EU-Japan Centre for Industrial Cooperation
一般財団法人 日欧産業協力センター

Monthly Japanese Industry and Policy News
November (October 27 – November 30) 2023

・ This was compiled by "Weekly Japanese Industrial and Policy News".

Legislation and Policy News

Japan-EU agreement in principle on free data flow

On October 28, Japan and the European Union (EU) reached an agreement in principle to establish regulations regarding the free flow of data across borders. Ensuring the free flow of data and prohibiting measures that impede the flow, such as requests for domestic storage of data. The establishment of rules will make it easier for Japanese companies to expand their business in Europe, leading to the revitalization of digital trade, including internet transactions.

At the high-level economic dialogue between Japan and the EU held in conjunction with the G7 trade ministers' meeting, Minister of Economy, Trade and Industry (METI) Nishimura, Minister of Foreign Affairs (MOFA) Kamikawa, and Valdis Dombrovskis, Executive Vice President of the European Commission for An Economy that Works for People, European Commissioner for Trade agreed in principle. Japan is advocating the realization of reliable and free data flow (DFFT), and is considering expanding the number of countries and regions that support the common provisions between Japan and the EU.

International rules for data distribution are also being negotiated at the World Trade Organization (WTO), but no agreement has been reached due to differences in the positions of each country. Japan is calling on all countries to realize the "Dependable and Free Flow of Data (DFFT)" and is looking to expand the number of countries and regions that support it, using common rules with the EU as a successful example.

METI website (in Japanese):
https://www.meti.go.jp/press/2023/10/20231028004/20231028004.html

G7 Trade Ministers Meeting adopts statement calling for elimination of unnecessary trade restrictions

The G7 Trade Ministers Meeting was held in Osaka from October 28 to 29, and concluded with the adoption of a ministerial statement. The themes of the meeting were: (1) trade and sustainability, (2) ensuring a level playing field, (3) WTO 13th Ministerial Conference (MC13), and (4) economic coercion and strengthening supply chains. In addition to the four sessions held, an outreach session (a session on supply chain resilience involving invited countries/organizations and private companies) was held for the first time at a G7 trade ministers' meeting.

Bearing in mind China's suspension of imports of Japanese marine products, the statement said, “the G7 strongly urge that any measures that unnecessarily restrict trade be immediately abolished." After the discharge of treated water from the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Plant into the ocean, calls for the abolition of import restrictions were included for the first time in the outcome document of an international conference. Regarding strengthening the supply chain for important minerals such as lithium, which is used in electric vehicle batteries, and semiconductors, it said, “the G7 condemn the act of weaponizing economic dependence” and also confirmed that they would accelerate cooperation with countries other than the G7.

METI website:
https://www.meti.go.jp/press/2023/10/20231029001/20231029001-a.pdf

METI signs memorandum of cooperation on critical minerals with Department for Business and Trade of UK

On October 28, Minister of Economy, Trade and Industry Nishimura met with the Minister of Business and Trade from Beydenoch, UK, at the G7 Trade Ministers' Meeting in Osaka, and signed a Memorandum of Cooperation on Critical Minerals. This is the first time for Japan to sign a memorandum of cooperation between consuming countries regarding important minerals. Through this memorandum of cooperation, it is expected that cooperation between the Japanese and British governments and companies will be strengthened.

The main points of this memorandum of cooperation are as follows.

- Collaboration in research and innovation
- Responsible sourcing and processing of critical raw materials
- Building a strong, transparent and sustainable supply chain
- Identification of alternative materials, manufacturing and recycling technologies, and business models to achieve a circular economy.
- Cooperation towards building a highly transparent market through improving information sharing and traceability, etc.
- Encouraging partnerships between companies and industry organizations from both countries to diversify supply chains, and leveraging private finance for joint investment in UK-Japanese or third-country projects.
- Sharing information on infrastructure projects to enable private companies to invest in third countries with peace of mind.
- Cooperation to improve the midstream capabilities of developing countries through university exchanges, etc.

METI website (in Japanese):
https://www.meti.go.jp/press/2023/10/20231028005/20231028005.html

MET signs a memorandum of cooperation in the mining field with the Philippine Department of Environment and Natural Resources
foreign economy

On November 3, 2023, the Ministry of Economy, Trade and Industry (METI) signed a memorandum of cooperation in the mining field with the Philippine Department of Environment and Natural Resources. The memorandum of cooperation was signed by METI Minister Nishimura and Minister of Natural Environment and Resources Loyzaga. With the conclusion of this memorandum of cooperation, it is expected that cooperation between Japan and the Philippines will be strengthened to promote sustainable development in the mining and mineral resources fields.

The Philippines is the second largest producer of nickel in the world after Indonesia, and the fourth largest producer of cobalt, both of which are essential minerals for EV batteries, home appliances, and defense technology. Although the country has significant mineral potential, the government estimates that less than 5% of its mineral reserves have been mined to date.

METI website (in Japanese):
https://www.meti.go.jp/press/2023/11/20231106002/20231106002.html

Japanese government to issue "GX Economic Transition Bonds" framework receives international certification

On November 7, the government held the Green Transformation (GX) Implementation Council to consider necessary measures toward decarbonization. At this meeting, it was reported that the certification (second-party opinion) has been obtained.by two evaluation agencies, DNV (Det Norske Veritas) overseas and JCR (Japan Credit Rating Agency) in Japan which examined the compliance of GX Economic Transition Bonds to be issued within this fiscal year.

GX Economic Transition Bonds will provide support worth JP¥ 20 trillion over the next 10 years. As a measure to promote investment that integrates regulation and support, support will be provided over multiple years for innovative research and development and capital investment related to energy decarbonization and industrial structural transformation. Regarding the issuance of internationally certified GX Economic Transition Bonds that will begin in FS 2023, Prime Minister Kishida said, "GX Economic Transition Bonds are expected to serve as a catalyst for similar initiatives in industry and Asia. This will be an extremely important foundation for attracting global funds for GX investment, which is estimated to amount to JP¥ 4,000 trillion by 2050, especially in Asia."

Prime Minister's Office website:
https://www.kantei.go.jp/jp/101_kishida/actions/202311/07gx.html

Establishment of hydrogen and ammonia supply network between Japan and South Korea

On November 17, Prime Minister Fumio Kishida and South Korean President Yoon Seong-yeol announced a plan to create a supply network for decarbonized fuels such as hydrogen and ammonia in both countries. They have also launched a new framework for collaboration in quantum technology. Both sides made the announcement at a debate at Stanford University in conjunction with their attendance at the Asia-Pacific Economic Cooperation

(APEC) summit in San Francisco.

Hydrogen and ammonia are mostly produced from natural gas. Japanese and Korean companies will jointly invest in production projects in third-party countries that produce natural gas, such as the Middle East and the United States, and government-affiliated financial institutions will support financing. Both Japan and South Korea have strengths in industries that use a lot of energy, such as steel and chemicals. As both countries rely on energy imports from abroad, joint procurement of hydrogen and ammonia is in the interests of both countries.

Prime Minister's Office website:
https://japan.kantei.go.jp/101_kishida/diplomatic/202311/17korea.html

IPEF summit establishes new dialogue to strengthen supply chain for important minerals

The Indo-Pacific Economic Framework (IPEF), which includes 14 participating countries including Japan, the United States and Australia, held a summit meeting on November 16. Agreement was confirmed in three of the four areas of negotiation, including decarbonization. The leaders' statement released on the same day stated that they would launch a framework for dialogue on critical minerals and strengthen the supply chain.

The leaders' statement clearly states that the countries will “promote cooperation and dialogue in the fields of energy security and technology.'” It also touched on the need for further public and private investment to promote regional decarbonization. "We achieved our goal in record time," the statement said. Following the agreement reached in May of this year on "strengthening the supply chain," the member countries reached a substantive agreement on a "clean economy" aimed at decarbonization and a "fair economy," including measures to prevent tax evasion. Agreement on "trade facilitation," including digital technology, was postponed due to opposition of the United States and differences in the stances of each country.

MOFA website:
https://www.mofa.go.jp/mofaj/files/100582857.pdf

METI and MOE hold a workshop on CCU/carbon recycling technology

On November 7, the Ministry of Economy, Trade and Industry (METI)and the Ministry of the Environment (MOE) held an online workshop on CCU/carbon recycling technology. A total of 75 people attended from G7 countries, invited countries, and related organizations. At the workshop, a pioneering project on carbon recycled fuels and the status of international CO2 counting rules were introduced, and issues related to promoting the use of carbon recycled fuels were discussed. The main discussions of this workshop are as follows.

- E-methane and e-fuel can be used on existing infrastructure, and are expected to be used in the city gas and transportation sectors.
- Regarding private sector initiatives related to e-methane and e-fuels, private operators are currently considering a wide range of options for producing and procuring renewable energy and hydrogen.
- Access to low-cost renewable energy, hydrogen and CO2 sources and proximity to existing infrastructure are important factors in site selection for projects. It is effective to have a clear framework.
- There is currently no clear guidance on international rules for counting CO2 emissions associated with the use of CCU/carbon recycled products. In the future, it is conceivable that different accounting approaches will be adopted depending on the type of CCU/carbon recycled product.
- Regarding the handling of CCU/carbon recycled products in the national greenhouse gas counting method, the idea is to organize them in the national greenhouse gas inventory based on the IPCC guidelines, or to organize them outside of the inventory through bilateral agreements, etc.

METI website (in Japanese):
https://www.meti.go.jp/press/2023/11/20231120003/20231120003.html

METI reports results of INC3 meeting towards formulation of treaty on plastic pollution

The Ministry of Economy, Trade and Industry (METI) reported on November 21 the result of the third session of Intergovernmental Negotiating Committee to develop an international legal binding instrument on plastic pollution, including in the marine environment, held in Nairobi, Republic of Kenya, from November 13 to November 19, 2023 (INC3). Approximately 2,000 people attended from

160 United Nations member states, related international organizations and NGOs. A government delegation from Japan consisting of the MOFA, METI, MOE and Fisheries Agency attended.

At this meeting, based on the zero draft of the treaty published in September, three working groups were established to discuss the objectives, core obligations, means of implementing treaty obligations, definitions and principles, etc. The main focus was on integrating each country's proposals into the draft as much as possible, and as a result of the discussions, a revised version of the draft article incorporating all the proposals of each country was created. It was decided that this would be the basis for negotiations at INC4.

The Japanese government delegation asserted that:

- The objective of the treaty should include the ambition to reduce additional pollution to zero by 2040;
- It is necessary to establish a society-wide plastic resource circulation mechanism and to establish regulations that address the entire lifecycle from production to waste management;
- Restrictions on the production of primary plastics should be implemented based on the circumstances of each country, rather than a uniform worldwide regulation;
- It is important to respond based on scientific evidence, and attention should be paid to overlap with other existing treaties;
- It emphasized that support for implementation should focus on effective measures and be provided to countries that truly need it.

The next meeting, INC4, is scheduled to be held in Ottawa, Canada, from April 21 to 30, 2024.

METI website (in Japanese):
https://www.meti.go.jp/press/2023/11/20231121002/20231121002.html

METI releases energy supply and demand results for FY 2022

The Ministry of Economy, Trade and Industry (METI) released comprehensive energy statistics for fiscal year 2022 on November 29. According to this, final energy consumption in fiscal 2022 was down 2.9% compared to the previous

year. Looking at final energy consumption by sector, companies and offices decreased by 6.1%, while transportation increased by 4.0% and households increased by 0.5%.

Domestic supply of primary energy decreased by 2.3% compared to the previous year. While fossil fuels decreased by 1.9%, renewable energy (including hydropower) increased for the 10th consecutive year. Among fossil fuels, oil decreased by 2.0%, coal decreased by 1.9%, and natural gas and city gas decreased by 1.5%. Non-fossil fuels decreased by 4.4%, largely due to a 21.7% decrease in nuclear power, while renewable energy (excluding hydropower) increased by 2.8%, led by solar power. The non-fossil fuel share was 16.5%, lower than the previous year.

The amount of electricity generated was down 2.5% compared to the previous year. The composition of power generation is as follows: renewable energy (including hydropower) accounts for 21.7% (up 1.4%), nuclear power accounts for 5.6% (down 1.3%), and thermal power (excluding biomass) accounts for 72.7% (down 0.1%). The energy self-sufficiency rate (IEA base) was 12.6%, down 0.7% from the previous year.

CO2 emissions were down 2.9% compared to the previous year and 22.5% compared to fiscal 2013, the lowest since fiscal 1990. By sector, companies and other establishments decreased by 6.2%, while households increased by 1.4% and transportation increased by 3.9%.

METI website (in Japanese):
https://www.meti.go.jp/press/2023/11/20231129003/20231129003.html

Survey and Business Data

JOGMEC successfully identifies resources at the level of 50 million tons in seafloor hydrothermal deposits

JOGMEC continues to conduct wide-area surveys, drilling surveys, and resource assessments of Seafloor hydrothermal deposits that mainly contain copper, zinc, lead, gold, and silver in the Okinawa sea area and the Izu/Ogasawara sea area. It has recently calculated the approximate amount of resources to be a total of 51.805 million tons. JOGMEC announced it on

November 8. This is an important result that forms the basis for developing prospects for Seafloor hydrothermal deposits within the EEZ. In the future, JOGMEC explained it will continue to improve the accuracy of resource amounts at existing sites, assess resource amounts at unexcavated sites, and conduct wide-area surveys to discover new mineral deposits, making further efforts to contribute to government plans.

Note1 Seafloor hydrothermal deposits: Metal components such as copper and zinc contained in hot water gushing from the ocean floor are precipitated when cooled by seawater. In Japan, it is distributed in Okinawa waters, Izu and Ogasawara waters, and has been confirmed to exist at depths of 500 meters to 3,000 meters.

Note2 Mineral Resource Potential: This is a unique concept introduced in JOGMEC's exploration of seafloor hydrothermal deposits, and is approximately equal to the sum of Inferred Mineral Resources and Exploration Results under the international standards for land resource assessment.

JOGMEC website:
https://www.jogmec.go.jp/english/news/release/news_10_00051.html

The number of foreign visitors to Japan in October was 2.51 million, exceeding the number for the same month in 2019 for the first time since the pandemic

The Japan National Tourism Organization (JNTO) announced on November 15 that the number of foreign visitors to Japan in October was 2,516,500 (estimated). This is the first time since the spread of the CODID-19 infection that it has exceeded the results for the same month in 2019. The number of visitors to Japan from South Korea and the United States increased compared to 2019, reaching a record high for October in 14 out of 23 countries and regions. By country/region, South Korea had the largest number of visitors to Japan, with 631,100 visitors, approximately 3.2 times the number in 2019. Next was Taiwan with an increase of 2.7% from the previous year to 424,800, followed by China with a double-digit decrease of 64.9% from the previous year with 256,300 and the United States with an increase of 38.2% from the previous year to 211,900.

JNTO website (in Japanese):
https://www.jnto.go.jp/statistics/data/20231115_monthly.pdf

Steel cans, recycling rate over 90% for 12 consecutive years

Recycling of steel cans remains at a high level. The recycling rate for FY 2022, compiled by the Steel Can Recycling Association, was 92.7%, exceeding 90% for the 12th consecutive year. Although it is inferior to aluminum cans (93.9%), it is higher than plastic bottles (mid 80%) and glass bottles (over 70%).

Steel cans are highly airtight and are suitable for long-term storage. More than 60% of the total goes to beverages such as coffee and foods used for canning fruits and fish. Collected cans are passed on to steel companies that use electric furnaces via scrap dealers and others, where they are turned into steel again. Local governments have a separate collection system in place, and beverage manufacturers also use collection boxes attached to vending machines, making it possible to collect almost all cans other than littered cans.

Electric furnaces do not use fossil fuels and have low carbon dioxide (CO2) emissions. With the trend toward decarbonization, the use of electric furnaces is expected to expand. However, the use of steel cans is decreasing. According to the Association, the weight consumed in fiscal 2022 was 363,000 tons, down 7% from the previous year. This was almost halved compared to FY2012 (664,000 tons). Steel cans are attracting a lot of attention in the effort to realize a recycling-oriented society, but unless the steel and can manufacturing industries promote their usefulness as storage containers and encourage their use, their presence is at risk of diminishing further.
The Japan Steel Can Recycling Association website (in Japanese):
https://steelcan.jp/recycle/recycle01/

Company & Organization News

Mitsui O.S.K. Lines collaborates with German company on e-methanol

Mitsui O.S.K. Lines (MOL) announced on October 25 that it has signed a memorandum of understanding with Hy2gen Deutschland GmbH, a subsidiary of German renewable energy company Hy2gen AG, to jointly explore the use of e-methanol. The aim is to use it as marine fuel for maritime transportation. E-

methanol is a clean energy produced by synthesizing recovered CO2 and hydrogen produced from renewable energy. Compared to conventional marine fuels such as heavy oil, it can reduce CO2 emissions by up to 15% and sulfur oxide (SOX) emissions by up to 99%.

Hy2gen specializes in all products using green hydrogen, including e-methanol and green ammonia using hydrogen derived from renewable energy, and hydrogen-based synthetic aviation fuel. Production of e-methanol is scheduled to begin in 2028 in Lower Saxony, Germany, and the companies plan to use the fuel as marine fuel for maritime transport in the Atlantic region. Annual production volume has not yet been determined.

Mitsui O.S.K. Lines is currently aiming to achieve net-zero GHG emissions by 2050, and is promoting the introduction of clean alternative fuels as one of its main strategies to achieve this goal. As a milestone, the company aims to launch 90 LNG and methanol-fueled ocean-going vessels by 2030.

MOL website:
https://www.mol.co.jp/en/pr/2023/23135.html

TDK collaborates with Swiss giant on next-generation current sensor
TDK announced on October 25 that it will collaborate with Swiss major LEM on the development of next-generation current sensors. With the electrification of automobiles and the spread of renewable energy, there is a need for sensors that can detect current with higher accuracy. TDK has strengths in "TMR elements" (TMR: tunnel magnetoresistance) used in high-performance sensors. LEM aims to incorporate this element and commercialize a new sensor in the mid-2020s.

The company will develop a "next-generation semiconductor current sensor." LEM is one of the major manufacturers of current sensors, and is particularly strong in applications for automobiles and industrial equipment such as renewable energy equipment. TDK will provide customized TMR elements for LEM. By using the same element, it is possible to increase detection accuracy and reduce power consumption compared to conventional devices. TDK has applied the technology it has cultivated in hard disk drive (HDD) parts to

commercialize the world's first highly sensitive automotive sensor using TMR elements.

TDK website:
https://www.tdk.com/en/news_center/press/20231025_01.html

Toyota to invest additional JP￥1.2 trillion in US EV battery factory

Toyota Motor Corporation announced on October 31 that it will invest approximately $8 billion (approximately JP¥ 1.2 trillion) in an in-vehicle battery factory currently under construction in North Carolina, USA. The total investment for the plant will be approximately $13.9 billion. It will strengthen its own factory's production system and urgently secure the batteries we need in North America.

The company will launch eight new production lines for electric vehicles (EVs) and plug-in hybrid vehicles (PHVs), bringing the total to 10 by 2030. There are also plans to install four for hybrid vehicles (HV). It has an annual production capacity of more than 30 gigawatt hours and will be installed in EVs and other sports utility vehicles (SUVs). In current EV terms, this is equivalent to about 400,000 vehicles.

The battery factory is scheduled to begin operations in 2025. Toyota Tsusho, which has a 10% stake in the plant, announced on the 1st that it will cover approximately $370 million of the approximately $8 billion additional investment. With the additional investment, 3,000 new people will be hired, making the factory a workforce of over 5,000 people. Toyota plans to increase global EV sales to 1.5 million units in 2026 and 3.5 million units in 2030. Sales in 2022 were 24,000 units, it needs to increase by more than 60 times over the next four years.

Toyota website:
https://pressroom.toyota.com/toyota-supercharges-north-carolina-battery-plant-with-new-8-billion-investment/

AGC manufactures glass using hydrogen fuel

AGC announced on October 26 that it had successfully conducted a demonstration test of glass manufacturing using hydrogen as fuel. This is the

group's first test using hydrogen in an actual production reactor. In the future, it will consider tests that scale up the combustion capacity of hydrogen combustion burners, as well as demonstration tests at overseas bases. After determining the scope of use of hydrogen combustion technology, it aims to introduce it on a full scale.

In the demonstration test, Japan Air Liquide's hydrogen combustion burner was introduced into part of the conventional oxyfuel combustion process that uses city gas as fuel to produce special glass for displays such as those used in smartphones. It examined the technical issues involved in utilizing hydrogen, such as the quality of glass, the effect on furnace materials, flame temperature, and temperature inside the furnace. In this demonstration test, it was possible to maintain the temperature of the glass melting furnace at an appropriate level while suppressing the concentration of nitrogen oxides (NOx) contained in the exhaust gas to the same level as when burning city gas exclusively.

AGC website:
https://www.agc.com/en/news/detail/1205304_2814.html

Hitachi Energy acquires Spain's eks Energy to strengthen energy storage business

Hitachi Energy (Zurich, Switzerland), a subsidiary of Hitachi announced on October 24 that it has acquired eks Energy, a Spanish power conversion and control solutions company. Respond to accelerating global demand by strengthening our portfolio of energy storage systems.

With this acquisition, Hitachi Energy will combine its automation technology, software, and system integration capabilities with eks Energy's advanced power conversion and control solutions to become a pioneering technology provider in the renewable energy and energy storage systems market. The idea is to further strengthen its position as a company. As renewable energy continues to expand around the world, demand for battery energy storage systems (BESS) continues to rapidly increase.

HITACHI Energy website:
https://www.hitachi.com/New/cnews/month/2023/10/231024a.pdf

Four companies including Toyota use "EV batteries" for stationary storage batteries

On November 1, Eurus Energy Holdings, in collaboration with Tokyo Electric Power Company Holdings, Toyota Tsusho, and Toyota Motor Corporation, began a demonstration experiment of a stationary storage battery system that utilizes EV storage batteries. The demonstration will include verification of how to maximize the value provided by large-scale wind power plants whose FIT period has ended. The plan is to last several years.

The stationary storage battery system used for the demonstration has an output of 1000kW and a capacity of 3000kWh. It was developed by combining the in-vehicle batteries, control parts, and technology used in Toyota Motor Corporation's EVs and TEPCO Holdings' grid connection technology, and will be installed at the "Eurus Tashirodaira Wind Farm (capacity 7,650kW)" in Akita Prefecture. In the demonstration, they will operate a stationary storage battery system to eliminate the instability that is an issue with renewable energy power sources, and also to maximize the value provided by large-scale wind power plants that FIT period has ended and to make them a long-term power source.

Eurus Energy website:
https://www.eurus-energy.com/en/news/news-project/68359/

Enechange invests in Canadian geothermal energy technology startup

ENECHANGE announced on November 2nd that it has invested in Canada's Eavor through the JAPAN ENERGY Fund (JEF). Eavor is a global startup in the field of geothermal energy solutions. With Eavor-Loop, a patented closed-loop geothermal utilization technology, it is developing a new source of stable energy supply and cost-effective clean energy.

In the C$182 million (US$131.5 million) funding round, led by Austrian energy company OMV AG, JEF, Canada Growth Fund (Canada), Monaco Asset Management (Monaco), and Microsoft's Climate Innovation Fund (USA) are participating. From Japan, Chubu Electric Power is an investor. Closed-loop geothermal technology involves constructing a loop (an underground system similar to a radiator sealed underground by connecting two vertical piles and

multiple horizontal piles) and circulating fluid (fresh water) inside the loop. This allows for efficient extraction of heat from deep underground.

Japan's geothermal resources are the third largest in the world at approximately 23GW, and it is thought that if geothermal power generation is developed, it could supply 10% of the country's electricity, and the government plans to introduce 1.5 million kW of geothermal power generation by 2030. However, due to high initial costs and the regulatory process for existing technology, geothermal power generation currently accounts for only 0.3% of Japan's electricity supply.

Enechange website:
https://enechange.co.jp/en/news/press/eavor/

Tokyo Gas and Belgium's TES collaborate on e-methane

Tokyo Gas and Tree Energy Solutions Belgium (TES) announced on November 7 that they have signed a memorandum of understanding for comprehensive collaboration regarding e-methane. Based on this collaboration, the two companies will raise global awareness of e-methane, design a system for international CO2 emission counting for fuels that contribute to carbon neutrality, including e-methane, and develop an international supply chain for e-methane.

In Japan, it is important to decarbonize gaseous energy to meet heat demand, which accounts for 60% of current energy demand. As one means of achieving this goal, e-methane is expected to achieve both a smooth transition to carbon neutrality and cost reduction, as existing city gas infrastructure such as LNG receiving terminals and pipelines, as well as consumption equipment, can be used.

TES is a company headquartered in Brussels, Belgium with offices in Europe, North America, the Middle East, and East Asia/Oceania. The company aims to produce and liquefy e-methane in regions of the world where competitive renewable energy is available and sell it in the European and Japanese markets. Meanwhile, Tokyo Gas aims to introduce e-methane equivalent to 1% of city gas sales by 2030.

Tokyo gas website:
https://www.tokyo-gas.co.jp/en/IR/support/pdf/20231107-02e.pdf

Promoting GX in the Sake industry with high vacuum technology

Inter Holdings announced on November 10 that it has begun a demonstration experiment with the participation of five sake breweries across Japan to promote the green transformation of sake breweries nationwide using ``vacuum sake." The company has the world's only patented ultra-vacuum technology with a vacuum rate of 99.5%. The demonstration experiment will explore specific issues related to operations and distribution at sake breweries and how to solve them, with the aim of realizing the supply of sake in vacuum pouch containers. Through this, they will examine the usefulness of new containers, including new ways to use them instead of bottles, as well as significant reductions in logistics costs and CO2 emissions due to lighter loads.

Additionally, from the same day, it started crowdfunding to offer general consumers the experience of “maintaining freshness to the last drop and enjoying the deliciousness of freshly opened sake every day" thanks to their unique vacuum check valve. In the future, the company plans to develop vacuum pouch filling machines specifically for sake breweries and expand sales channels overseas. The first goal is to have approximately 100 sake breweries participate, which is about 10% of the approximately 1,400 sake breweries across Japan, by 2024.

Domestic consumption of Japanese sake is on the decline, and the company faces challenges such as bottle manufacturers discontinuing production due to a sharp drop in demand for bottled products, bottle collection companies going out of business one after another, and soaring transportation costs. On the one hand, there is a growing trend to enjoy sake around the world, including in overseas Japanese restaurants, but the current situation is that they are not able to keep up with the trend.

INTER HOLDINGS website (in Japanese):
https://prtimes.jp/main/html/rd/p/000000017.000058890.html

Yokohama Port visualizes exhaust gas from ships

On November 8, the City of Yokohama announced that it will begin an initiative to visualize exhaust gas from ships at Yokohama Port, in preparation for the creation of a Carbon Neutral Port (CNP). In this initiative, the Maritime Emission Portal (MEP), an exhaust gas detection system developed by Australian company RightShip, will be used for the first time in a Japanese port. MEP, developed by Lightship, is a platform for tracking and monitoring emissions and environmental impact in the shipping industry. By combining ship Automatic Identification System (AIS) data with RightShip's ship insight data that the company has accumulated over 20 years, it will accurately understand and visualize ship emissions. RightShip was founded in 2001 and currently, more than 800 companies around the world use the company's due diligence, environmental and inspection services.

Yokohama City has adopted a unique estimation method in order to form a "Green Shipping Corridor" that aims to decarbonize the global supply chain by collaborating with overseas ports. On the other hand, in order to proceed with the formation of a "Green Shipping Corridor," it is necessary to collaborate with advanced overseas ports such as the Port of Los Angeles, and it is essential to create a system that can quantitatively compare exhaust gases and verify estimated values. Given these circumstances, the city adopted MEP, the only system currently available.

Yokohama city press release in PRTIMES (in Japanese):
https://prtimes.jp/main/html/rd/p/000001252.000013670.html

Asia-Pacific Airlines Association aims to increase recycled fuel ratio to 5% in 2030

Asia-Pacific Airlines Association (AAPA) announced that it held the annual meeting in Singapore on November 10, and its 14 member airlines have set a goal of replacing 5% of their fuel with environmentally friendly recycled aviation fuel (SAF) by 2030. SAF is made from waste oil and plants and is seen as a trump card for the aviation industry to achieve its greenhouse gas reduction goals. However, production volumes are still low and the price is significantly higher than existing jet fuels, which are obstacles to expanding its use.

The International Air Transport Association (IATA) has already adopted a goal of reducing greenhouse gas emissions to virtually zero by 2050. However, there are also differences in temperature between emerging and developed countries. At the AAPA general meeting, there was an opinion that the ability to invest in environmental sustainability initiatives depends on the stage of development of a country," so the feasibility of 5% to 2030 is unclear. Japan Airlines and All Nippon Airways are also members of AAPA.

AAPA website:
https://www.aapairlines.org/wp-content/uploads/2023/11/AAPA_PR_Issue14_AP67_Resolutions_10Nov23.pdf

NEOS collaborates with France's Air Liquide on hydrogen business

ENEOS announced on November 15 that it will collaborate with Air Liquide, a leading French industrial gas company, in the hydrogen business. ENEOS will consider participating in Air Liquide's hydrogen production plan and jointly developing large-scale hydrogen liquefaction facilities. They will work together to build a value chain in each field, from hydrogen production to distribution and sales. Air Liquide will work on large-scale hydrogen production projects in Europe, as well as the United States and Australia. It has strengths in liquefaction technology for transporting hydrogen, and operates hydrogen stations around the world, including Japan. ENEOS has set a goal of procuring 250,000 tons of hydrogen per year in 2030, and the two companies judged to be highly complementary. The two companies will also seek cooperation in reducing the costs of installing and operating hydrogen stations.

ENEOS website:
https://www.eneos.co.jp/english/newsrelease/2023/pdf/20231115_01.pdf

Daikin uses CO2 to generate synthetic resin raw materials

Daikin Industries announced on November 15 that it has jointly demonstrated technology with Doshisha University to reuse carbon dioxide (CO2) to produce acetylene, which is used as a raw material for synthetic resins and for welding metals. Carbide, the main raw material for acetylene, was synthesized by electrolyzing CO2 in a high-temperature molten salt. Aiming to be adopted at

thermal power plants, etc., it will proceed with expansion of scale and consideration of equipment installation.

Acetylene is manufactured by heating coke and limestone at high temperatures, which produces a large amount of CO2 emissions. If acetylene can be produced by reacting carbide made from recycled CO2 with water, it could contribute to decarbonization. In joint research with Doshisha University, it demonstrated the recovery efficiency could be increased to nearly 80% by dividing electrolysis into two stages. The technology is currently in the basic research stage, but it is expected to put it into practical use as early as 2030.

Daikin website (in Japanese):
https://www.daikin.co.jp/press/2023/20231115

IHI developed large-capacity recirculation device for aircraft fuel cells
On November 13, IHI announced that it has developed a large-capacity recirculation device (electric hydrogen turbo blower) for aircraft fuel cells, which is the highest in the world, together with Sanei Kikai, and has successfully conducted a demonstration operation. The newly developed electric hydrogen turbo blower is a device that collects a large amount of hydrogen, including water vapor, that is emitted unreacted during fuel cell power generation and recirculates it to the fuel electrode.

Aircraft fuel cells are required to have a capacity exceeding 400kW. Conventional small blowers require multiple units to be operated in parallel, but with this device, this can be done with just one unit. The company says that this result will be useful not only for aircraft, but also for the development of ships and large trucks as fuel cell mobility, which is expected to have higher output. In addition to developing this device, the company is currently developing high-output electric motors for aircraft propulsion and electric turbo compressors that supply air to fuel cells. The aim is to commercialize hydrogen aircraft in the 2030s.

IHI website:
https://www.ihi.co.jp/en/all_news/2023/technology/1200417_3531.html

Hitachi joint venture with British transport major to procure storage batteries

Hitachi announced on November 17 that it has entered into a partnership agreement with British transport operator First Group for electric vehicle (EV) bus business. In addition to establishing a joint venture to procure storage batteries, the company will provide a system to manage the remaining battery charge of buses.

Both groups will each invest up to £10 million in the new company, Next Gen. The company will procure storage batteries for 1,000 EV buses and lease them to bus companies affiliated with First Group. First Group will introduce 1,000 EV buses by 2026, and add 500 from 2026 onwards. Hitachi will provide a system for managing the charging status of storage batteries for its buses. It can also be used for reuse in stationary storage batteries and recovery of precious metals.

Hitachi website:
https://www.hitachi.com/New/cnews/month/2023/11/231117.pdf

Toyota uses recycled materials at U.S. battery factory

Toyota Motor Corporation announced on November 16 that it will use recycled materials at its automotive battery factory under construction in North Carolina. It will expand the partnership with Redwood Materials, a US battery materials startup, to procure metals used for battery positive and negative electrode materials. As dependence on overseas battery resources becomes an issue, it will establish a system to circulate resources in North America. Toyota plans to start operating the battery factory currently under construction in 2025. The company's annual production capacity is expected to reach more than 30 gigawatt hours by 2030, and it will be installed in electric vehicles (EVs), multi-purpose sports vehicles with three rows of seats. This is equivalent to about 400,000 electric vehicles (EVs) at present.

Redwood was founded in 2017 by then-Tesla executive J.B. Straubel while he was still at the company. The company is engaged in the business of extracting rare metals such as lithium, cobalt, and nickel from used batteries and reusing them as positive and negative electrode materials. In addition to Toyota, the

company also has partnerships with Ford Motor Co., Panasonic Energy, and others. Toyota developed the world's first mass-produced hybrid vehicle (HV), the Prius, and began selling it in the United States in 2000. In the future, as vehicles reach the end of their lifespans, it is expected that a large amount of used vehicle batteries will become available. In June 2022, they announced a partnership with Redwood to build a battery recycling system.

TOYOTA website:
https://pressroom.toyota.com/toyota-and-redwood-materials-agree-to-battery-recycling-materials-procurement/

Tokyo Gas invests € 220 million in European offshore wind fund

Tokyo Gas announced on November 17 that it has participated in an offshore wind fund set up by British new power company Octopus Energy. The company will invest € 220 million. Through this fund, the company invests in companies involved in power generation business and development, primarily in Europe. It gains knowledge of power plant operations and cost management and prepare for large-scale development in Japan. The fund was established in October 2022. Tokyo Gas became the company's first investor, having formed a capital alliance with the company in 2020. Octopus aims to attract more investors and increase the amount under management to €3.5 billion by 2030, and to €20 billion from 2035 onwards.

Octopus has been involved in four offshore wind projects in three countries, including the UK. He also has excellent knowledge of business operations, such as managing power supplies using digital technology. Tokyo Gas will participate in a power generation project being planned at Kashima Port in Ibaraki Prefecture, but it has no experience operating large-scale power plants. The country is proceeding with large-scale bidding for offshore wind power, with the aim of highlighting its track record in Europe when bidding. However, in Europe, the profitability of offshore wind power projects is declining due to soaring costs of equipment and materials. Determining which businesses to invest in requires advanced knowledge.

Tokyo gas website:
https://www.tokyo-gas.co.jp/en/IR/support/pdf/20231117-01e.pdf

AI will support tomato cultivation, Kagome and NEC will launch in Italy next spring

Kagome and NEC will launch a tomato cultivation support service using artificial intelligence (AI) in Italy as early as April 2024. A demonstration experiment recently conducted in the country succeeded in increasing yields by 23% while using 19% less water than usual. As climate change risks increase, the service will be expanded to Italy, one of the world's leading tomato producing regions, following Portugal, where it has already been commercially introduced.

The joint venture between the two companies provides services to tomato farmers. Based on data from satellites and sensors installed in fields, AI determines the optimal amount and timing to apply water and fertilizer. In Portugal, the service was introduced from April 2023 on two large-scale tomato farms totaling 21 hectares, with an average yield of 148 tons per hectare, which is over the past few years as the typical yield in Portugal (per hectare 90-100 tons).

As droughts occur around the world due to climate change, countermeasures against water shortages are an urgent issue for farmers. In 2022, the production of tomatoes for processing declined due to drought in northern Italy, Spain, and other regions. A shift to more sustainable cultivation methods is expected.

Kagome website (in Japanese):
https://www.kagome.co.jp/company/news/2023/2023110801.html

Tokyo Gas to manufacture and export e-methane in Australia

Tokyo Gas announced on November 21 that it will begin discussions with Santos Ltd, a major Australian energy company, to commercialize the production and export of e-methane in Australia. The company aims to import gas equivalent to 1% of its annual sales volume in 2030. The project involves producing e-methane in Cooper Basin, located in central eastern Australia, and exporting it to Japan. Tokyo Gas has recently signed a memorandum of understanding with Santos Ventures Pty Ltd, a subsidiary of Santos, for commercialization. The company aims to initially procure approximately 60,000 tons per year in 2030, and plans to further expand exports in the future.

In addition, the two companies will move forward with the commercialization of manufacturing and export of e-methane, work with related parties to design a system for counting CO2 emissions of e-methane, and work toward building an international supply chain for this fuel. The two companies have previously built a long-term cooperative relationship, including in the procurement of LNG from the Darwin LNG Terminal in Australia.

Tokyo Gas website (in Japanese):
https://www.tokyo-gas.co.jp/news/press/20231121-01.html

French human resources giant ALTEN acquires East Japan Institute of Technology

ALTEN Group, a major French human resources services company announced on November 27 that it has acquired East Japan Technical Research Institute (Hitachi City), which dispatches engineers. The acquisition amount is estimated to be approximately JP¥ 10 billion. In Japan, ALTEN has focused on semiconductor and automobile manufacturers, but the acquisition of the company, which has major electronics manufacturers as customers, will strengthen its business base. East Japan Institute of Technology was founded in 1985 and the company dispatches engineers to major electronics manufacturers and other companies to design IT systems and develop software, mainly in Ibaraki Prefecture.

ALTEN Group is headquartered in Paris and provides human resources services such as engineer dispatch in 30 countries around the world. The company has approximately 53,000 employees, including temporary engineers. Sales for the fiscal year ending December 2022 will be JP¥ 534.1 billion. In 2019, it acquired a domestic engineer dispatch company and expanded into Japan. Human resources service companies that dispatch engineers are rushing to expand their business base through M&A and train engineers.

ALTEN Japan website:
https://www.alten.com/alten-acquires-east-japan-institute-of-technology-co-ltd/

Hitachi Energy develops demonstration hydrogen generator with Swedish fuel cell manufacturer

Hitachi Energy announced on November 22 that it has developed a demonstration model of the HyFlex hydrogen generator, which uses fuel cell technology and produces zero CO2 emissions, in collaboration with Power Cell Group, a Swedish fuel cell manufacturer. This hydrogen generator is a facility that integrates a fuel cell, power substation, and ancillary equipment, and is scalable and can supply electricity even in environments where it is difficult to connect to the power grid. It can be used as a replacement for diesel generators, and is expected to be used at construction and mining sites, as well as data centers, hospitals, and docked ships that require emergency backup.

Generally, when operating a diesel generator (1MVA) at rated output for 1 hour, 225kg of diesel fuel is required and 720kg of CO2 is emitted, but the electricity produced by "HyFlex" is CO2-free (according to Hitachi Energy). They plan to utilize the knowledge gained through the development of this demonstration machine to release a medium output type of 400-600kVA in the latter half of 2024, and a high output type of 1MVA or more in 2025. Hitachi Energy has previously provided “Grid-to-Stacks" solutions for 20MW hydrogen production facilities in Sweden and Finland that optimize the power supply from the high-voltage power grid to the electrolyzes.

Hitachi Group Website:
https://www.hitachienergy.com/uk-ie/en/news/press-releases/2023/11/hitachi-energy-unveils-new-emission-free-alternative-to-diesel-powered-generators

Mitsubishi Heavy Industries and Australia's Orica sign memorandum of understanding (MOU) on business development related to hydrogen and ammonia

Mitsubishi Heavy Industries (MHI) and Orica signed an MOU on November 27, agreeing to work together on decarbonization and business development related to hydrogen and ammonia. As a technology provider, MHI is developing businesses aimed at decarbonizing Orica's manufacturing bases in Newcastle and Gladstone, Australia, and producing hydrogen and ammonia in surrounding areas, as well as the creation of demand for hydrogen and ammonia in the field of power generation, shipping, industry, and agriculture.
Orica is a major chemical company that primarily produces ammonium nitrate for mining, and is leading the way in achieving net zero. With locations in

promising hydrogen hub areas such as New South Wales and Queensland, it is working on initiatives that will become the starting point for creating a clean fuel supply chain.

MHI website:
https://www.mhi.com/news/231127.html

Kyushu University invests in technology for direct capture CO2 from the atmosphere

Kyushu University announced on November 24 that it will invest in Carbon Xtract, a new company established mainly by Sojitz, and participate in its business. The university aims to quickly commercialize Direct Air Capture (DAC), a technology currently being developed by the university that uses separation membranes to capture CO2 directly from the atmosphere. The DAC developed by the university is a technology that uses nano-separation membranes, and is commonly known as m-DAC(R). This is the world's first technology to capture and concentrate CO2 simply by filtering air through a membrane, and if it can be developed into a device, it will be possible to capture CO2 in a variety of locations.

Until now, Kyushu University has carried out research and development with the support of the government's R&D system. But in the future, it will go beyond traditional joint research, and will also provide related equipment and facilities, and provide intellectual property rights. This is the first time the university has invested in and participated in a private company. The prototype of the CO2 recovery device is scheduled to be completed by the end of 2023, and after completion, it will continue to conduct demonstrations with multiple collaborating companies in order to commercialize m-DAC in the latter half of the 2020s.

Sojitz website:
https://www.sojitz.com/en/news/2023/11/20231124.php