.5% down from the end of May 2023 (2.41 million tons); but 5.7% up from the 5-year average of 2.11 million tons.
- According to the JMA (Japan Meteorological Agency), the country will experience a hot summer, which means more AC usage will be required to stay cool, likely boosting electricity consumption.

—

## TEPCO EP to sell gas in Shizuoka Gas and Saibu Gas areas

(Company statement, June 4)

- TEPCO Energy Partner introduced a gas plan for households in the Shizuoka Gas and Saibu Gas areas. It offers up to 3% savings compared to regular rates.
- The average household (using 40 m<sup>3</sup>/ month) in the Saibu area will save ¥4,900/ year.
- *CONTEXT: This expansion allows customers in Shizuoka and Saibu areas to choose TEPCO's gas services. Previously, they were available only in Kanto, Kansai, and Chubu regions. TEPCO started selling city gas outside the Kanto region in 2020, in the supply areas of Osaka Gas and Toho Gas.*

## ANALYSIS

BY JAPAN NRG TEAM

### Molecules Fight Back: Gas Executives State Case Against All-Electron Future

Until recently, one of the top tenets of decarbonization was that moving away from fossil fuels will require a shift from energy systems based on molecules to those structured around electrons. Electrification would clean-up our cars, furnaces, and devices, while generation that doesn't require fuels (such as solar and wind) would supply power that's cheaper and less prone to energy security risks.

Last week, most state and business officials gathered in Tokyo for the Japan Energy Summit & Exhibition refuted this idea.

Electrons will no doubt occupy a more dominant role in our energy systems, but until we are able to generate and store them at will without the use of fuels, and independent of weather conditions, countries will need the power of the molecule, suggested a chorus of executives from Japan and overseas. In addition to the well-worn arguments about "cost," the speakers frequently turned to the words "balance" or "balancing."

The mood at the summit was similar to one of many recent events in Japan, where on-stage and private discussions centered on what the participants deemed achievable or likely, rather than aspirational. Renewables were universally backed, but not to the exclusion of technologies promising clean gas and liquid solutions.

As Indonesia's deputy ministry for infrastructure and transportation, H.E. Rachmat Kaimuddin, said when asked why his country had cut its 2030 renewables target this January: "This is the number that we see today.... We aligned it to reality."

*(NOTE: Japan NRG is aware that electrons are sub-particles of an atom and that groups of atoms then make up a molecule. But, bear with us.)*

#### Sober assessments

The Japan Energy Summit & Exhibition (JESE) was originally an event for the natural gas and LNG industry, with tacit support from METI. Over the last couple of years, the summit has expanded to cover hydrogen and ammonia topics, and lately renewables. But with JERA and Tokyo Gas as the main sponsors, it has naturally retained a focus on the LNG industry.

So, it's not a surprise that LNG discussions were a core topic at last week's edition. However, the nature of the comments from both state and business officials suggested that there is a genuine re-think inside the Japanese government and corporate nexus over the ongoing role of gas.

In 2021, when the 6th Basic Energy Plan was confirmed, the role of LNG in the power mix was forecast to be cut almost in half by 2030, to just a fifth of the total. Coal and natural gas were seen as on their way out as a prerequisite for the lowering of CO2 emissions, with renewable energy the main winner. The latter's share was forecast to



hit 36-38% by the end of this decade due to an expected rollout of offshore wind capacity and further growth in utility-scale solar.

The previous Plan, however, was conceived in what officials say was a very different global environment. Not only was Japan's shrinking population seen as shaving off a tenth of the nation's electricity demand in 10 years, but pre-Ukraine war the world cared less about energy security and had less consideration for supply chains of critical raw materials. Each year, Japan's renewables firms were able to bring online a steady 6-8 GW of new capacity.

Before the unveiling of PM Kishida's GX strategy, the Japanese government was arguably more aligned on its net-zero vision with the pathways proposed by the EU.

Today, Japanese officials are keen to stress the importance of balancing ambitions in renewable energy with the country's available resources; of balancing the domestic roadmaps with actions of other Asian economies; of pursuing multiple options, but keeping a wary eye on the cost of doing so. The dozen or so high-level speakers from METI that joined panels at JESE 2024 spoke in a sober and reflective manner.

"It's too early to say if we're on track for 2050 or not," admitted Kobayashi Izuru, a deputy director general for technology and environment at METI. He noted that the cost of the GX program is enormous and the ministry most responsible for energy planning in Japan is very conscious of the need to justify how it is utilizing the nation's resources.

Japan will look to mirror some of the economic stimulus measures unveiled by the U.S. and its IRA legislation, Kobayashi said, while stressing that the technologies METI wishes to support – among them hydrogen and CCS – will need to be exportable to Asia and elsewhere to make economic sense.

Hikino Kiyoshi, director of power and gas market policy division at the Agency for Natural Resources and Energy, was even more blunt: the rate of technological change (within energy and other fields) is so fast that the government is no longer able to forecast which tech will gain wider acceptance and which will fade away, or even how the energy demand picture will look a decade or more from now.

With massive discrepancies in outlook between state and private forecasters, the government plans to put less emphasis on specific numbers for each energy source in a future power mix outlook and concentrate its efforts on creating buffers and optionality.

"The most important thing is to be able to have flexibility to meet changes and mitigate risks, not focus so much on the numbers of how much this or that power source" will occupy in a 2030 or 2040 power mix, Hikino said.

While Hikino stressed that there is "no perfect energy source", it's clear that the Japanese government will start to give additional weight going forward to technologies that are more agile, can combine with others well, and are good at balancing an ever-more-complex and volatile energy system.

### Gas to the rescue?

Several candidates will hope to answer METI's call for flexibility. Operators of BESS, LNG, and hydrogen / ammonia facilities will likely vie for greater consideration in Japan's energy mix.

Executives from JERA and Tokyo Gas said that Japan should not shy away from using more LNG to balance a growing variable renewables sector and the widening fluctuations in seasonal demand. But the LNG sector also needs support from the government, according to JERA's Executive Officer Nishizawa Toshi. It should have a greater allocation in the next Basic Energy Plan and include CCUS in the document's LNG bracket.

Despite walking away from a massive long-term LNG supply contract with Qatar a couple of years ago, JERA is back "in discussion" with the Middle East's top supplier on future deals. But to make such commitments, the company needs a "statement on long-term power demand from the government in the next Basic Energy Plan."

Cheniere, the world's No.2 LNG supplier, backed JERA's comments and added that a commitment to natural gas isn't the lock-in to fossil fuels and emissions that critics claim. Ken Kuroda, a senior advisor to Cheniere Marketing Ltd, said LNG producers are moving to upgrade the environmental offering of their product by expanding into e-methane and other clean gas options.

Sempra Infrastructure's Juancho Eekhout shared details of how the U.S. LNG provider is working with Japan's top three gas utilities and Mitsubishi Corp to develop new clean gas products such as e-Natural Gas (which is synthesized from CO2 and green hydrogen), as well as blue ammonia. Sempra is even exploring opportunities in Direct Air Capture (DAC) to make sure its CO2 component is recognized as sustainable.

E-NG "is really a way to bring renewable energy to Japan," Eekhout said. (NOTE: e-NG is also sometimes referred to as e-methane.)

A FID on Sempra's collaboration with Japanese partners will likely be taken in 2025, and the first cargo will ship to Japan in 2030, said Mitsubishi's COO of the next-generation energy division, Wada Tetsuro.

### Who will take nuclear's share?

According to Chris Rowe, RWE's head of physical LNG trading, Japan needs to plan for a scenario in which its nuclear power plants are no longer a major base load power source; restarts of current reactors are taking longer than expected and plans for new facilities are anemic.

Companies from North America (including ExxonMobil), the Middle East (including ADNOC and its part-owned Fertiglobe), and India (including ACME Group and ReNew) were among those at JESE touting the feasibility and economics of hydrogen or ammonia-fired generation at thermal power plants as a means to achieving clean-burning baseload power.

"We see Japan as a very attractive country in terms of hydrogen," said Hayley Pham, ExxonMobil's vice president for Asia Pacific business development.

A slate of ammonia / hydrogen production projects in the U.S. are on the cusp of making investment decisions based on interest from Japan, said Dan Feldman, the head of energy and a partner with King & Spalding.

The triggers will include the upcoming contract-for-difference hydrogen auction in Japan that's planned for July, which should provide backing to around 10 projects by early 2025 to move ahead, said Muraki Shigeru, head of the Clean Fuel Ammonia Association.

The majority of Japan's ammonia imports will initially be 'blue' simply based on cost, available volumes and deliverability. But the country does need to start putting into place the conditions for ammonia derived from renewables sources to be competitive, Muraki said. "If we don't start now, nothing will change" to the affordability in 10 years, he said.

Those conditions will surely hinge on a more aggressive carbon price, said Takeuchi Sumiko, a former TEPCO official turned energy researcher and writer, who sits on a variety of METI expert panels and is a member of the GX Implementation Council.

"We need bold plans, not many plans," Takeuchi said, speaking on a panel with ANRE's Hikino. "If the government offers many scenarios, does it really help businesses make investments or sign long-term contracts?"

Instead, businesses should probably simply move ahead with their own initiatives. In a world of many uncertainties, in which even the state energy planners can no longer offer guidance with assurance, Takeuchi suggested that companies lower their expectations for state visions and strategies, and rather move forward based on what they can make work.

#### NOTES FROM THE EVENT

- Osaka-based Eplus displayed a new carbon capture, separation and utilization system that re-uses carbon as fuel on site, eliminating the need to liquefy the gas to transport it to storage sites. Their Carbon Dioxide Capture Fuel Recycle (CCFR) consists of a CO2 absorption tower equipped with amine solution, a CO2 separation tank, an electrolysis system which processes CO2-rich amine to synthetic fuel raw material, and a control panel, performing carbon capture, separation and synthetic fuel production on the premises. The company recorded a CO2 capture speed of 10 tons/ day at a pilot plant in Tokyo.
- Germany's Promus Line is proposing the re-use of city gas pipelines for hydrogen and other clean energy fuels rather than making new installations. They have developed a suite of petrochemical materials which could be used as liners to cover the pipes' inner walls.
- Ueda Takayuki, the CEO of INPEX: "Asia's domestic natural gas production will decline, so they will import LNG...natural gas demand will fall, but LNG will increase."
- "LNG as a resource is not an issue, there are plenty of LNG projects. But will they happen? If everything happens, no need to worry about supplies," said

Helle Kristoffersen, President Asia of TotalEnergy. It is a “shame” that some Western banks are no longer funding LNG projects.

- Fiscal incentives, such as those in the U.S. Inflation Reduction Act (IRA), and the importance of long-term carbon pricing systems, like those being considered in Japan, will drive the CCS industry, said Ken Freeman at ExxonMobil.

## ANALYSIS

BY ANDREW STATTER

### Energy Jobs in Japan: The Closing of Green and Digital Talent Markets

Japan NRG's launch of its GxxD reports comes at a time when we as an executive search agency have noticed a clear closing of the gap between the Green and Digital talent markets.

The GxxD reports examine the twin focuses on GX (Green Transformation) and DX (Digital Transformation) that are championed by Japan in a bid to remain competitive, and gain a competitive advantage in a fast-paced and rapidly changing global marketplace.

On the ground level we've noticed a significant uptick in cross-team projects between our GreenTech division (renewable energy, green finance, power markets) and our Business Innovation division (digital transformation, artificial intelligence, business intelligence).

#### Increasing demand and supply in a digitizing economy

According to the GxxD reports, data center and related energy consumption is predicted to increase 500-fold by 2050. Data centers have an inherently heavy energy demand coming from processing and cooling systems, and their owners typically have strong ESG mandates, hence they are under heavy pressure for this energy to be derived from clean sources.

Data center operators are not the only business vying to procure clean electrons though, the nationwide demand for CPPAs is increasing rapidly. As supply struggles to keep up with demand, many developers are expanding their teams to develop renewable energy plants.

From a skills perspective, project development, engineering, project management and operations between renewable energy and data center assets are remarkably similar, hence there's an increasing opportunity for professionals experienced in either asset type to move between green and digital projects.

This coming together of energy generation and digital infrastructure assets is also reflected at the investor level. Infrastructure funds who had previously focused on energy generation assets with strong returns from FIT days are diversifying, with battery energy storage systems (BESS) and data centers the main areas of interest from the fund perspective.

Clean energy is only the tip of the iceberg for the power hungry data center industry. Energy efficiency and energy security are key priorities as well. This drives an increase in demand for advanced energy management software systems, as well as an increase in backup power systems that are increasingly in the form of on-site BESS. The increase of such BTM (behind-the-meter) systems that will also be trading power via other revenue streams is one factor leading to increased talent demand in our next growth sector.

### Trading gets smart

Over the past five years, Japan's energy trading landscape has shifted dramatically to become the world's third-largest liberalized market. With the recent eight-fold increase in futures trading on the TOCOM, and outsized growth on the rival EEX platform, as well as the fact that around 40% of physical power in Japan now trades on the JEPX spot/wholesale exchange, there's an increasing interest in market mechanisms from both domestic and global players.

Add to that the growing complexity of mirroring real-world energy trends (more weather-reliant renewables and energy storage units in the grid, the appearance of EVs and demand-response schemes, etc.), and you can see how important analytics, algorithms, and other digital tools become to help traders make sense (and money!) in today's markets.

AI-driven algorithmic trading is clearly on the rise, with global firms experienced in this from Europe, U.S. or Australia now building out their footprint in the Japanese market. Domestic players too are getting in on the act with their own systems.

On the talent side, this has led to energy players tapping into new talent pools. Quants from the finance or rapid trading areas such as FX, data scientists and machine learning experts from various industries are now in demand across the energy and power space as firms recognise the need to be more intelligent, faster and more automated in their trading strategies.

### Opportunities for new blood

The merging of GX and DX businesses is a GxxD thing for the talent market! Fresh ideas in any industry are directly correlated with fresh talent moving in. There was stagnation before the renewable energy boom, and there was a second phase of stagnation as large-scale renewable energy development began to plateau.

The digital revolution in the energy sector drives the opportunity to attract new talent, new ideas and move innovation.

### Case study 1: Data science in trading optimisation and aggregation

Titan was retained to build out the initial team for a Japanese player to develop the trading optimisers for their business that will aggregate and trade power using various routes to revenue. Due to the large data sets required to predict fluctuations, spreads and potential trading risks, we were tasked with supporting the hire of multiple data scientists.

Working with the client, we helped them to craft an attractive story, not only about their position and company but also about the power market itself as a meaningful and lucrative industry. As a result, the first recruit we successfully hired was a trilingual professional quantitative data scientist with experience in risk management in the insurance industry, as well as pricing strategies in FX, commodity and equity markets.

### Case study 2: Large power consumer building out generation capabilities

Over the past six months, Titan has worked with a leading investor and developer of large, power hungry assets such as data centers and logistics facilities. As with many such companies, they were under increasing pressure to hit ESG targets, and faced

challenges to procure sufficient clean energy from CPPAs. They decided to launch a new fund and team that would be dedicated to development of renewable energy and storage assets for their own consumption.

We worked with them to understand the renewable energy talent market, as well as design the interview process to allow them to accurately screen professionals from the renewables industry that they had previously not tapped into. To date, we have supported them to hire three investment and development professionals who have acquired secondary market assets and built a large pipeline of greenfield assets, as well as built out a network of local development partners.

#### **Summary: GxxD developments in the talent market**

As the energy business becomes more complex, demand increases, volatility remains in the market, the need for more data-driven decisions is sure to increase. What we are seeing in the market at the moment seems to be just the beginning, and the talent market shifts resulting from the convergence of the energy and digital markets will provide diverse opportunities for a wider range of professionals than we have seen to date.

*Andrew Statter is a Partner at Titan GreenTech, an executive recruitment agency focused on the clean energy space.*

*K.K. Yuri Group, the operator of the Japan NRG services, launched its GxxD project in May 2024. Further information and the first set of reports are openly available on the company website: <https://www.yuri-group.co.jp/gxxd>*

# ASIA ENERGY REVIEW

BY JOHN VAROLI

*This weekly column focuses on energy events in Asia and the Pacific*

## **APAC / CCS**

Asia Pacific could see \$15 billion in investment in carbon capture and storage over the next decade. Rystad Energy said Australia, Malaysia, and Indonesia are emerging CCUS hubs due to the CO2 storage potential in their depleted oil and gas reservoirs.

## **Australia / Energy transition**

Over the next four years the Queensland govt will allocate A\$39 billion to its renewable energy and jobs plan, ensuring that households have access to cleaner power.

## **China / Hydropower**

In Q1, Three Gorges Corp, the world's largest clean energy corridor, will generate a total of more than 52,000 GWh of electricity, equivalent to saving 15 million tons of coal.

## **China / Natural gas**

Russia's effort to ink a pipeline gas deal with China has stalled; Moscow sees Beijing's demands on price and supply to be unreasonable, claims Reuters. China wants a price close to Russia's subsidized domestic prices and would only commit to buy a small fraction of the pipeline's planned annual capacity of 50 bcm of gas.

## **India / Natural gas**

Sweltering heat is fuelling a surge in the use of gas-fired power in India. LNG imports are forecast to rise sharply over the next two years. The country's gas-fired power generation doubled YoY in April and May to 8,900 GWh.

## **Laos / Electricity exports**

According to a report in Nikkei, electricity is Laos' largest export, accounting for about 30% of total exports. More than 70% of the country's power comes from hydroelectric sources.

## **LNG**

LNG exports from the U.S. rebounded in May as Freeport LNG, the country's second-largest exporter, returned to full production; more supplies flowed to Asia, according to data from LSEG. The U.S. is the world's largest LNG exporter.

## **Malaysia / China**

Petronas and Sinopec inked an MoU to cooperate on the energy value chain. Areas include investment in upstream, refinery, chemicals, new energy, carbon capture, utilization and storage, etc. They'll also explore opportunities in trading LNG, crude and refined products.

## **Solar power**

Despite a surge in solar power capacity in 2023, a "vast solar potential remains untapped" as the sunniest countries have the least installed solar capacity, said



Ember, adding that only 14% of global solar capacity installed last year (about 204 GW) were located in countries with solar exposure that's above the global average. For example, Japan has 13 times more solar panels per person installed than India.

#### **South Korea / Oil & Gas**

Oil and gas prospects identified off the country's east coast hold "great potential". The site off the coastal city of Pohang could contain as much as 14 billion barrels of oil and gas.

## 2024 EVENTS CALENDAR

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

<b>January</b>	<ul style="list-style-type: none"> <li>○ First market trading day (Jan 4)</li> <li>○ IEA "Renewables 2023: Analysis and Market Forecast to 2028" released (Jan 11)</li> <li>○ Renewable Energy Exhibition (Jan 31 – Feb 2)</li> <li>○ Taiwan presidential election (Jan 13)</li> <li>○ Japan's Diet convenes</li> <li>○ IEA "Electricity 2024 / Analysis and Forecast to 2026" released (Jan 24)</li> </ul>
<b>February</b>	<ul style="list-style-type: none"> <li>○ CFAA International Symposium (Feb 2)</li> <li>○ India Energy Week 2024 (Feb 6-9)</li> <li>○ Lunar New Year (Feb 10-17)</li> <li>○ Indonesia presidential election (Feb 14)</li> <li>○ Japan-Ukraine Conference for Promotion of Economic Reconstruction (Feb 19)</li> <li>○ FIT/FIP solar auction (Feb 19 – March 1)</li> <li>○ Smart Energy Week (Feb 28-Mar 1)</li> </ul>
<b>March</b>	<ul style="list-style-type: none"> <li>○ Announcement of auction result for Offshore Wind Round 2 (for Akita Happonoshiro Project)</li> <li>○ Onshore wind auctions (March 4-15; results on March 22)</li> <li>○ International LNG Congress (LNGCON) 2024, Milan, Italy (March 11-12)</li> <li>○ Russian president election (March 15-17)</li> <li>○ World Petrochemical Conference, Houston, TX, USA (March 18-22)</li> <li>○ IAEA Nuclear Energy Summit @ Belgium (March 21)</li> <li>○ Ukraine presidential election (due before March 31)</li> <li>○ End of Japan's fiscal year 2023 (Mar 31)</li> </ul>
<b>April</b>	<ul style="list-style-type: none"> <li>○ Maritime Decarbonisation Conference Asia, Singapore (Apr 3-4)</li> <li>○ Details of 2024 capacity auction results released</li> <li>○ Japan Atomic Industrial Forum (JAIF) Annual Conference</li> <li>○ Global LNG Forum (Apr 15-16), Madrid, Spain</li> <li>○ Global Hydrogen &amp; CCS Forum (Apr 17-18), Madrid, Spain</li> <li>○ World Energy Congress (WEC), Rotterdam, Netherlands (Apr 22-25)</li> </ul>
<b>May</b>	<ul style="list-style-type: none"> <li>○ May Golden Week holidays (May 3-6)</li> <li>○ World Hydrogen Summit (May 13-15)</li> </ul>
<b>June</b>	<ul style="list-style-type: none"> <li>○ Japan Energy Summit &amp; Exhibition (June 3-5)</li> <li>○ G7 Summit in Italy</li> <li>○ International Conference on Oilfield Chemistry and Chemical Engineering (IOCCE), Tokyo (June 10-11)</li> <li>○ American Nuclear Society (ANS) Annual Conference, Las Vegas (June 9-12)</li> <li>○ Renewable Materials Conference 2024, Siegburg/Cologne, Germany (June 11-13)</li> <li>○ Happonoshiro, Murakami-Tainai, Oga-Katagami-Akita and Saikai-Eshima wind project auctions close (June 30)</li> </ul>
<b>July</b>	<ul style="list-style-type: none"> <li>○ Tokyo governor election (July 7)</li> <li>○ 7th Basic (Strategic) Energy Plan draft published (expected)</li> </ul>
<b>August</b>	<ul style="list-style-type: none"> <li>○ 7th Basic (Strategic) Energy Plan draft presented to Cabinet (expected)</li> </ul>

<b>September</b>	<ul style="list-style-type: none"> <li>○ Global Offshore Wind Summit Japan 2024, Sapporo, Hokkaido (Sept 3-4)</li> <li>○ The United Nations Summit of the Future (Sept 22-23)</li> <li>○ Gastech 2024, Houston, TX (Sept 17-20)</li> <li>○ IAEA General Conference</li> <li>○ GX Week in Tokyo (expected late Sept to October) <ul style="list-style-type: none"> <li>○ Asia Green Growth Partnership Ministerial Meeting</li> <li>○ Asia CCUS Network Forum</li> <li>○ International Conference on Carbon Recycling</li> <li>○ International Conference on Fuel Ammonia</li> <li>○ GGX x TCFD Summit</li> </ul> </li> </ul>
<b>October</b>	<ul style="list-style-type: none"> <li>○ IEA World Energy Outlook 2024 Release</li> <li>○ BP Energy Outlook 2024 Release</li> <li>○ Innovation for Cool Earth Forum (expected)</li> <li>○ Connecting Green Hydrogen Japan 2024 (Oct 16-17)</li> <li>○ Japan Wind Energy 2024 Summit (Oct 16-17)</li> <li>○ Solar Energy Future Japan 2024 (Oct 16-17)</li> <li>○ Japan Mobility Show (Oct 25-Nov 5)</li> </ul>
<b>November</b>	<ul style="list-style-type: none"> <li>○ US presidential election (Nov 5)</li> <li>○ COP 29 in Azerbaijan (Nov 11-22)</li> <li>○ Abu Dhabi International Petroleum Exhibition Conference (ADIPEC) 2024, Abu Dhabi, UAE (Nov 11-14)</li> <li>○ APEC 2024 @ Lima, Peru</li> <li>○ International Conference on Nuclear Decommissioning (TBD)</li> <li>○ G20 Rio de Janeiro Summit (Nov 18-19)</li> <li>○ Offshore Energy Exhibition &amp; Conference (OEEC) 2024, Amsterdam, the Netherlands (Nov 26-27)</li> <li>○ Biomass &amp; BioEnergy Asia Conference (TBD)</li> <li>○ European Biomethane Week 2024</li> </ul>
<b>December</b>	<ul style="list-style-type: none"> <li>○ Last market trading day (December 30)</li> </ul>

## Disclaimer

This communication has been prepared for information purposes only, is confidential and may be legally privileged. This is a subscription-only service and is directed at those who have expressly asked K.K. Yuri Group or one of its representatives to be added to the mailing list. This document may not be onwardly circulated or reproduced without prior written consent from Yuri Group, which retains all copyright to the content of this report.

Yuri Group is not registered as an investment advisor in any jurisdiction. Our research and all the content express our opinions, which are generally based on available public information, field studies and own analysis. Content is limited to general comment upon general political, economic and market issues, asset classes and types of investments. The report and all of its content does not constitute a recommendation or solicitation to buy, sell, subscribe for or underwrite any product or physical commodity, or a financial instrument.

The information contained in this report is obtained from sources believed to be reliable and in good faith. No representation or warranty is made that it is accurate or complete. Opinions and views expressed are subject to change without notice, as are prices and availability, which are indicative only. There is no obligation to notify recipients of any changes to this data or to do so in the future. No responsibility is accepted for the use of or reliance on the information provided. In no circumstances will Yuri Group be liable for any indirect or direct loss, or consequential loss or damages arising from the use of, any inability to use, or any inaccuracy in the information.

K.K. Yuri Group: Hulin Ochanomizu Bldg. 3F, 2-3-11, Surugadai, Kanda, Chiyoda-ku, Tokyo, Japan, 101-0062.